

# Civil Liability and Financial Security for Offshore Oil and Gas Activities

## Final Report

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Post Macondo incidents (low frequency/high consequence)



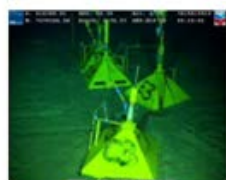
**Nigeria, 2012**



**Mexico, 2011**



**USA, 2010**



**Brasil, 2012**



**UK Elgin, 2012**

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## List of Abbreviations

ACV	Actual Cash Value
AEC	Atomic Energy Commission
AIPN	Association of International Petroleum Negotiators
AMSA	Australian Maritime Safety Authority
ANI	American Nuclear Insurers
ANP	National Petroleum Agency (Brazil)
AtG	Atomgesetz
AUD	Australian dollar
Barcelona Convention	Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean
bio.	billion
BOE	Barrels of Oil Equivalent
BOEM	Bureau of Ocean Energy Management
BOP	Blowout Preventer
BP	British Petroleum
BSEE	Bureau of Safety and Environmental Enforcement (US)
Bucharest Convention	Convention for the Cooperation in the Protection of the Black Sea against Pollution 1992
CBT	Contingent Business Interruption
CCC	Care, Custody or Control
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (US)
CESE	Conseil Économique, Social et Environnemental
CGAA	Coast Guard Authorization Act (US)
CGMTA	Coast Guard and Maritime Transportation Act (US)
CLC	International Convention on Civil Liability for Oil Pollution Damage
CLEE	The Convention of Civil Liability for Oil Pollution Damage resulting from Exploration for and the Exploitation of Seabed Mineral Resources
COFR	Certificate of financial responsibility
COPE	Compensation for Oil Pollution in European Waters
CRISTAL	Contract Regarding an Interim Supplement to Tanker Liability for Oil Pollution
CSC	Convention on Supplementary Compensation for Nuclear Damage
CWA	Clean Water Act (US)
DEA	Danish Energy Agency
DECC	Department of Energy and Climate Change (UK)
DEFRA	Department for Environment, Food and Rural Affairs (UK)
DEPA	Danish Environmental Protection Agency
DMITRE	Department of Manufacturing, Innovation, Trade, Resources and Energy
DNV	Det Norske Veritas
DOE	Department of Energy (US)
DOJ	Department of Justice (US)
DUC	Dansk Undergrunds Consortium
EED	Energy Exploration and Development (Insurance)
EEZ	Exclusive Economic Zone
EIA	Energy Information Administration (US)
ELD	Environmental Liability Directive

ELINI	European Liability Insurance for the Nuclear Industry
EMANI	European Mutual Association for Nuclear Insurance
EMSA	European Maritime Safety Agency
ENI	Italian Hydrocarbons Agency
ENO	Extraordinary Nuclear Occurrence
EPA	Environmental Protection Agency (US)
EU	European Union
Fund Convention	International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage
GCCF	Gulf Coast Claims Facility (US)
HCR	Hydro Carbon Releases
Helsinki Convention	Convention for the Protection of the Marine Environment of the Baltic Sea Area 1992
HSE	Health and Safety Executive (UK)
IADC	International Association of Drilling Contractors
IAEA	International Atomic Energy Agency
IAT	Incident Analysis Team
IEA	International Energy Agency
IMO	International Maritime Organization
IMR	Institute of Maritime Research
INPO	Institute of Nuclear Power Operations
INTERTANKO	International Association of Independent Tanker Owners
IOPC Fund	International Oil Pollution Compensation Fund
IRF	International Regulators' Forum
IRMI	International Risk Management Institute
ITRE	European Parliament's Committee on Energy
IUMI	International Union of Marine Insurance
J&S	Joint and Several Liability
JNCC	Joint Nature Conservation Committee
JOA	Joint Operating Agreement
JRC	Joint Research Centre
Klif	Climate and Pollution Agency (Norway)
LOGIC	Leading Oil Government's Oil and Gas Industry Task Force
MAERP	Mutual Atomic Energy Reinsurance Pool
MARPOL 73/78	1973 International Convention for the Prevention of Pollution from Ships as amended by the Protocol 1978
MCA	Maritime and Coastguard Agency (UK)
MEP	Member of the European Parliament
MIA	Mutual Indemnity Agreement
mio.	million
MMS	Minerals Management Service (US)
MODU	Mobile Offshore Drilling Unit
MOEX	Mitsui Oil Exploration Company
MOPU	Mobil Offshore Production Units
MOU	Memorandum of Understanding
MPE	Ministry of Petroleum and Energy (Norway)
MRF	Mutual Response Fund
NCA	Norwegian Coastal Administration
NEA	Nuclear Energy Agency
NEB	National Energy Board (Canada)
NEIR	Nuclear Electric Insurance Limited
NELIA	Nuclear Energy Liability Insurance Association
NGO	Non-Governmental Organisation
NINA	Norwegian Institute for Nature Research

NOAA	National Oceanic and Atmospheric Administration (US)
NOGEPa	Netherlands Oil and Gas Exploration and Production Association
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority (Australia)
Nordic Convention	Nordic Environmental Protection Convention
NPCA	Norwegian Pollution Control Authority
NPD	Norwegian Petroleum Directorate
NRC	Nuclear Regulatory Commission
NSOAF	North Sea Offshore Authorities Forum
OCES	Operators Co-operative Emergency Surfaces
OCIL	Oil Casualty Insurance Limited
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act
OECD	Organisation for Economic Cooperation and Development
OEE	Operators Extra Expense (insurance policy)
Offshore Protocol	Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and Its Subsoil, 1994
OGP	International Association of Oil and Gas Producers
OIL	Oil Insurance Limited
OOG	Overlegorgaan Olie en Gas (the Netherlands)
OPGGSA	Offshore Petroleum and Greenhouse Gas Storage Act (Australia)
OSLTF	Oil Spill Liability Trust Fund (US)
OPA	Oil Pollution Act 1990 (US)
OPEP	Oil Pollution Emergency Plan (UK)
OPOL	Offshore Pollution Liability Agreement
OPRC Convention	International Convention on Oil Pollution Preparedness, Response and Co-operation 1990
OSCAR	Oil Spill Contingency and Response
OSIS	Oil Spill Information System
OSPAR Convention	Convention for the Protection of the Marine Environment of the North-East Atlantic of 1992
OSPRAG	Oil Spill Prevention and Response Advisory Group
PAA	Price Anderson Act (US)
P&I Clubs	Protection and Indemnity Clubs
PLA	Public Liability Action
PSA	Petroleum Safety Authority (Norway)
RCV	Replacement Cost Value
RWS NZ	Rijkswaterstaat Noordzee (the Netherlands)
SDFI	State's Direct Financial Interest
SDR	Special Drawing Rights
SEC	Securities and Exchange Commission
SEMS	Safety and Environmental Management System
SIR	Self-Insurance Retention
SL	Strict Liability
SOS	Sudden Oil Spill
SPV	Special Purpose Vehicle
SSM	State Supervision of Mines (the Netherlands)
STOPIA	Small Tanker Oil Pollution Indemnification Agreement
TOPIA	Tanker Oil Pollution Indemnification Agreement
TOVALOP	Tanker Owners Voluntary Agreement concerning Liability for Oil Pollution
UN	United Nations

UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
UK	United Kingdom
US	United States
VoO	Vessels of Opportunity
WANO	World Association of Nuclear Operators
WELD	Willis Energy Loss Database
WOAD	Worldwide Offshore Accident Databank



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# 1. Introduction

## 1.1. Background for the research

The background for this research on civil liability and financial security for offshore oil and gas activities constitutes no doubt the explosion of the mobile deepwater offshore rig Deepwater Horizon on 20 April 2010 in the Gulf of Mexico with an estimated 4.9 million barrels of oil that were spilled in the sea as a result. Estimated damages first ranged between 1 billion and 3.5 billion dollar.<sup>1</sup>

Luckily, at the place where the Deepwater Horizon incident occurred, US law applied, in this particular case the US Oil Pollution Act 1990 (OPA 90). OPA 90 does have a liability regime for offshore facilities. However, at the same moment, the international community also realized that the international regime for oil spills had in fact largely focused on vessel source pollution. Famous incidents with e.g. the Torrey Canyon (1976), Amoco Cadiz (1978), Exxon Valdez (1989) and Erika (1999) led to the development of an impressive international liability regime.<sup>2</sup> Indeed, at international level a compensation regime for vessel-source oil pollution was already established in 1969-1971 through the adoption of two international conventions, the International Convention on Civil Liability for Oil Pollution Damage, 1969 (also referred to as the CLC 1969), and the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971 (the Fund Convention 1971).<sup>3</sup> These conventions went through many evolutions as a result of which, most importantly, the amounts were increased after every incident that had again challenged the financial limits on the liability of the tanker owner. Interestingly, the European Commission was dissatisfied with the measures taken at the international level by the International Maritime Organisation (IMO) and therefore strived for a better protection of the European waters from the risks of oil pollution. In principle, the EU relied on the Member States to ratify various international maritime conventions, but, being dissatisfied with the IMO, the European Commission also started to take its own initiatives for legislation at the European level.<sup>4</sup> The European Commission subsequently adopted the so-called Erika I and Erika II packages in which it *inter alia* proposed to set up a European fund (referred to as the Cope fund) with an updated ceiling of €1 billion (instead of the €200 million that was then applicable under the international conventions).<sup>5</sup> Interestingly, this European activism led the IMO to increase the limits of the 1992 CLC and the Fund Convention by 50%, with effect from November 2003. This led to the adoption of a supplementary fund for oil pollution damage, leading to a total amount of compensation (again, only in case of vessel source pollution) of 750 million Special Drawing Rights (SDR), which at the time of adoption corresponded to approximately US \$ 1 billion. Hence, one could notice that the European activism led to actions at the international level where the IMO basically took over the initiative proposed by the European Commission which obviously made European initiative in that domain no longer necessary.<sup>6</sup> Whereas EU activism hence led to a widely satisfying liability and compensation regime in case of vessel source pollution, the incident with the

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<sup>1</sup> Hearing House of Representatives of the US, Committee on transportation and infrastructure, 8 June 2010, p. 15-16. Later cost estimates were increased and were nearer to \$ 30 billion. It was considered the largest marine oil spill in American history.

<sup>2</sup> For a discussion of this international liability regime see *inter alia* Verheij (2007).

<sup>3</sup> The civil liability and fund conventions will be discussed in further detail below in Chapter 4.

<sup>4</sup> See in this respect more particularly the publication on 24 February 1993 of the long-awaited communication on safe seas, COM(93) 66 final.

<sup>5</sup> See the amended proposal for a regulation of the European Parliament and of the council on the establishment of a fund for the compensation of oil pollution damage in European waters and related measures, *Official Journal* C227 E/487 of 24 September 2002.

<sup>6</sup> For a sketch of these developments, see Wang (2007).

Deepwater Horizon<sup>7</sup> again led to a shock, realizing that huge damage can also be caused by offshore facilities of which the liability and financial security is largely left to Member State law. More particularly, given the often transboundary character of spills and accidents taking place from an offshore facility, there is a strong argument for a transnational regulation of civil liability and financial security, hence at least for EU action and (perhaps following the example of vessel source pollution) eventually for IMO action as well.

There are, also as far as Europe is concerned, quite a few reasons for concerns with respect to damage which may be caused by offshore incidents. As we will show below, there is in fact, internationally, quite an impressive record of offshore incidents, but also the North Sea has experienced many offshore accidents. Just to name a few: Alexander Kielland (1980), Piper Alpha (1988), Forties Alpha (2003), Gullfaks C (2010) and most recently Gannet Alpha (2011) are incidents that occurred in the North Sea and have increased concerns on consequences of those incidents in Europe. Although, as we already mentioned, there is until now no formal European regime dealing particularly with offshore pollution issues, there is surely relevant legislation that comes to mind. Undoubtedly, the Marine Strategic Framework Directive plays an important role.<sup>8</sup> This Directive “requires addressing the cumulative impacts from all activities on the marine environment” and “is relevant to offshore oil and gas operations as it requires linking the particular concerns from each economic sector with the general aim of a comprehensive understanding of the oceans, seas and coastal areas, with the objective to develop a coherent approach to the seas taking into account all economic, environmental and social aspects through the use of Maritime spatial planning and Marine knowledge.”<sup>9</sup>

When the Deepwater Horizon accident occurred on 20 April 2010 in the Gulf of Mexico, the Commission immediately launched a Communication to assess the risks in the offshore oil and gas industry in European waters.<sup>10</sup> The Commission has explored a wide range of problems including the licensing, controls by public authorities and spill response. In particular, when it addressed the liability issue, the Commission considered the possibility of extending the Environmental Liability Directive(ELD)<sup>11</sup> to cover environmental damage to all marine waters as defined in the Marine Strategy Framework Directive,<sup>12</sup> and the applicability of the Waste Framework Directive.<sup>13</sup> The Commission also realized that the possibilities of a financial cap on the liability and mandatory financial security are worth further analysis.<sup>14</sup> The Commission was not only concerned with offshore activities in EU waters, but also showed concerns to the EU based offshore industry operating in other parts of the world, and it called on the industry’s international obligation as responsible operators.<sup>15</sup>

On 27 October 2011, the Commission initiated two proposals, one for a Regulation on safety of offshore activities,<sup>16</sup> and the other for the accession of the EU to the Offshore Protocol of the Barcelona Convention.<sup>17</sup> The proposed Regulation (COM (2011) 688 final) follows on the

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<sup>7</sup> For a detailed analysis of the Deepwater Horizon case, see also Perry (2011).

<sup>8</sup> Directive 2008/56/EC.

<sup>9</sup> COM(2011) 688 final, p. 14.

<sup>10</sup> COM(2010) 560 final, Communication from the commission to the European Parliament and the Council Facing the Challenge of the Safety of Offshore Oil and Gas Activities, 12 October 2010.

<sup>11</sup> Directive 2004/35/EC.

<sup>12</sup> Directive 2008/56/EC.

<sup>13</sup> COM(2010) 560 final, p. 8.

<sup>14</sup> COM(2010) 560 final, p. 8.

<sup>15</sup> COM(2010) 560 final, p. 13.

<sup>16</sup> COM(2011) 688 final, Proposal for a Regulation of the European Parliament and of the Council on Safety of Offshore oil and Gas Prospection, Exploration and Production Activities, 27 October 2011.

<sup>17</sup> COM(2011) 690 final, Proposal for a Council Decision on the Accession of the European Union to the Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and Its Subsoil, 27 October 2011.

principal issues raised in the Communication in 2010, and will impose stricter safety standards for offshore activities in Europe and will give national regulators more power to inspect their operations. It also extends 16-fold the zone in which companies will be held liable for environmental damage. It specifies that the licensee shall be held “liable for the prevention and remediation of environmental damage” pursuant to the Environmental Liability Directive.<sup>18</sup> Meanwhile on 21 February 2013 MEPs and Member States reached a provisional agreement on (what has now become) a Directive to improve the safety of offshore oil and gas activities in the EU. The Directive was signed by the Council on 12 June 2013 and just published in the Official Journal on 28 June 2013.<sup>19</sup>

This evolution shows that various proposals now lay on the table, but questions arise as to which direction the civil liability and financial security for offshore oil and gas activities should take. An impressive impact assessment which accompanied the Proposal for a Regulation of the European Parliament and of the Council on Safety of Offshore Oil and Gas Exploration and Production Activities (as EC (2011) 1293 final) also sketched not only the justification for EU action, but also the various policy options, more particularly with respect to clarifying the scope of liability.

The sketch of the factual and legal evolutions so far clearly justifies a thorough study of civil liability and financial security for offshore oil and gas activities, more particularly in European waters. Summarizing:

- Many incidents with offshore facilities have taken place in European waters;
- The Deepwater Horizon incident of April 2010 showed the potentially enormous amount of damage which could result from such an incident;
- Many offshore incidents can have a transboundary character, thus justifying the need for European action;
- Whereas an elaborate international (IMO founded) regime exists for vessel source marine pollution, such a regime is absent for damage resulting from offshore facilities;
- This justifies the need to examine how a potential European liability and financial security regime for damage caused by offshore activities could be shaped.

Examining how a potential European liability and financial security regime for damage caused by offshore installations could be shaped is precisely the goal of the current study.

## **1.2. Objective of the study**

At the policy level, the desire was formulated to develop a regime which would guarantee compensation to victims in case of an incident with an offshore facility. In addition to the goal of victim compensation, the need to provide financial security (both to operators as well as to victims) was stressed as well. Hence, the questions central to this study can be formulated as follows:

- To what extent can liability play a role in both aiming at prevention of accidents and at compensating victims of offshore oil and gas activities, focusing both on environmental damage as well as on traditional damage?
- How should such a civil liability regime be shaped to make civil liability efficient, effective and insurable?

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<sup>18</sup> COM(2011) 688 final, Article 7.

<sup>19</sup> Directive 2013/30/EU of the European Parliament and of the Council of 12 June 2013 on Safety of Offshore Oil and Gas Operations and Amending Directive 2004/35/EC, Official Journal L 178/66-101, 28 June 2013. This Directive will be discussed in further detail below in 3.4.2.6.

- What options do currently exist for liable operators to cover the costs resulting from such liabilities and which mechanisms (such as compensation funds, solvency guarantees, insurance or risk sharing agreements) either exist or can be developed to reach that goal?
- How can mechanisms be developed to make an early compensation of victims after the accident possible?

### **1.3. Methodology**

In this study three different empirical approaches will be used, being a traditional legal analysis (1.3.1), the economic analysis of law (1.3.2) and an empirical approach (1.3.3).

#### **1.3.1. Legal analysis**

The legal analysis will in turn consist of two approaches. The first and obvious one is legal desk-research. The research requires a detailed analysis of primary legal sources providing information on the goals and working of the legal regimes that will be addressed in further detail in the various work packages. For every liability issue to be addressed in the work packages, a detailed literature study will take place. Many of the legal rules to be analyzed, e.g. as far as environmental or nuclear liability is concerned, originate either from European rules (such as the Environmental Liability Directive) or from international conventions (such as the oil pollution conventions concluded within the framework of the IMO). In that respect, a vertical comparative legal approach is necessary to address how some of the conventions are implemented in national law of some of the Member States that will particularly be analyzed.<sup>20</sup>

Within the legal analysis detailed attention will be paid to the developments at European level that were already briefly touched upon above (see 1.1.). In this respect, we of course refer to the Commission Communication on the risks in the offshore oil and gas industry in European waters, but also the Directive on Safety of Offshore Oil and Gas Operations and more particularly the impact assessment that took place in that respect. These European policy developments will be taken into account as a background for the study.

When various (national and regional) liability regimes will be analyzed this comparative analysis will take place on the basis of a particular framework. A tentative checklist will be developed in order to have a harmonized framework that can be used to analyze the liability and financial security mechanisms in the studied system. Questions that will be addressed include:

- What is the basis of liability? Is it a negligence or strict liability rule and is the operator also liable for force majeure or are excuses allowed?
- How is the relationship with regulation regulated? Will compliance with regulation (safety standards) excuse the operator from liability?
- Are specific rules in place regulating causation and causal uncertainty?
- How is liability attributed when multiple parties have contributed to the risk? Is a joint and several liability rule in place or is the liability rather channelled to one particular operator?
- What types of damages can be compensated? Is compensation also awarded for pure economic loss, for ecological damage and for non-pecuniary losses? Is there a particular financial cap on liability or is liability unlimited?

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<sup>20</sup> These legal regimes will be presented in Chapter 3 below.

- Is the liability of the operator (compulsory) insured or are other duties in place to seek financial coverage for liability?
- Are particular claims management mechanisms in place e.g. forcing the operator or the insurer to make an early offer to the victim or advance payments?

These and other questions will be worked out within a checklist that will be used as a common framework for the comparative analysis in order to guarantee the comparability of the results.

A major offshore incident can obviously give rise to a variety of different types of losses. To some extent this will depend, as will be explained below, on the nature of the product used (oil or gas) but obviously also on the location (deep water or shallow water; close to the coast or not). Attention in the literature and at the policy level has often mostly been paid to pollution damage. However, in addition to pollution (usually resulting from an incident with oil) there can equally be economic losses which can be caused to fishing and tourism. Given the primary attention that has often been paid to pollution damage it is also important to focus on losses to business as a result of an offshore incident. From a legal perspective it is often hard to separate those. Liability will de facto on most legal systems arise not only for pollution damage, but also for example for personal injury, property damage and (to the extent that the legal system awards that) economic loss. Hence in the legal description (mostly in Chapter 3) the focus will be on the compensation of damage generally without distinguishing between pollution damage and this more traditional damage. However, from the perspective of businesses that are affected by an offshore pollution incident (such as the fishing and tourism industry) it may be important to have mechanisms of rapid compensation available in order to prevent a failure of local businesses that are affected by the pollution while waiting for civil litigation. Hence especially for this traditional damage the question will be asked separately whether mechanisms of rapid claims management could be installed in order to guarantee advance payments to victims.<sup>21</sup>

As we will discuss below there is now at EU level a Directive on Safety of Offshore Oil and Gas Operations of June 2013. For the purpose of this study it is important that as a result of this Directive operators must show sufficient financial guarantees and that offshore installations will be brought under the scope of application of the ELD. These are, however, only first steps as a result of which many issues still need to be further addressed. For example the compulsory guarantees to be provided by operators have been stipulated as a principle. However, how a mechanism that can better guarantee that operators can cover any liabilities arising from a major accident in the offshore oil and gas industry still has to be addressed.<sup>22</sup> Moreover, also the fact that offshore installations have been brought under the ELD may perhaps more be a starting point than the final stage. First, the ELD only applies to a particular type of (pollution) damage which hence leaves the question unresolved how more traditional damage such as losses to the fishing and tourism industry can be compensated and more particularly how a mechanism of rapid claims management could be installed in order to prevent failure of local businesses affected by the pollution while waiting for civil litigation to be concluded.<sup>23</sup> Second, from a political/policy perspective the decision to bring offshore installations under the ELD may be understandable. However, from an academic/research perspective serious questions could be asked as to whether that is the optimal solution. It could indeed lead to a separate treatment of pollution damage on the one hand (which would be – at least partially – covered under the ELD) and remaining losses. The question could be asked whether such a division in treatment is desirable.<sup>24</sup>

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<sup>21</sup> This will be addressed in section 4.9. below.

<sup>22</sup> This will therefore be addressed especially in Chapter 6.

<sup>23</sup> This will be addressed in section 4.9. below.

<sup>24</sup> It is an aspect that will be discussed in Chapter 7 below.

### 1.3.2. Law and economics

The second approach to be followed, in addition to the more traditional legal (comparative) approach, is a law and economics methodology. The law and economics methodology (also referred to as economic analysis of law) allows insights on the working of liability rules and the effects of particular elements of liability rules on the stakeholders involved and more particularly the operators exposed to liability. Hence, law and economics is extremely useful to address the core issue of this study, being how an effective and efficient liability regime for operators in the offshore industry can be designed.

An important part of law and economics, especially the economic analysis of accident law,<sup>25</sup> also addresses the scope of liability in the light of the insurability of a liability regime. Precisely because the insurability of liability may be crucial for operators active in the offshore industry this insurability aspect will be taken into account when addressing the scope of liability.

Law and economics furthermore has the advantage of not only pointing at the potential dangers created by particular activities, but also at their benefits, the so-called positive externalities for society. These may play an important role in case of the offshore industry. The positive externalities created by the safety industry may be a reason to limit liability, which is a crucial aspect of this study.<sup>26</sup>

The law and economics methodology has the major benefit that it pays attention to goals of liability and also addresses potentially perverse effects of liability. Law and economics has also addressed the effects of liability rules on stakeholders, more particularly economic effects on industrial operators and is hence well able to indicate to what extent a limitation of the scope of liability may be warranted. In addition law and economics analysis has indicated to what extent a liability regime can be shaped in such a way that liability can be kept to an insurable level. Hence, the economic analysis of law is not only useful to present best practices, but also to critically evaluate the potentially wide range of policy options that the European Commission could take with respect to the liability of the offshore industry.

### 1.3.3. Empirics

Many of the tasks and work packages to be executed within this project not only require theoretical but also empirical research. For example, an analysis of the extent of the problem (chapter 2) and an analysis of existing risk pooling mechanisms (chapter 4) clearly require an empirical study. The same is true for the scenario analysis of the financial security mechanisms (chapter 7).

Hence, to the extent that the work package requires this, also an empirical approach will be followed. Usually this will consist of semi-structured interviews. These will be prepared on the basis of a questionnaire, after which interviews will be held with selected stakeholders, who are experts in the particular domains. An overview of interviews with those stakeholders is provided in Annex I to this report.

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<sup>25</sup> As developed *inter alia* by Shavell (1987).

<sup>26</sup> See Gilead (1997).



### 1.3.4. Integration

There is a clear relationship between the three methodological approaches that are proposed. Together, these approaches guarantee in an integrated manner that the goal of formulating policy recommendations concerning a liability and financial security regime for the offshore industry can be reached. The comparative legal approach allows a careful analysis of existing liability regimes both in Member States but also in other offshore states and in other high risk sectors. The law and economics approach can analyze the efficiency and effectiveness of various liability regimes. Hence, the economic analysis of law provides a benchmark to test whether particular features of the studied liability regimes would be useful to be incorporated in a possible future EU liability regime for the offshore industry. The empirical approach is crucial for various reasons. First, it will allow to obtain a good insight in the scope of the problem posed by offshore oil and gas activities; second, empirics will allow us an insight in existing compensation mechanisms and financial market instruments and third, the empirics will also allow an insight into the feasibility of various potential compensation mechanisms that could be developed in the future.

### 1.4. Structure

The remainder of this report will be structured as follows. First, an assessment of the extent of the problem will be presented in Chapter 2;<sup>27</sup> next, Chapter 3 will analyze the existing legal regimes for traditional damage arising from major offshore and oil and gas accidents.<sup>28</sup> Then Chapter 4 will present the existing risk pooling mechanisms for damage compensation following an offshore accident, in place within the EU and elsewhere and will analyze those.<sup>29</sup> Chapter 5 will analyze the potential of financial market instruments to cover liabilities following a major offshore accident, by looking at the status quo as far as liability cover is available.<sup>30</sup> Following this, Chapter 6 will take a *forward-looking* approach to the potential of financial and insurance instruments to cover liability.<sup>31</sup> Chapter 7 will execute an analysis of potential civil liability regimes and financial security mechanisms.<sup>32</sup> This Chapter will hence provide a critical overview of the various scenarios and options for EU action and will weigh the advantages and disadvantages of different options. On the basis of that critical analysis, finally, Chapter 8 will present recommendations for further action by the EU Commission.<sup>33</sup>

To some extent it may be unavoidable that different topics are discussed at various places. This is undoubtedly the case for the important question whether a Deepwater Horizon-type incident could occur in Europe as well and what the potential amount of the damage in that case could be, but also for the functioning of OPOL. OPOL plays an important role in the UK legal regime (and will hence be discussed there) but will obviously also be discussed when pooling mechanisms are discussed. To some extent some overlap is hence unavoidable. However, cross references will indicate the reader where issues have already been discussed in order to improve the readability of the report.

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<sup>27</sup> This corresponds to Task 1 of Work Package 1 of the Invitation to Tender.

<sup>28</sup> This corresponds largely with Task 2 of Work Package 1 of the Invitation to Tender.

<sup>29</sup> This to a large extent follows Task 3 of Work Package 1 of the Invitation to Tender.

<sup>30</sup> This chapter corresponds to the first part of Task 4 which still belongs to Work Package 1 of the Invitation to Tender.

<sup>31</sup> This chapter corresponds to the second part of Task 4 which belongs to Work Package 2 of the Invitation to Tender.

<sup>32</sup> This corresponds to Task 5 of Work Package 2 of the Invitation to Tender.

<sup>33</sup> This corresponds to Task 6 of Work Package 3 of the Invitation to Tender.

The evolutions in legislation, policy documents, legal doctrine and case law in this study have, as far as possible, been incorporated until 1 May 2013. Developments after that moment could hence not be taken into account.

## **2. Assessment of the extent of the problem**

Before starting the legal analysis in the remainder of this study this chapter will first provide a broader overview of offshore activities in Europe. This will serve as a general background and is necessary in order to assess to what specific problem the legal regime should react. First a few general issues concerning offshore activities will be discussed, including the stakeholders involved as well as the importance of the offshore industry for Europe (2.1); then the location of installations and facilities in the EU will be sketched (2.2) and an overview of major offshore accidents will be provided (2.3). A case study approach will be used to discuss a few recent offshore accidents in Europe (2.4) and to pay specific attention to the Montara and Deepwater Horizon cases (2.5). Finally the important question will be touched upon how likely a Deepwater Horizon-type incident in Europe can be (2.6) followed by a summary (2.7).

### **2.1. General issues concerning offshore activities**

#### **2.1.1. Terminology in offshore activities**

Offshore oil and/or gas activities refer to the activities that employ the offshore facilities (in contrast with onshore facilities) for the purpose of oil and/or gas exploration, exploitation and production. These offshore exploration activities often take place in the exclusive economic zone and on the continental shelf where exclusive jurisdiction is granted to the coastal state under the United Nations Convention on the Law of the Sea (UNCLOS).<sup>34</sup>

Offshore facilities employed during such activities may include offshore platforms (fixed or floating),<sup>35</sup> offshore storage/loading systems, sub-sea facilities, wells, offshore pipelines, offshore drilling units and other associated offshore equipments, constructions and installations.

Oil exploitation involves the following mining processes:<sup>36</sup>

- Seismic exploration;
- Exploration drilling;
- Field development;
- Construction and installation;
- Oil/gas drilling of production wells;
- Production/maintenance;
- Field abandonment/decommissioning.

These processes often involve different types of expertise. Because of this many players are involved in oil exploitation operations. It is beyond the current scope to list all potentially involved actors, but in order to comprehend the laws and regulations that will be outlined in the coming chapters, it is important to take note of the difference between licensees, operators

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<sup>34</sup> These are embodied in the following articles of the UNCLOS: Article 56 Rights, jurisdiction and duties of the coastal States in the exclusive economic zone; Article 60 Artificial islands, installations and structures in the exclusive economic zone; Article 77 Rights of the coastal State over the continental shelf; and Article 81 Drilling on the continental shelf. The exclusive economic zone stretches from the seaward edge of the state's territorial sea out to 200 nautical miles from its coast. In colloquial usage, the term may include the territorial sea and even the continental shelf beyond the 200-mile limit.

<sup>35</sup> Fixed platforms can only be used in shallow waters where depth is no more than 400 m. Deepwater refers to a depth between 400 meter and 1500/1800 meter, and ultra-deepwater refers to a depth between 1800 to 3000 meters and more.

<sup>36</sup> Janssen (2012), 15.

and contractors. Licensees are actors that hold the rights over a particular geographical area that contains one or more oil fields.<sup>37</sup> Licensees may or may not be operators themselves. Moreover, to spread (financial) risks it is common for licenses to be shared among multiple parties. These will not all participate in oil and gas activities. An operator is a company actually performing oil and gas exploitation operations. Operators may hire contractors to perform activities on their behalf.<sup>38</sup>

### 2.1.2. Industry structure of the offshore activities

In most countries, the offshore oil and gas exploration and exploitation activities are carried out in a similar structure. In general, the resources belong to the state and the government has the exclusive right to grant licences to carry out activities in the offshore area. The licence typically specifies the terms and conditions under which the offshore activities shall be carried out. In some countries, there is even a requirement that the state keeps a certain share in the joint operating agreement with the licensee, e.g. in Norway, Denmark and the Netherlands. The interested party has to pay a royalty to the state in exchange for the licence.

The offshore activities are technical and complicated. Therefore, they are carried out in the form of a joint operation through parties with different expertise. The offshore industry in different jurisdictions also develops standard forms of joint operating agreement (JOA). A JOA usually specifies the share of each party in the joint venture, demarcates the obligations and defines liability of the operators during the joint operation, administers and allocates the work programmes and budgets, manages the relationship with the government, and deals with the requirements in relevant regulations on health and safety and environmental protection.<sup>39</sup> Typically, an individual operator's liability is proportionate to his respective percentage interest in the licensed operations.<sup>40</sup> The standard form of a JOA that is most prevalent in offshore activities is the Association of International Petroleum Negotiators' Model International Operating Agreement (the AIPN Standard JOA).<sup>41</sup> In the UK, it is the Oil and Gas Standard Form Joint Operating Agreement (the UK Standard JOA).<sup>42</sup> Some big oil firms have their own standard or model JOAs.

In addition to the JOAs, there are also standard contracts for drilling services and well services which are also activities. The most prevalent standard forms of contracts are the International Association of Drilling Contractors' (IADC) Standard Form of International Offshore Daywork Drilling Contract and the AIPN International Model Well Services Agreement. In the UK, the generally adopted standard forms of contract are promulgated by LOGIC, the Leading Oil Government's Oil and Gas Industry Task Force.<sup>43</sup>

The standard form of JOA is often used as a starting point for negotiations between parties.<sup>44</sup> However, in some jurisdictions, the change to model JOAs has to be approved by the authorities. It is important to acknowledge the use of standard forms of contracts in the

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<sup>37</sup> However, in case of exploration, the area might not contain any field. Moreover, in different legal regimes, different terms may be used, e.g. in the US, there is the leasee and the permittee; in Australian law, the term title holder is used. This will be further explained and analysed in Chapter 3.

<sup>38</sup> Janssen (2012), 15.

<sup>39</sup> Easo (2010), 19.

<sup>40</sup> Bosma (2012), 102.

<sup>41</sup> The most recent version is published in 2012 by the Association of International Petroleum Negotiators, see <<https://www.aipn.org/mcvisitors.aspx>>, last accessed 17 November 2012.

<sup>42</sup> The most recent version is published in 2008 by the industry organization in the UK, the Oil and Gas UK, <<http://www.oilandgasuk.co.uk/publications/viewpub.cfm?frmPubID=250>>, last accessed 17 December 2012.

<sup>43</sup> For a detailed discussion on these standard contracts, see Bosma (2012), 103-104.

<sup>44</sup> Roberts and Derrick (2011), available at: <<http://www.internationallawoffice.com/newsletters/detail.aspx?-g=c3db9ed1-f9a0-47ed-9916-c1c38536e7f4>>, last accessed 17 December 2012.

offshore activities since they concern not only the allocation of liability among various parties, but also the insurance or financial guarantee to be taken by the related parties. This will be further analyzed in Chapter 4.

Following an incident, various types of damages and losses may occur. These may include personal injury and fatalities, property damage, damage to the marine environment, and losses suffered by the related sectors such as the fishery and the tourism industry. Moreover, liability may also arise as to the violation of licences and related regulations under national laws in respect of health and safety, and environmental protection. In addition, liability may also arise as to the breach of contract between the contracting partners for the (joint) venture of offshore activities, and/or contract with the downstream parties and related businesses, e.g. shipping and transportation, and storage of produced oil. In this report we focus on liability for damage to third parties. Hence, we do not address contractual liability.

### **2.1.3. Stakeholders**

In the whole process of offshore oil and gas exploration activities, many stakeholders may be involved. These include national regulatory authorities, the offshore oil and gas industry, and some other related industry, such as those who provide services to the offshore exploration, or those who provide equipments to facilitate the operation, and the insurance industry. In addition, industry organizations and other international organizations may also play important roles. As stated in our methodology (Section 1.3.3), an empirical approach is used in this study. Hence, interviews have been conducted with selected stakeholders included in Annex 1.

First, state regulatory authorities. In almost every country, there are one or several governmental institutions involved in the offshore activities. The authorities supervising offshore activities in the various jurisdictions are as follows:

- Denmark: Danish Energy Agency (DEA);
- UK: Department of Energy and Climate Change (DECC), Health and Safety Executive (HSE);
- Germany: Landesamt für Bergbau, Energie und Geologie;
- Norway: Petroleum Safety Authority (PSA), Climate and Pollution Agency (Klif);
- Sweden: Svenska Geologiska Undersökning;
- Ireland: Department of Communications, Marine and Natural Resources;
- The Netherlands: State Supervision of Mines;
- Australia: National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA);
- US: Bureau of Safety and Environmental Enforcement (BSEE);
- Brazil: Brazilian National Petroleum Agency (ANP).

Second, industry organizations. The members of these organizations are directly involved in the exploration or exploitation of the offshore activities. Each country or region may have its own industry association. Just to name a few:

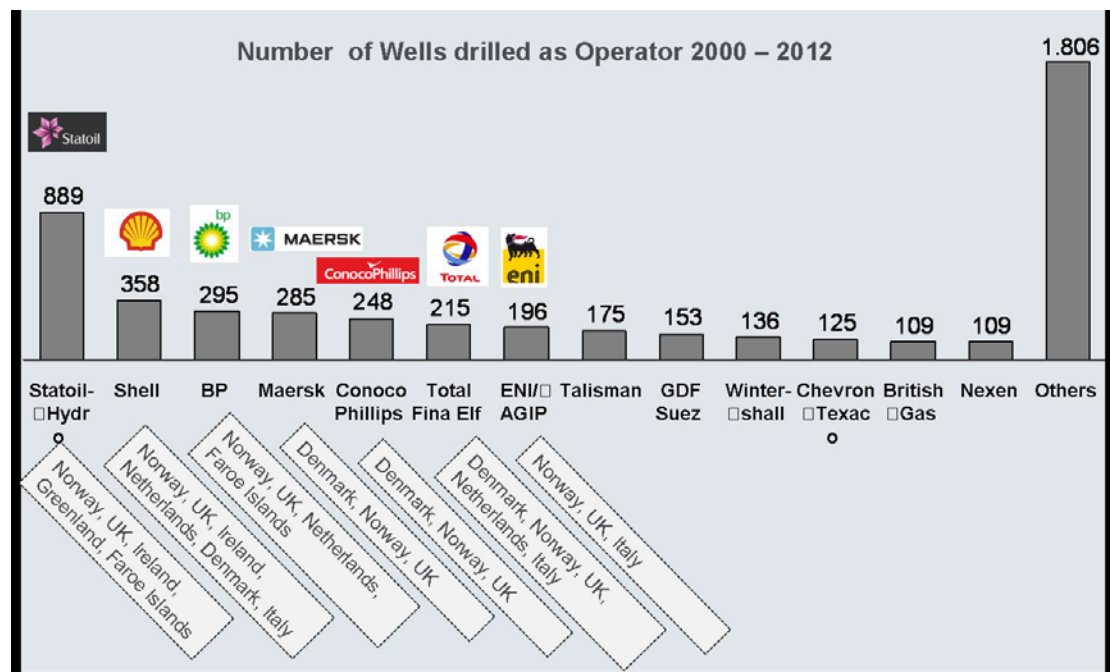
- Oil and Gas UK;
- International Association of Oil and Gas Producers (OGP);
- International Association for Drilling Contractors (IADC);
- International Energy Agency (IEA);
- US Energy Information Administration (EIA);
- Netherlands Oil and Gas Exploration and Production Association (NOGEPa).

Third, related industry organizations. These organizations are not directly involved in the process of exploration, but may relate to the activities in providing their specialized services,

such as OCES, being Operator's Co-operative Emergency Services. OCES is the organisational framework under which oil and gas companies operating in the waters of the North Sea and adjacent waters of the North West European Continental Shelf co-operate and share resources in the event of an emergency situation. OCES is periodically revised and has undergone a detailed scrutiny after the Deepwater Horizon incident in April 2010. The new OCES 2011 declaration supersedes all previous declarations.<sup>45</sup> An overview of companies active in offshore drilling can be found on the internet.<sup>46</sup>

The following overview provides information on the main players and the number of wells that they have drilled as operators in Europe in the years 2000-2012:

Figure 1: Oil companies with exploration/production licences in Europe (operators)<sup>47</sup>



This figure shows that on the one hand a few large companies play a major role in offshore activities, the largest one being Norwegian Statoil. On the other hand, the most interesting number relates probably to the 1,806 number of wells that are operated by other operators. Those are most likely smaller companies that may have less experience and less financial capacity than some of the majors. It is especially those smaller companies that are specially the source of attention of the regulator also in view of their potential insolvency.<sup>48</sup>

Fourth, the insurance industry. Although also the insurance industry is not directly involved, it plays a crucial role for the development of the whole offshore industry. E.g. the European Insurance and Reinsurance Federation, and the International Union of Marine Insurance (IUMI).

<sup>45</sup> <<http://www.oilandgasuk.co.uk/knowledgecentre/operatorscooperativeemergencyservices.cfm>>, last accessed 20 November 2012.

<sup>46</sup> See for example the list of offshore drilling companies with a ranking (<<http://www.ranker.com/list/list-of-offshore-drilling-companies/business-and-company-info>>, last accessed on 26 March 2013. A list of well-drilling service companies can be found on <<http://www.subsea.org/equipment/drilling+and+well+services/listcat.asp?cate=drilling+on>>, last accessed on 26 March 2013.

<sup>47</sup> This figure was kindly provided by Dr. Philipp Wassenberg of Munich Re.

<sup>48</sup> See the discussion in 6.1.5.

#### 2.1.4. Importance of offshore activities

“Offshore exploration for and exploitation of oil and gas reserves will continue to occur while most of the world is dependent on these hydrocarbons as a source of energy and lubrication.”<sup>49</sup>

As the above quote indicates, there is still reliance on oil and gas exploration activities. In the EU there is an increasing reliance on offshore activities in particular; many new installations are being built and old installations are to be abandoned.

Together, the European Union and Norway represent the fourth largest oil and gas producer in the world. The North Sea has significant production capacity and most of the produced oil and gas originates from the North Sea. Moreover, dependence on oil and gas for meeting primary energy demand in the EU is high. The UK continental shelf roughly satisfied two thirds of UK energy demand in 2009 – 94% of oil demand and 68% of gas demand. In Norway the oil and gas industry even generate one fourth of the country’s income in 2010.<sup>50</sup>

## 2.2. Location of installations and facilities in the EU

### 2.2.1. General information

In 2009, oil production in the EU and Norway amounted to 196 million tons, while gas production totaled 269 million tons of oil equivalents. Over 90% of the oil and over 60% of the gas produced comes from offshore operations, mostly in the North West Continental Sea.<sup>51</sup> Europe has a large amount of offshore oil reserves in the North Sea (and hence frequent offshore exploration activities) and an increasing number of prospects in the Mediterranean Sea.<sup>52</sup> Most of the offshore oil and gas activities in Europe are therefore concentrated in the North Sea, with Norway, the UK, the Netherlands and Denmark controlling the majority of the facilities. Offshore oil and gas installations in the Black and Baltic seas still amount to single digits, while there are currently over 100 installations operating in EU waters in the Mediterranean and plans to start new exploration are reported in the Maltese and Cypriot sectors.<sup>53</sup> It should be noted that in the Mediterranean sea, a large amount of offshore activities also take place off the coast of North Africa, particularly off Egypt and Libya.<sup>54</sup> This may have transboundary effect on the European Mediterranean countries, as the spill at the Jiyeh power station in Lebanon (2006) illustrated.

The data from the European Commission report almost 1000 offshore installations operating in the EU waters, 486 are in the UK, 181 in the Netherlands, 61 in Denmark, 2 in Germany, 2 in Ireland, 123 in Italy, 4 in Spain, 2 in Greece, 7 in Romania, 1 in Bulgaria and 3 in

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<sup>49</sup> Speech given by Steven Rares, a judge of the Federal Court of Australia, titled “An International Convention on Off-shore Hydrocarbon Leaks?”, at the International Conference on Liability and Compensation Regime for Transboundary Oil Damage resulting from Offshore Exploration and Exploitation Activities, held in Bali 21 to 23 September 2011.

<sup>50</sup> Janssen (2012), 12. See also Izundu (2010), 49-59.

<sup>51</sup> Public Consultation, Improving Offshore Safety in Europe, 2011, available at <[http://ec.europa.eu/energy/oil/consultations/doc/20110511\\_public\\_consultation\\_offshore\\_safety.pdf](http://ec.europa.eu/energy/oil/consultations/doc/20110511_public_consultation_offshore_safety.pdf)>, last accessed 16 March 2013.

<sup>52</sup> The way in which offshore installations are regulated in some of the member states will be addressed in more detail below.

<sup>53</sup> As a consequence of the Deepwater Horizon incident, Italy issued Law 128 which in effect halted all new Italian offshore developments from August 2010. A cabinet decree to amend Law 128, so that offshore activities can restart, has been agreed upon in spring 2012.

<sup>54</sup> *Inter alia* BP is planning to start drilling operations before the coast of Lybia (interview with representatives from BP on 13 March 2013).

Poland.<sup>55</sup> Yet, other data refer to 400 wells that would be existing in Spain and Italy alone. Drilling operations have recently started in Cyprus. In Malta, offshore licenses have been awarded. Some exploration wells have been drilled, but currently there are no offshore activities in Maltese waters.<sup>56</sup>

New discoveries have led to the building of new installations whereas some old wells are not immediately abandoned but sometimes transferred from bigger companies to smaller ones due to economic considerations. The largest field found in the past five years on the Norwegian part of the North Sea, is the Johan Sverdrup oil field which was discovered in 2010, with further oil of the same field was discovered the next year. Total reserves of the field are estimated at 1.7 to 3.3 billion barrels of gross recoverable oil and Johan Sverdrup is expected to produce 120,000 to 200,000 barrels of oil per day. Production start is planned to happen in 2018. It is one of the largest discoveries made in the Norwegian Continental Shelf.<sup>57</sup> Also in the Black Sea, near Bulgaria and Romania, new discoveries of gas deposits have been announced.<sup>58</sup>

Hence, the large amount of offshore facilities - not only in the North Sea but also in the Black Sea and in the Mediterranean Sea - and the fact that drilling will then take place in densely populated areas as the Mediterranean, are more important for our purpose of study. What is crucial for our study is not the exact number of offshore installations, but rather the potentially significant impact of an accident involving one of Europe's offshore installations, especially when it is located close to densely populated areas. It could cause not only material losses, but also damage to the environment, the economy, the onshore local communities and the lives and health of the offshore workers might be endangered.<sup>59</sup>

Indeed, due to the increasing number of offshore facilities, also near densely populated areas, a major accident at one of Europe's offshore installations could cause significant material losses, significant damage to the environment, the economy, the onshore local communities and the lives and health of the offshore workers might be endangered.<sup>60</sup>

### **2.2.2. Offshore interests in the North Sea**

The North Sea is semi-enclosed by countries including Norway, Sweden, Denmark, Germany, the Netherlands, Belgium, France and the UK. It opens up largely to the Atlantic Ocean on the North, the English Channel in the South, and connects to the Baltic Sea in the East. It is a relatively shallow sea and it has an average depth of about 90 meters, although at some places, e.g. off the Norwegian coast, reaching depths of around 700 meters.<sup>61</sup>

Among the countries from the North Sea region, both the UK and Norway are important oil and gas producers. According to the data from the Energy Information Administration,

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<sup>55</sup> Commission proposes new rules on the safety of offshore oil and gas activities, MEMO/11/740, Brussels, 27 October 2011.

<sup>56</sup> *Ibidem*.

<sup>57</sup> <<http://www.offshore-technology.com/projects/johan-sverdrup-field-north-sea>>, last accessed 12 November 2012.

<sup>58</sup> <<http://www.roconsulboston.com/Pages/InfoPages/Government/ExxonOMVGas.html>>, last accessed 2 July 2013.

<sup>59</sup> European Commission, Proposal for a Regulation of the European Parliament and of the Council on safety of offshore oil and gas prospection, exploration and production activities, COM (2011) 68 final, 2011/0309 (COD), Brussels, 27.10.2011, Explanatory Memorandum, p. 2.

<sup>60</sup> European Commission, Proposal for a Regulation of the European Parliament and of the Council on safety of offshore oil and gas prospection, exploration and production activities, COM (2011) 68 final, 2011/0309 (COD), Brussels, 27.10.2011, Explanatory Memorandum, p. 2.

<sup>61</sup> Janssen (2012), 11. See also Ducrotoy and Elliot (2008), 8-21.



Norway is the world's 14th largest oil producer in 2011 and the world's second largest natural gas exporter (ranking fourth in world natural gas production).<sup>62</sup> The UK also produces significant amounts of oil and gas. Oil contributes to 37% of its total energy consumption, and the gas production meets much of its own demand, although in recent years it relies increasingly on import of natural gas.<sup>63</sup>

The Netherlands is not a major oil producer, but it plays an important role in the transportation of oil in Europe and it acts as an important processing hub. The Netherlands is among the largest importers and exporters of crude oil and petroleum products in the world. In addition, it is a major refining and storage center. The Netherlands is the second largest producer and exporter of natural gas in Europe, only next to Norway.<sup>64</sup>

Different than e.g. the Mediterranean Sea, offshore activities in the North Sea often have to be carried out under harsh weather conditions, which makes it difficult and costly.<sup>65</sup> Moreover, the existence of large amounts of gas (only) fields makes it different than offshore activities in e.g. the Gulf of Mexico in the US.<sup>66</sup> The risks confronted by the offshore industry in the North Sea region are therefore unique, given the climate and geological conditions, and they shall be further analyzed below in Section 2.5.3.

### **2.2.3. Offshore interests in the Mediterranean Sea**

Offshore drilling in the Mediterranean area has increased substantially. In particular, the Eastern Mediterranean and the Levantine Basin (Israel/Lebanon) are emerging as new provinces for oil and gas in the last few years. Moreover, preliminary exploration has confirmed impressive reserves of gas and oil in the waters of Greece, Turkey, Cyprus and potentially Syria. Italy's relaxation of a ban on offshore oil and gas drilling that was introduced in the wake of the 2010 Deepwater Horizon disaster has also stimulated activity and Malta is a new player in the offshore market as well. Finally, Spain is also attracting interest; there are plans to drill in the Valencia Basin off the eastern Spanish coast in 2014.<sup>67</sup>

These increased offshore oil and gas activities in the Mediterranean obviously increase the risk on offshore accidents, which in the densely populated Mediterranean area potentially could result in significant human, environmental and economic damage.

Moreover, as these new oil and gas discoveries are very recent, the legislative framework in these Mediterranean countries is also very recent, and legislation is still developing. Some of the Mediterranean countries are not EU members, and hence their legislative provisions with respect to liability for traditional and environmental damage might differ from the proposed EU Offshore Safety Directive. A kind of Mediterranean solution (e.g. a reappraisal of the Mediterranean offshore protocol) might be a solution for the area.

Finally, one may not forget that the Mediterranean countries are caught up in a web of regional squabbles and rivalries, also with respect to the borders of their respective exclusive economic zones. Turkey has repeatedly told oil companies to stay away from Greek Cypriot Waters, Italy protested against Malta's publication of a tender for oil and gas exploration covering parts of the Ionean Sea claimed by Rome. Malta itself is in a dispute with Libya over

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<sup>62</sup> <<http://www.eia.gov/countries/country-data.cfm?fips=NO>>, last accessed 25 March 2013.

<sup>63</sup> Ibid.

<sup>64</sup> <<http://www.eia.gov/countries/country-data.cfm?fips=NL>>, last accessed 25 March 2013.

<sup>65</sup> <<http://www.oilgasarticles.com/articles/77/1/North-Sea-Oil-and-Gas/Page1.html>>, last accessed 16 March 2013. This was stressed by the industry representatives from OGP, interview with OGP on 25 February 2013.

<sup>66</sup> Interview with OGP on 25 February 2013.

<sup>67</sup> Financial Times (2012).

offshore areas to the south and Israel and Lebanon have sparred over Leviathan, which is close to the disputed line separating their territorial waters.<sup>68</sup>

## 2.3. Overview of major offshore accidents

### 2.3.1. Sources of information

#### 2.3.1.1. Worldwide database

One of the most comprehensive databases for offshore accidents (as far as we know) is probably the Worldwide Offshore Accident Databank (WOAD). This databank is operated by Det Norske Veritas (DNV), and it contains more than 6000 incidents from the year 1975. WOAD collects data from public domain sources such as Lloyds Casualty Reports, newspapers and official publications. It covers various parameters of an event, including the name, type and operation mode of the unit involved in the accident, date, geographical location, main event and chain of events, causes and consequences, as well as evacuation details.<sup>69</sup> WOAD classifies the events into four categories:

- Insignificant events: “represent hazardous situation, with very minor consequences. In most of the cases no damages were registered and repairs were not required. Small spills of crude oil and chemicals are also included in this category. Included are also very minor personnel injuries, i.e. ‘lost time incidents’.”
- Near-misses: “represent events that might have or could have developed into an accidental situation. No damage and no repairs were required also in these cases.”
- Incidents: “represent hazardous situation which have not developed into an accidental situation. Low degree of damage was recorded, but repairs/replacements usually were required. This type includes also events causing minor injuries to personnel or health injuries.”
- Accidents: “represent hazardous situations which have developed into an accidental situation. In addition, for all situations/events causing fatalities and severe injuries this type of event has been used.”<sup>70</sup>

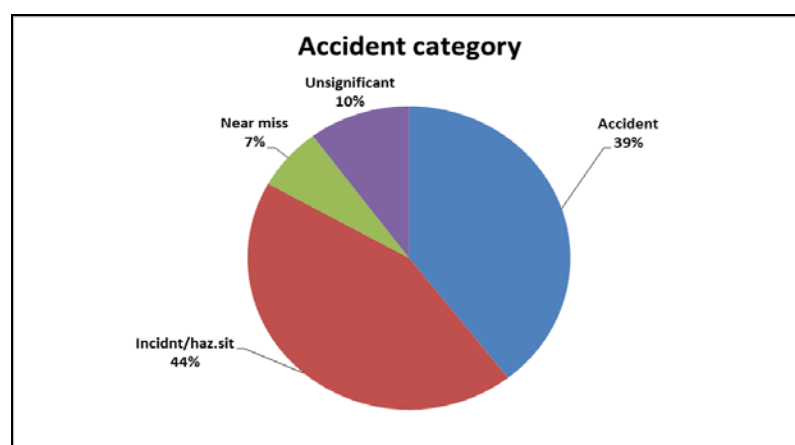


Figure 2: Distribution of accidents type for accidents in the WOAD<sup>71</sup>

<sup>68</sup> Financial Times (2012), retrieved 14.2.2013.

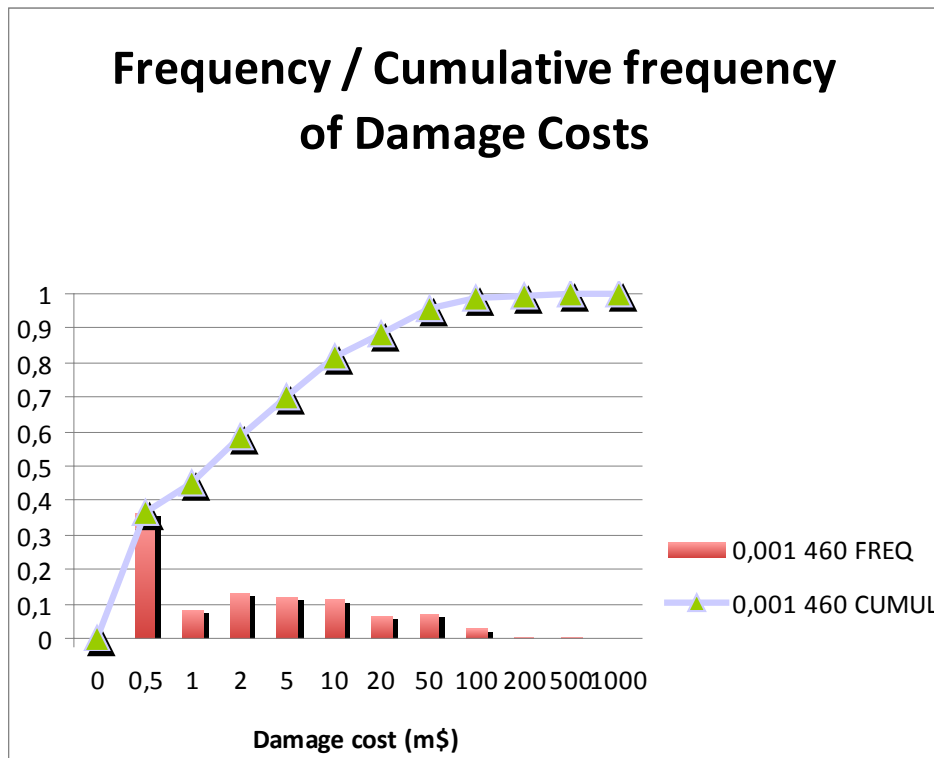
<sup>69</sup> As we do not have access to the WOAD, our information on WOAD comes from another study carried out by the European Commission: Christou and Konstantinidou (2012), 14.

<sup>70</sup> Ibid., 31.

<sup>71</sup> Ibid., 31. This does not represent complete statistics and not even an authoritative accidents register as suggested by the study by Christou and Konstantinidou, and can only serve as a good basis for lessons learning, not even a basis for statistical analysis. See Christou and Konstantinidou (2012), 28. It is moreover important to realize that

Out of the 6173 accidents that have been recorded in WOAD information on damage costs exist only in 63 cases, i.e. only in 5,83%. It shows that in more than 1/3 of the incidents (38%) for which cost data exist the cost was relatively limited: less than 0,5 mio. \$. 45% of the incident had a cost of less than 1 mio. \$. Only in 1,4% of cases (with information on the cost) damage exceeded 100 mio. \$. The joint research centre (JRC) provided tables summarizing the data from the WOAD database:<sup>72</sup>

Figure 3: Frequency/cumulative frequency of damage costs



the amount of near-misses might be a lot bigger compared to the amount of accidents that have actually materialized. This is the so-called iceberg theory where a lot of near-misses lead to only one accident.

<sup>72</sup> We are grateful to Dr. Michalis D. Christou of the Energy Security Unit, Institute for Energy and Transport of the European Commission Joint Research Centre for providing us this valuable information.

Figure 4: Consequences according to WOAD Database

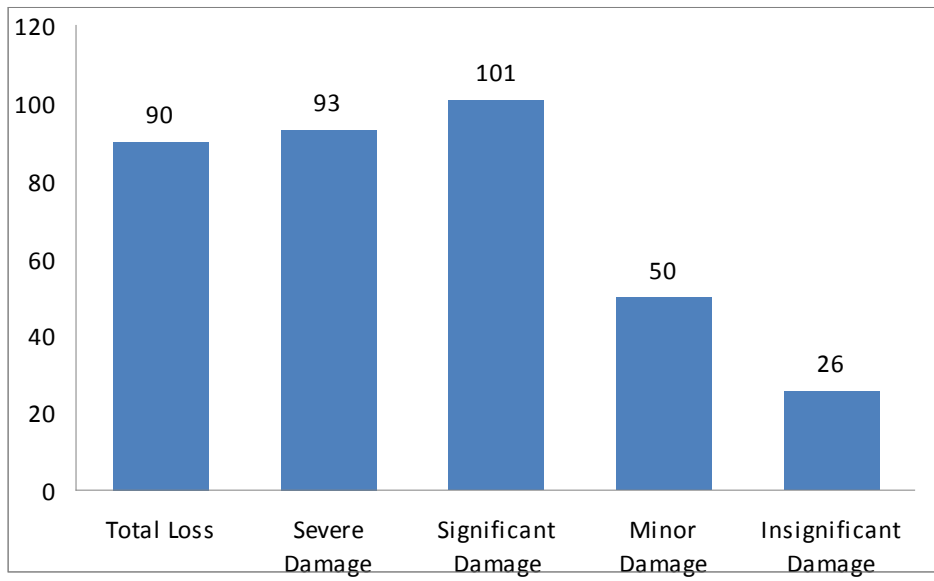


Figure 5: Damage costs according to WOAD Database

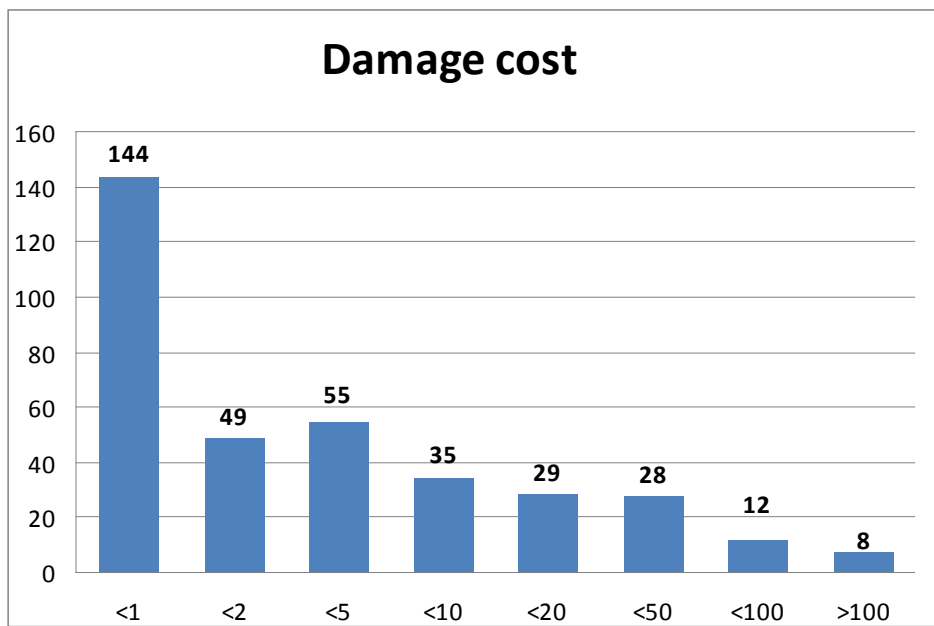
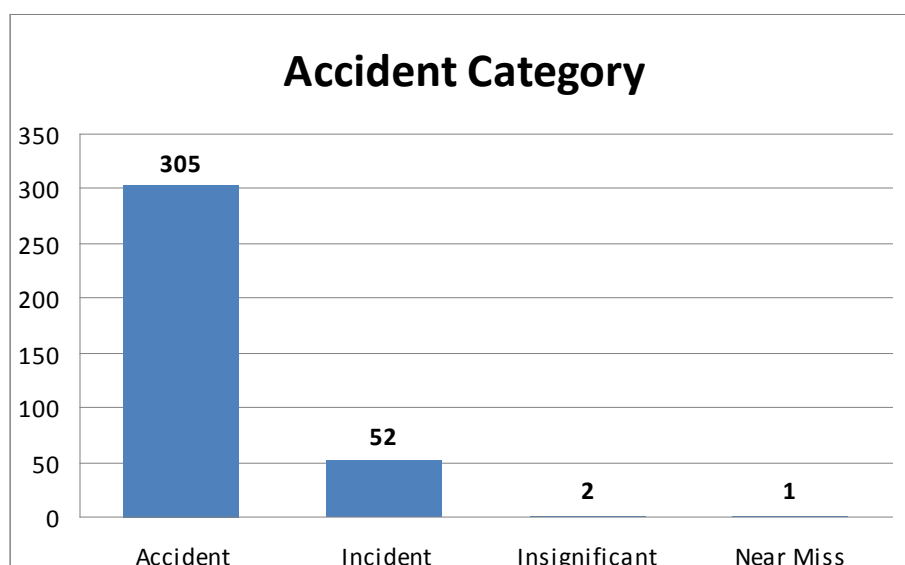


Figure 6: Accident category according to WOAD Database



All costs are expressed in the year of occurrence. The database covers the period starting in 1970 until 2010 (Deepwater Horizon not being included).<sup>73</sup>

#### 2.3.1.2. National regulatory authorities

In various jurisdictions, there are duties to report accidents to the regulatory authorities. Hence, many national authorities have their own database on the accidents that occurred within their jurisdiction. In this respect, UK (Health and Safety Executive), Norway (Petroleum Safety Authority) and Denmark (Danish Energy Agency) all keep records of accidents occurred in the past. The US has also a relatively developed reporting system to record past accidents.

It is not easy to provide a comprehensive analysis of accidents on offshore facilities in the EU and Norway. Norway and the UK have a comprehensive system of data gathering and analysis with respect to offshore accidents; the Netherlands and Denmark have also a relatively developed reporting system. For the other EU countries with offshore facilities information on offshore incidents is not always readily available. Especially with respect to the Mediterranean countries, no statistics could be found. Yet, as the UK and Norway can be considered as the most important offshore oil and gas producing countries, the accidents that happen on offshore facilities in the UK or Norway are likely to be representative for 'accidents that happen on offshore facilities'. In this respect, a study of the accident statistics of the UK and Norway gives an insight in the causes and consequences of offshore incidents.

In Norway, as a standard procedure, the most serious incidents will be investigated by the Petroleum Safety Authority (PSA).<sup>74</sup> It appears that 6-9 incidents are investigated each year. Although most of these incidents did not cause significant human or environmental damage, these incidents could have, under different circumstances, turned into disasters. For the UK, the Health and Safety Executive (HSE), is charged with overseeing the offshore industry.<sup>75</sup>

<sup>73</sup> Ibid.: it is based on a JRC Report *Damage Cost of Offshore Oil and Gas Accidents*, which is under preparation at the JRC.

<sup>74</sup> <www.ptil.no>.

<sup>75</sup> <www.hse.gov.uk>.

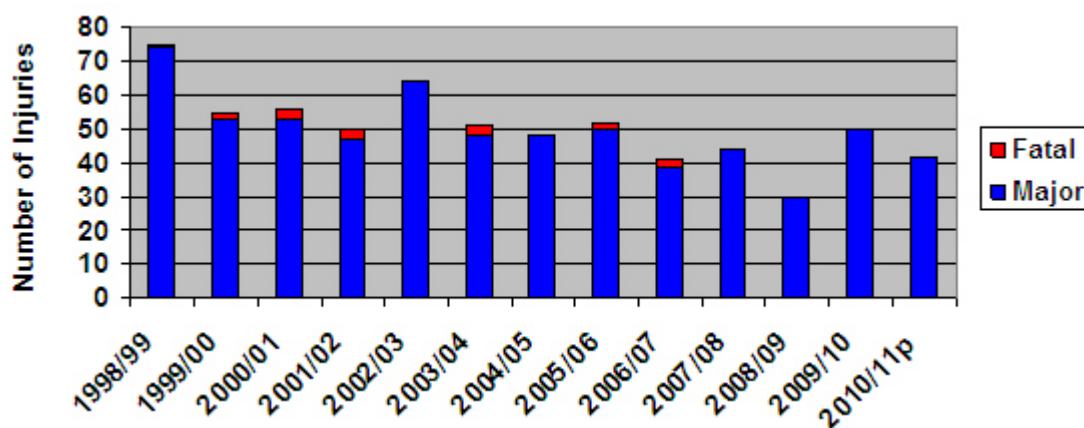
The reason of choosing these data is just to give an impression of the current situation of data sources and their comparability, due to lack of a systematic and harmonized data collecting mechanism. Data of both the UK and Norway appear to show similarities and a similar trend. Data from the Dutch authority cover both onshore and offshore accidents, which may not be comparable with the data from the UK and Norwegian authorities which concern only offshore accidents. However, the newly adopted Directive on Safety of Offshore Oil and Gas Operations (Directive 2013/30/EU) has specific requirement on a common reporting format.<sup>76</sup> Hopefully, with the implementation of the Directive, the situation can be improved.

### 2.3.1.2.1. UK

A recent HSE annual report<sup>77</sup> provides data on offshore personal injuries and on hydrocarbon releases and shows an overall downward trend in reportable injuries over the last five years. With respect to *personal injuries*, the main points to be mentioned are:

No fatalities arising from offshore work activities regulated by HSE were reported in 2010/11 for a fourth successive year. Unfortunately, in 2012 two offshore workers died.<sup>78</sup> For 2010/2011 42 major injuries were reported, compared to 50 in 2009/10 and 30 in 2008/09. The major injury rate fell to 151.84 per 100,000 workers in 2010/11 compared to 187.9 in 2009/10, the third lowest rate over the last 10 years (the lowest in 2008 being 106.2). The five-year average prior to 10/11 is 164.3. 107 over-3-day's injuries were reported, a reduction of 3 compared to the previous year. The over-3-day injury rate decreased from 413.6 per 100,000 workers to 386.8, a decrease of 6.5% compared to 2009/10. The estimated offshore workforce was 27,660 compared to 26,598 in 2009/10 - an increase of 4%.<sup>79</sup>

Figure 7: Fatal and major injuries in the UK 1997/1998 – 2010/2011<sup>80</sup>



<sup>76</sup> For further details of the Directive, see the discussion in 3.4.2.6.

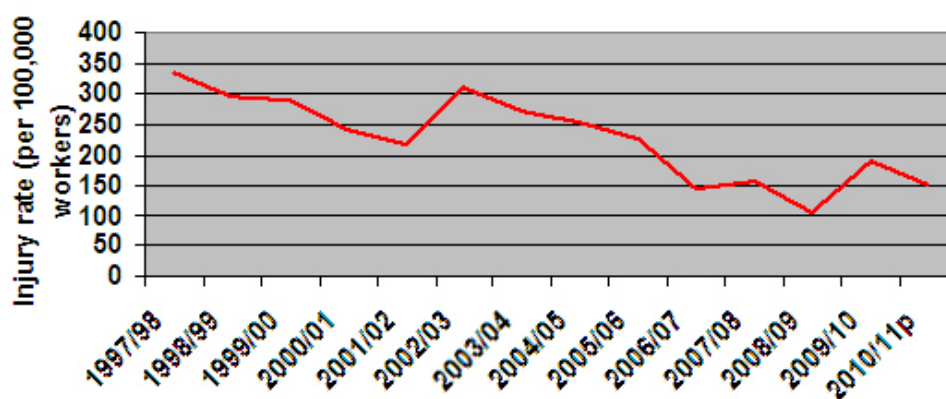
<sup>77</sup> HSE (2011). This report contains details of offshore accidents, dangerous occurrences and ill health reported to HSE from 1 April 2010 to 31 March 2011, with summarised data back to 1995/96 for comparison. It is based on incidents reported under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR).

<sup>78</sup> <<http://maritime-connector.com/news/offshore-oil-gas-news/uk-north-sea-oil-and-gas-leaks-at-lowest-number-in-the-last-ten-years>>, last accessed 26 November 2012.

<sup>79</sup> HSE (2011), 4.

<sup>80</sup> Ibid., 25-26.

Figure 8: Combined fatal and major injury rate in the UK 1997/1998 – 2009/10<sup>81</sup>



The main causes of major injuries were related to being trapped or struck by moving objects (38,1% off all major injuries), to slips/trips/falls (including falls from height), or to injuries associated with lifting/carrying or handling of loads, all together accounting for 83% of the total of accidents.

The most frequent types of all injuries were fractures (30.9% - 46 injuries), sprains and strains (26% – 39 injuries), contusions (10.7% - 16 injuries) and lacerations (10% - 15 injuries). For major injuries, fracture was the most commonly occurring type, with 27 incidents which represents 64% of all major injuries (42). For over-3-day injuries, sprains and strains were the most common type of injury, with 38 incidents (35.5% of over-3-day injuries). Other frequent types of over-3-day injuries included fractures (19 incidents – 17.8%), contusions (15 incidents - 14%) and lacerations (12 incidents – 11.2%).

With respect to *hydrocarbon releases* (HCR's), in 2011 few reported HCRs gave rise to incidents which could, in whole or in part, be considered as "oil spills". The number of the liquid based HCR incidents where a quantity of hydrocarbon liquid was released to the sea in 2010/11 was very small - seven in total – with the amounts ranging from minimal to 500kg.

For 2010/2011, 432 dangerous occurrences (including well incidents) were reported. Main types of dangerous occurrences reported were hydrocarbon releases (38.9%), dropped objects, adverse weather damage and failure of equipment required to maintain installation position offshore (25.9%) well-related incidents (9.2%) and lifting operations related (6.3%).

Figures of 2010-2011 with respect to hydrocarbon releases show that there was a significant reduction in the total number of Major and Significant HCRs (73) in 2010/11 compared to the previous year's total of 85. This maintains the annual average of 73 over the previous five years. The number of minor HCRs fell slightly in 2010/11 (95) compared to 2009/10 (102). Overall the total number of releases fell by 19 in 2010/11.<sup>82</sup> For 2011/2012 the number of major and significant leaks fell to 52 from 73 and the number of minor hydrocarbon releases to 75 from 93.<sup>83</sup>

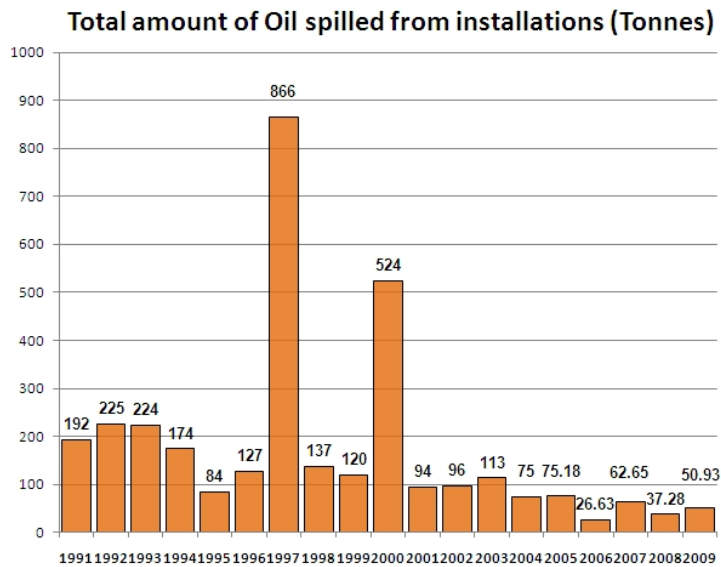
<sup>81</sup> Ibid.

<sup>82</sup> Ibid., 37. Major, Significant and Minor Release Severity Classifications are described on the HSE Website in the Hydrocarbons Release Database HELP facility. Hydrocarbon releases are regarded as potential precursors to major accidents if ignited, and HSE monitors the number of major and significant hydrocarbon releases as a key performance indicator (KPI) of the offshore industry's effectiveness of process health and safety management on offshore installations.

<sup>83</sup> <<http://maritime-connector.com/news/offshore-oil-gas-news/uk-north-sea-oil-and-gas-leaks-at-lowest-number-in-the-last-ten-years/>>.

An overview of oil spills in tonnes over the last 20 years is provided by the Department of Energy and Climate Change. Note that the 2011 figure would again be higher, around 216 tonnes, due to the Gannet Alpha oil spill (see below).

Figure 9: Total amount of oil spilled from installations (UK)<sup>84</sup>



#### 2.3.1.2.2. Norway

For Norway, the Petroleum Safety Authority provides data on offshore personal injuries and on hydrocarbon releases and as for the UK, the data show an overall downward trend in reportable injuries and accidents over the last ten years.

##### *Personal injuries*

No fatal accidents occurred on the Norwegian continental shelf during 2011. Moreover, as for the UK, serious personal injuries have shown a downward trend in recent years, reaching 0.6 per million hours worked for the whole Norwegian continental shelf in 2011 which is significantly below the average for the preceding 10 years. The personal injury frequency on production installations was at its lowest-ever level in 2011. Even with more hours worked overall, serious injuries fell from 23 in 2010 to 17 in 2011.<sup>85</sup>

##### *Oil Spills*

A clear reduction has occurred in acute crude oil discharges to the sea for the whole Norwegian continental shelf per year from just under 90 incidents per annum to 40. This low value has been constant throughout the 2004-09 period. Most of the actual acute discharges were smaller than 10 tonnes (0.25 tonnes per spill on average). Norway has known 5 significant acute discharges in the last 10 years, of which the Stafjord A oil spill of 2007 was the most serious.

##### Serious acute oil spills:

- Norwegian Sea
- 2003: Draugen – 659 tonnes
- 2005: Norne – 286 tonnes
- 2006: Draugen – 82 tonnes

<sup>84</sup> Department of Energy and Climate Change.

<sup>85</sup> <<http://www.ptil.no/news/trends-in-risk-level-2011-moving-in-the-right-direction-article8493-79.html>>.



#### North Sea

- 2007: Statfjord A – 3 696 tonnes
- 2009: Statfjord C – 80 tonnes

In general, actual acute crude oil discharges declined in 2001-09 for the Norwegian continental shelf as a whole. No clear trend emerges for the quantities discharged in case of incidents. Oil spill in the period 2005-2009 on the Norwegian continental shelf was dominated to a great extent by a few individual spills (four of the five largest discharges occurred in 2005-09). When these are excluded, values were generally lower in the second half of the period 2001-2009 than in the first half.<sup>86</sup>

Moreover, the PSA states that the frequency per installation year of near misses which could cause crude oil spills if barriers fail declined on the Norwegian continental shelf viewed as a whole. In addition, the potential quantity of crude oil spilt in such incidents fell during the period for the whole Norwegian continental shelf. Most of such potential acute discharges (70 per cent or more) will be smaller than 1000 tonnes.<sup>87</sup>

As a result of the Deepwater Horizon incident, a more detailed investigation, broken down by water depth, has also been carried out into incidents which occurred with subsea wells from 1999 to 2009. Relatively few incidents are recorded annually with such wells. None of these has developed into an acute discharge. Viewed overall, the frequency of incidents involving deepwater wells (water depths beyond 600 meters) is clearly above average and in most cases higher in statistically significant terms than for wells in shallower waters. More detailed investigations of near misses connected with deepwater operations have so far failed to identify that the water depth as such can explain this excess frequency.<sup>88</sup>

Yet although there apparently is a downward trend in offshore incidents, incidents did happen, and the reasons for these incidents must be examined. The next paragraph will examine in more detail some major incidents, however, the PSA notes in its report that the barrier indicator related to major accidents shows that a relatively large number of installations had fairly substantial non-conformities from the expected industry level. This means that the sector has a clear improvement potential with regard to ensuring that these barriers are sufficiently robust.<sup>89</sup>

#### 2.3.1.2.3. The Netherlands

In the Netherlands, the State Supervision of Mines (SSM) is the authority to supervise mineral exploration, extraction, storage and transport of minerals.<sup>90</sup> Its tasks are mainly to oversee the compliance with statutory regulations applicable to these activities. The SSM focuses on various aspects of the activities, including inter alia health, safety and environment.<sup>91</sup> It has useful statistics on the accidents occurred in the past.

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<sup>86</sup> Petroleum Safety Authority Norway, p. 25.

<sup>87</sup> Ibid.

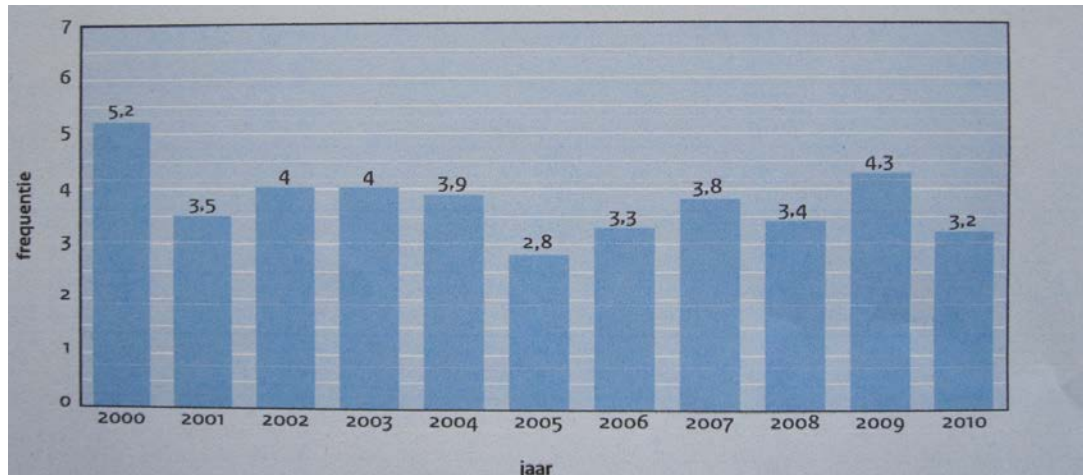
<sup>88</sup> Ibid.

<sup>89</sup> <[Http://www.ptil.no/trends-in-risk-level/trends-in-risk-level-2011-moving-in-the-right-direction-article8493-155.html](http://www.ptil.no/trends-in-risk-level/trends-in-risk-level-2011-moving-in-the-right-direction-article8493-155.html)>.

<sup>90</sup> <<http://www.sodm.nl/english/organisation>>, last accessed 14 March 2013.

<sup>91</sup> Ibid.

Figure 10: Personal injury accident frequency (total number of accidents per million working hour) in the exploration and production industry (on-and offshore)<sup>92</sup>



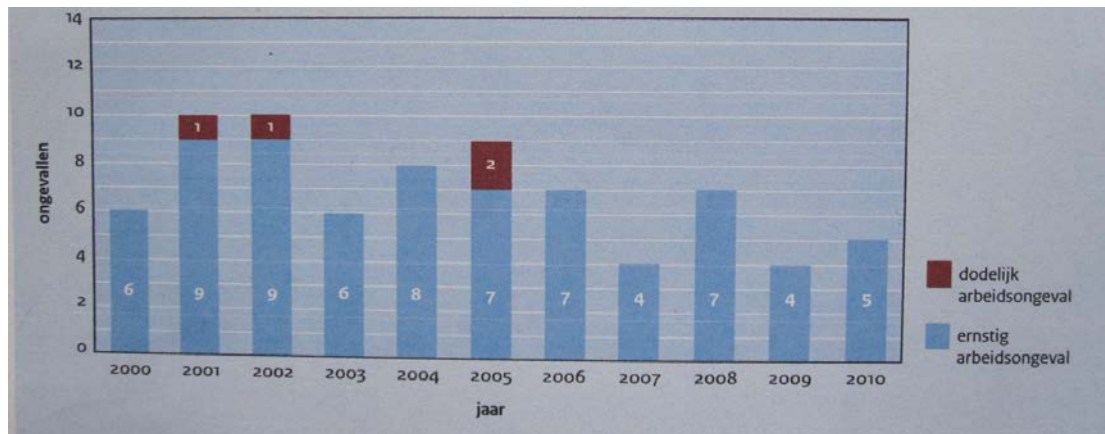
Note:

Total number of accidents: lost time accidents (LTA) + fatal + restricted work cases (RWC).

Lost time accidents (LTA): arbeidsongevallen die geleid hebben tot verzuim.

Restricted work cases (RWC): arbeidsongevallen die hebben geleid tot vervangend werk.

Figure 11: Serious and fatal personal injury accidents in the exploration and production industry (on-and offshore)<sup>93</sup>



### 2.3.1.3. Regional database

In addition, at regional level, there are regional cooperation programmes which may keep regional records of incidents. For example, the North Sea Offshore Authorities Forum (NSOAF). National regulatory authorities from North Sea countries in charge of offshore oil and gas activities have developed this forum for exchanging of information concerning offshore accidents.

<sup>92</sup> State Supervision of Mines (the Netherlands), Staatstoezicht op de Mijnen: Strategie & Programma 2012-2016, p.76, available at: <<http://www.rijksoverheid.nl/documenten-en-publicaties/rapporten/2012/06/19/strategie-programma-2012-2016.html>>.

<sup>93</sup> Ibid.

The International Regulators' Forum (IRF) has also established a Performance Measurement Project in order to measure and compare offshore safety performance among IRF participants by collecting and comparing incident data based on a common set of criteria. Data include fatalities, injuries, gas releases, collisions, fires and losses of well control. The members to the IRF are regulatory authorities from Australia, Brazil, Canada, Denmark, Mexico, the Netherlands, New Zealand, Norway, UK and US.<sup>94</sup>

#### 2.3.1.4. *Industry database*

Various industry organizations (as mentioned in section 2.1.3) maintain their own records of incidents. For example, OGP has established a Wells Committee to “identify areas for improvement and focus on these to strengthen the long-term health of the oil & gas industry across the whole cycle of well planning, construction, operation and abandonment”.<sup>95</sup> The purpose of the Wells Committee is “to provide a formal and active body through which its members can share good practice to contribute to OGP objectives related to well integrity matters and its mission to facilitate continuous improvements in safety and the environment.”<sup>96</sup> Its activities include inter alia analyzing incidents and disseminating lessons learned and good practices based on shared experience. For this purpose, a database has been developed. OGP members report incidents related to well control and near misses into the OGP Well Control Incident Database. All data submitted is anonymous and confidential. Unfortunately, the data are not available to the public, only to the members of the project.<sup>97</sup>

In March 2010, OGP published a report on Risk Assessment Data Directory which contains an overview of accidents mainly till 2007.<sup>98</sup>

However, these organizations collect data with different criteria and compile their data with different approaches, which may lead to difficulties when comparing these various data directly. For instance, a study carried out by some members of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling compared the fatalities and injuries from offshore facilities in Europe with the US. Various data sources suggest slightly different results.<sup>99</sup>

These different data can be illustrated as follows by putting accident data together on incidents in the US and Europe that come from on the one hand the International Association of Drilling Contractors (IADC), the International Association of Oil and Gas Producers (OGP) and the International Regulators Forum.

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<sup>94</sup> Christou and Konstantinidou (2012), 13-14.

<sup>95</sup> <<http://www.ogp.org.uk/committees/wells/>>, last accessed 14 March 2013.

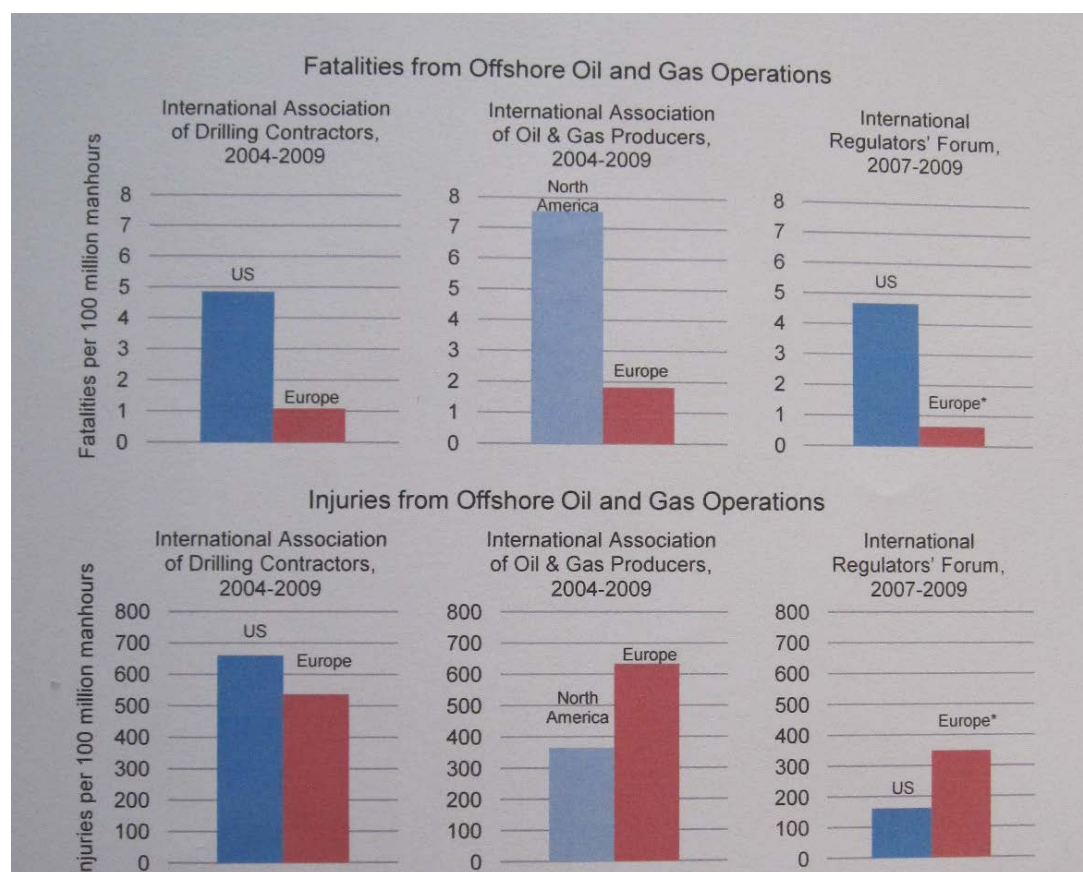
<sup>96</sup> Ibid.

<sup>97</sup> Chistrou and Konstantinidou (2012), 13.

<sup>98</sup> International Association of Oil & Gas Producers, OGP Risk Assessment Data Directory, Report No. 434-17, March 2010, Available at <<http://www.ogp.org.uk/pubs/434-17.pdf>>, last accessed 26 March 2013.

<sup>99</sup> National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, Staff Working Paper No. 21, 2010. Available at <<http://www.oilspillcommission.gov/sites/default/files/documents/A%20Competent%20and%20Nimble%20Regulator%20A%20New%20Approach%20to%20Risk%20Assessment%20and%20Management.pdf>>.

Figure 12: The fatalities from offshore oil and gas operations<sup>100</sup>



Source: *IADC Incident Statistics Program*, International Association of Drilling Contractors, <http://www.iadc.org/asp.htm>; *Safety performance indicators*, International Association of Oil & Gas Producers, <http://www.ogp.org.uk/>; *IRF Country Performance Measures*, International Regulators' Forum, <http://www.irfoffshoresafety.com/country/performance/>.

\*Europe for the International Regulators' Forum data represents the United Kingdom, Norway, and the Netherlands.

In addition, Willis, a global insurance broker, has also established a comprehensive database of energy losses in the world which also include offshore accidents. This database, known as Willis Energy Loss Database (WELD), has included thousands of incidents since 1972 that have led to losses higher than 1 million USD.<sup>101</sup> This database is available only to subscribers and is often used by insureds and insurers to analyze current and historical loss information whereby parties can “make informed decisions on insurance strategy”.<sup>102</sup> The type of losses captured in the WELD mainly focuses on “property related losses rather than individual death or injury claims”. “Difficulties in obtaining accurate information on isolated death and injury claims have been encountered due to non-disclosure agreements, appeals etc. and we questioned the relevance of many of the figures that included substantial punitive damage awards. Third party losses and sudden and accidental pollution claims are included, as are

<sup>100</sup> Data from the International Association of Oil & Gas Producers includes helicopter-related incidents. Data from the International Association of Drilling Contractors and the International Regulators' Forum include helicopter-related incidents only if it is at or near an offshore installation.

<sup>101</sup> Willis Energy Loss Database, August 2004, p. 2. Available at: [http://www.willis.com/Documents/Publications/Industries/Energy/2155\\_energy%20\\_loss\\_database.pdf](http://www.willis.com/Documents/Publications/Industries/Energy/2155_energy%20_loss_database.pdf).

<sup>102</sup> Ibid.

death and injury settlements that formed part of recognised figures for major property claims (e.g. Piper Alpha).”<sup>103</sup>

Also a large broker, Willis, provides an energy loss database. It contains inter alia an overview of the ten most expensive Operators Extra Expense (OEE) losses in history:<sup>104</sup>

Table 1: Overview of the ten most expensive Operators Extra Expense (OEE) losses in history

Year	Type of facility	location	country	OEE indexed (USD)
2010	Rig	Gulf of Mexico	USA	2,000,000,000
2005	Platform	Gulf of Mexico	USA	636,047,629
1989	Well	North Sea	Norway	396,419,527
2008	Platform	Gulf of Mexico	USA	384,080,640
2005	Platform	Gulf of Mexico	USA	341,560,173
1984	Well	Nova Scotia	Canada	320,593,818
1988	Platform	North Sea	UK	308,109,489
1987	Platform	Gulf of Mexico	USA	264,476,529
1975	Well	Dubai	UAE	246,250,219
2004	Rig	Mediterranean	Egypt	230,104,683

This table shows that the Macondo loss of April 2010 is huge, compared to all other OEE losses in the Willis Energy Loss Database, even on an inflation-adjusted basis. Moreover, note that this only includes the amounts as they were known on 1 April 2011. As we will show when discussing Deepwater Horizon in more detail<sup>105</sup> the amounts have meanwhile already become much higher.

### 2.3.1.5. Observation from available data

Data for offshore incidents are available from various sources. The operators or licence holders even have obligation to report to national regulatory authorities; this makes data collecting possible at least at national level. However, the offshore incidents are not always listed separately such as in the Dutch SSM system where there are only available total accidents records, the offshore and onshore accidents are not recorded separately. Another difficulty in offshore incident data collecting is that many resources are not publicly available, e.g. the data for OGP are only available for its participating members. Also with regard to the most comprehensive database currently available, the WOAD, the information is acquired through publicly available sources, and it is restricted in the sense that countries with a fully state owned offshore industry do not disclose the information on offshore accidents to the public.<sup>106</sup> A third difficulty may have to do with the fact that not all databases apply the same criteria when collecting data. Lacking harmonized criteria makes it difficult to compare the available data.<sup>107</sup>

Realizing these difficulties, the recent Directive on Safety of Offshore Oil and Gas Operations (Directive 2013/30/EU) has specific provisions on a “common data reporting format” across all member states of the EU.<sup>108</sup> The idea of the Directive on such a format is that operators

<sup>103</sup> Ibid.

<sup>104</sup> <[http://www.willis.com/Documents/Publications/Industries/Energy/EMR\\_April\\_2011.pdf](http://www.willis.com/Documents/Publications/Industries/Energy/EMR_April_2011.pdf)>. Source: Willis Energy Loss Database, 1 April 2011.

<sup>105</sup> See 2.5.2.

<sup>106</sup> OGP Risk Assessment Data Directory (2010), 30.

<sup>107</sup> Christou and Konstantinidou (2012), 15.

<sup>108</sup> See e.g. Preamble (42) and (43), Article 23 and Annex IX of Directive 2013/30/EU.

and owners shall provide the competent authority with major hazard indicators as described in Annex IX of the Directive, whereby it would make the information comparable and hence facilitate the sharing of information.<sup>109</sup>

### 2.3.2. Overview of serious accidents caused by offshore facilities

An interesting overview of high profile oil spills from offshore blowouts is also provided in a recent report of Lloyds.<sup>110</sup>

Table 2: High profile oil spills from offshore blowouts<sup>111</sup>

Date of incident	Location	Incident and spillage details (estimated figures)	Insured loss (US\$)
28.1.1969 - 12.2.1969	Santa Barbara, California	80,000 - 100,000 barrels	Not available
3.6.1979 - 23.3.1980	Ixtoc Well, Mexico	3.3 million barrels	22,000,000
22.4.1977- 30.4.1977	Ekofisk Norwegian Sector, North Sea	202,381 barrels	6,887,000
1980	Funiwa Niger Delta, Nigeria	200,000 barrels	53,554,000
2.10.1980 - 10.10.1980	Arabian Gulf	100,000 barrels	1,300,000
21.8.2009 - 3.11.2009	Timor Sea, Australia/ Indonesia	28,800 barrels of condensate oil	425,000,000
20.4.2010 - 15.7.2010	Gulf of Mexico	4.9 million barrels, plus 11 fatalities and 17 injuries	2,560,000,000

Overviews of upstream losses in the energy sector are also provided in the Willis Energy Loss Database. They provide the following tables for 2011 and 2012:

Table 3: Upstream losses XS USD 50M 2011<sup>112</sup>

Type	Cause	Country	PD USD	OEE USD	BI USD	Total Actual USD
MOPU	Heavy weather	UK	534,000,000		500,000,000	1,034,000,000
MOPU	Heavy weather	UK	193,000,000		227,000,000	420,000,000
Rig	Capsize	Mexico	230,000,000			230,000,000
SSCS	Unknown	Nigeria	230,000,000			230,000,000
Well	Blowout	Israel		200,000,000		200,000,000
MOPU	Mechanical failure	USA	150,000,000			150,000,000
MOPU	Corrosion	Nigeria	120,000,000			120,000,000
Well	Faulty design	Norway	115,000,000			115,000,000
Well	Subsidence/landslide	Israel		115,000,000		115,000,000

<sup>109</sup> For further discussion of the Directive, see 3.4.2.6.

<sup>110</sup> Rees and Sharp (2011), 17.

<sup>111</sup> Lloyd's (2011), 17; the information is also adapted from Willis Energy Loss Database.

<sup>112</sup> Source: Willis Energy Loss Database as at April 2013 (figures include both insured and uninsured losses). MOPU stands for mobile offshore production units.

Platform	Unknown	China	106,000,000			106,000,000
Rig	Heavy weather	Russia	100,000,000			100,000,000
Rig	Faulty design	Singapore	8,500,000		80,840,000	89,340,000
MOPU	Mechanical failure	Nigeria	82,000,000			82,000,000
MOPU	Unknown	Brazil	80,000,000			80,000,000
Rig	Collision	Venezuela	25,000,000		47,250,000	72,250,000
						3,143,590,000

Table 4: Upstream losses XS USD 50M 2012

Type	Cause	Country	PD USD	OEE USD	BI USD	Total USD
Rig	Blowout	Nigeria	175,000,000	277,000,000		452,000,000
Well	Blowout	UK		400,000,000		400,000,000
Well	Blowout	Nigeria		200,000,000		200,000,000
Well	Bowout	India		150,000,000		150,000,000
Rig	Grounding	USA	90,000,000			90,000,000
Pipeline	Unknown	Venezuela	65,300,000			65,300,000
Well	Blowout	USA		60,000,000		60,000,000
Well	Blowout	Canada		54,850,000		54,850,000
Rig	Faulty design	Brazil			54,488,000	54,488,000
Platform	Fire/lightning/explosion	Mexico	54,200,000			54,200,000
						1,580,838,000

These charts show the major loss records for the upstream energy industry in 2011 and 2012. However, the reported losses not only refer to offshore incidents (although many do) and in many cases the losses reported do not cause damage to third parties but for example relate to the costs for reinstating a platform. The charts, however, provide an indication of the fact that in the upstream energy industry on a yearly basis all over the world still substantial losses occur.<sup>113</sup>

Reinstating the platform is the obligation of the oil company. However, for example the first incident mentioned in Table 4 of 2011 shows a total damage of more than one billion USD. This is relevant for this study to the extent that insurers provide a total package of coverage for the oil industry. In other words: if large losses occur, e.g. because of business interruption that may also reduce the available capacity for the cover for third party liability.

#### 2.4. Analysis of recent offshore accidents in Europe: case studies

Catastrophic accidents in the EU fortunately are rare. However, accident data of offshore facilities of both the UK and Norwegian authorities reveal that incidents do happen. This paragraph will therefore analyze the reasons for and consequences of recent offshore accidents in Europe in slightly more depth, by focusing on a few particular incidents in more detail. The case-study accidents below are some of the most serious accidents that happened in the North Sea in the last 5 years.

##### 2.4.1. Statfjord Field oil spill (12 December 2007)

A rupture in the loading hose on a loading system on the Statfjord field on 12 December 2007 resulted in around 4400 tonnes of crude oil being pumped into the sea. The incident became

<sup>113</sup> We are grateful to Mr. Tim Taylor (Clyde & Co.) for providing us these charts (interview with Lloyds in London on 1 May 2013).

the second largest oil spill in Norwegian oil history. The direct causes of the break in the hose was the rapid build-up of pressure greater than this equipment had been dimensioned to accommodate. This pressure was caused by an uncontrolled closing of a valve in the loading system on the tanker Navion Britannia.<sup>114</sup>

No damage to the marine environment was identified as a result of the spill. After the incident, StatoilHydro initiated several environmental investigations in order to identify and evaluate possible environmental impacts. The environmental reports from Sintef,<sup>115</sup> the Institute of Marine Research (IMR) and the Norwegian Institute for Nature Research (NINA) concluded that the oil spill did not cause any demonstrable environmental harm. StatoilHydro states that three days after the incident, there were no longer any visible traces of the oil on the sea surface. Analyses show that after a couple of days 25% of the oil had evaporated and 15% had dissolved. The rest of the oil had been mixed into the water as droplets, gradually dissolving and degrading. The measurement of oil components in fillets of fish from the North Sea caught in December and January indicated that all components were below the detection limit. It would therefore seem that the spill has not reduced the quality of North Sea fish catches. Analyses of oil components in fish liver showed slightly higher oil values in haddock during the first days after the spill than previously, but this was not the case for cod and pollack. No dead birds were found after the oil spill.<sup>116</sup>

A joint investigation by the Petroleum Safety Authority Norway (PSA), Norwegian Pollution Control Authority (NPCA) and the Norwegian Coastal Administration identified several nonconformities with requirements in the HES regulations. The underlying causes of the Statfjord oil spill can be summarized as follows:<sup>117</sup>

- Failure to mobilise emergency response;
- Inadequate organisation and description of responsibilities;
- Lack of risk understanding and robustness;
- Lack of control of changes;
- Inadequate maintenance management

#### **2.4.2. Gullfaks C incident (19 May 2010): a near-miss**

On 19 May 2010, a serious situation occurred in the C06A well on Gullfaks C in the North Sea. Statoil struggled for more than two months to regain control of the well. The PSA's conclusion following the incident was that the planning of the drilling and completion operation in well C06A was executed with serious and extensive inadequacies.

These were related to key factors such as risk management and change control, experience transfer and use of expertise, familiarity with and compliance with governing documents and documenting decisions.

Under insignificantly changed circumstances, the situation could have resulted in a major accident on the Norwegian shelf. The PSA and others also pointed out similarities between the Gullfaks C incident and the dramatic incident on Snorre A in 2004, when small margins

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<sup>114</sup> <<http://www.ptil.no/news/serious-deficiencies-identified-by-oil-spill-investigation-article4320-79.html>>.

<sup>115</sup> SINTEF is the largest independent research organization in Scandinavia. For more information on SINTEF, see the website: <<http://www.sintef.no/home/>>.

<sup>116</sup> <[http://www.statoil.com/AnnualReport2008/en/Sustainability/Environment/Pages/5-3-1-11\\_StatfjordOilSpill-FollowUp.aspx](http://www.statoil.com/AnnualReport2008/en/Sustainability/Environment/Pages/5-3-1-11_StatfjordOilSpill-FollowUp.aspx)>, last accessed 23 November 2012.

<sup>117</sup> Investigation report of the Statfjord field oil Spill, <[http://www.ptil.no/getfile.php/Tilsyn%20p%C3%A5-20nettet/Granskinger/engelsk\\_granskingsrapport%20oljeutslipp%20statfjord.pdf](http://www.ptil.no/getfile.php/Tilsyn%20p%C3%A5-20nettet/Granskinger/engelsk_granskingsrapport%20oljeutslipp%20statfjord.pdf)>, last accessed 20 November 2012.



prevented the near-miss from developing into a major accident. Only chance averted a sub-surface blowout and/or explosion, and prevented the incident from developing into a major accident.<sup>118</sup>

### **2.4.3. Valhall PCP production platform fire (13 July 2011)**

The incident on the Valhall PCP production platform in the North Sea (Norwegian Continental Shelf) on 13 July 2011 involved the breakdown of a crane engine through overheating, which led to a fire in the vent stack for the installation's compressors.

A minor blaze was caused by the engine breakdown in the crane machinery space. Overheating combined with a defective spark arrestor and silencer meant that red-hot particles leaving the exhaust pipe blew across and ignited flammable gases from the vent stack.

Extinguishing the flames proved difficult, and it was decided in the end to use the water monitors on the standby ship for this purpose. One hour and thirty-seven minutes passed from detection of the fire until it had been extinguished.

No people were physically injured by the incident. Under slightly different circumstances, however, it could have escalated and created a serious position on the installation, with personal injuries or loss of life.

Production on Valhall was shut down for nine and a half weeks as a result of the incident.

The Petroleum Safety Authority Norway (PSA) has notified BP of orders following its investigation of the Valhall PCP fire on 13 July 2011. Serious non-conformities related to BP's management system for activities on the Norwegian continental shelf have been identified.

The PSA's investigation of the incident has identified a number of serious breaches of the regulations related to BP's management system for Norwegian continental shelf activities. These relate to lack of maintenance, deficient maintenance management, inadequacies in risk identification and deficient barrier management.

The investigation identified non-conformities in relation to:

- machinery protection of the crane engine;
- classification of and maintenance programme for the crane engine's spark arrestor and silencer;
- updating of maintenance programme for crane engines;
- fire and gas detection system;
- management of work processes and follow-up of identified risks;
- information on hazards;
- barrier management and handling of non-conformities;
- risk assessment of ignition in vent lines;
- turbine exhaust led to a hazardous area;
- handling of hazards and accidents.<sup>119</sup>

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<sup>118</sup> <<http://www.ptil.no/news/gullfaks-c-order-fulfilled-article8675-79.html>>, last accessed 26 November 2012.

<sup>119</sup> <<http://www.ptil.no/news/notification-of-orders-to-bp-after-investigation-of-valhall-pcp-fire-article8233-79.-html>>, last accessed 10 November 2012.

#### **2.4.4. Escape of hydrocarbons Ula Field Norway (12 September 2012)**

A substantial escape of hydrocarbons occurred on the Ula field in the Norwegian North Sea on 12 September 2012. The Petroleum Safety Authority Norway (PSA) has decided to investigate this incident.

No people were injured and no damage caused to the installation beyond the equipment directly involved. But the PSA considers the incident to have had a substantial potential.

The Ula oil field lies in Norway's North Sea sector and has three conventional steel platforms for production, drilling and living quarters. These are linked by bridges. BP is the operator.

The leak arose in the separator module on Ula's production platform. Nobody was in the module when the incident occurred. While the facility was automatically shut down, all personnel on the installation were evacuated to the drilling platform. Production on Ula has been suspended for a while.

One reason why the PSA has resolved to conduct an investigation is the substantial potential involved in the incident. Objectives include establishing the course of events and identifying the direct and underlying causes. The resulting report is published on the PSA's website at <[www.ptil.no](http://www.ptil.no)>.

#### **2.4.5. Gannet Alpha oil spill (10 August 2011)**

Around 216 tonnes of oil has leaked from Shell's Gannett Alpha platform into the North Sea in August 2011. It can be considered as the single largest discharge in UK waters in the last 10 years. The Department of Energy and Climate Change called it a substantial spill in the context of annual amounts of oil spilled in the North Sea., but it anticipated that the spill should disperse naturally.<sup>120</sup> The high winds and waves led to a substantial reduction in the size of the oil sheen on the water.

Yet, while the spill did not approach the devastating impacts of the Deepwater Horizon disaster, its significance lies in the fact that it took place under the much vaunted "gold standard" regulatory regime of the UK and by a company that has been trading on its reputation as a responsible corporate citizen.

The Guardian claimed that Gannet A should serve as a wake-up call to a government on the risk of offshore oil drilling. Indeed, Gannet A and its satellite projects are among the majority of offshore installations that are approaching or have exceeded their original design life (typically 20 to 25 years) and are posing an extra danger the longer they operate.<sup>121</sup> According to the Health and Safety Executive, the majority of hydrocarbon releases happen at facilities older than 20 years old<sup>122</sup> and more than 50% of existing platforms fall under that category. Gannet A has celebrated its 20th birthday.

According to the Guardian after the oil spill, 'the response by the government and regulators has been to downplay concerns about ageing infrastructure and oversell the regulatory regime's ability to cope with a ticking time bomb. With the government's "red tape challenge" and swinging cuts under way, there is a high probability that we will see more major oil spills

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<sup>120</sup> <[http://www.decc.gov.uk/en/content/cms/news/statement\\_gfs/statement\\_gfs.aspx](http://www.decc.gov.uk/en/content/cms/news/statement_gfs/statement_gfs.aspx)>, last accessed 26 November 2012.

<sup>121</sup> <<http://www.guardian.co.uk/commentisfree/2011/aug/17/oil-spill-shell-timebomb>>.

<sup>122</sup> Health and Safety Executive, Offshore Hydrocarbon Releases 2001-2008, RR672 Research Report, 2008, p. 35, see <<http://www.hse.gov.uk/research/rrpdf/rr672.pdf>>.

and worker injuries in the coming years due to lack of regulatory capacity, a general drive towards “light touch regulation” and an apparent reluctance on the part of a government obsessed with “energy security” to challenge Big Oil’.<sup>123</sup>

#### **2.4.6. Elgin Platform blowout (26 March 2012)**

A blowout early 2012 at Total’s Elgin platform in the North Sea, which led to a two-month crisis and the loss of a massive amount of gas, has fuelled fresh scrutiny of offshore safety standards.

On March 26, Total reported a gas leak that forced them to evacuate more than 200 workers from a production platform in the Elgin field of the central North Sea, about 150 miles east of Aberdeen, Scotland. It soon became clear that it was an uncontrolled blowout of natural gas and liquid gas condensate, a potentially explosive situation that caused other companies to evacuate and shut down operations at neighbouring facilities even miles away from Totals’ Elgin platform.

The report by HSE raised concerns about backlogs in the maintenance on equipment critical to safeguarding life.

With rising operating costs and lower revenues, companies have put pressure on facilities to produce more oil in order to break even, which means reducing the number of safety checks that could interrupt production.

HSE has previously said that declines in safety checks started after a period of low oil prices in the last decade.<sup>124</sup>

### **2.5. Montara and Deepwater Horizon**

#### **2.5.1. Montara**

##### *2.5.1.1. Facts of the incident<sup>125</sup>*

The Montara incident was an oil and gas leak that took place in the Timor Sea off the northern coast of Western Australia. On 21 August 2009, during drilling operations at the Montara wellhead platform, an uncontrolled release of oil and gas occurred from the H1 well. All 69 personnel at the platform were evacuated safely. On 1 November 2009, the leaking well was intercepted (capped). However, during operations to complete the “well kill”, fire broke out on the West Atlas rig and the Montara wellhead platform. On 3 November 2009, the fire was extinguished. For a period of 74 days, oil and gas continued to flow unabated into the Timor Sea, approximately 250 kilometres off the northwest coast of Australia. Patches of sheen or weathered oil could have affected at various times an area as large as 90,000 square kilometres.<sup>126</sup>

The Montara Development Project is owned and operated by PTTEP Australasia (PTTEP AA), a subsidiary of PTT Exploration and Production (PTTEP). PTTEP is Thailand’s national petroleum exploration and production company and is one of the nation’s largest publicly

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<sup>123</sup> <<http://www.guardian.co.uk/commentisfree/2011/aug/17/oil-spill-shell-timebomb>>.

<sup>124</sup> <<http://maritime-connector.com/news/offshore-oil-gas-news/uk-north-sea-oil-and-gas-leaks-at-lowest-number-in-the-last-ten-years>>, last accessed 26 November 2012.

<sup>125</sup> <<http://www.au.pttep.com/news/2012>>.

<sup>126</sup> Borthwick, D., Report of the Montara Commission of Inquiry, June 2010, p. 5

lised companies.<sup>127</sup> PTTEPAA was granted a permit and licence around November 2008 to drill three development wells in the Montara oil field, one of them being the H1 Well which caused the incident.<sup>128</sup> The West Atlas rig (owned and operated by Atlas) was positioned over the Montara wellhead platform to drill the wells (as contractor) for PTTEP AA.<sup>129</sup>

Under Australian law, the registered title holder of a permit, lease or licence bears the obligation to prevent the occurrence of an oil spill.<sup>130</sup> Therefore, in the case of Montara, it is the PTTEP AA that was held liable.

As to the amount of oil that was discharged into sea, the estimates given by PTTEP AA was that the oil flow in the sea at an speed of 400 barrels per day.<sup>131</sup> This was questioned by the Montara Commission of Inquiry. The Commission noticed in particular testimony from PTTEPAA's chief operating officer even suggested that "the initial flow may have been as high as 1,000 to 1,500 barrels per day before dropping to around 400 barrels and possibly less".<sup>132</sup> The Commission believed there are "methods that could and should have been applied to get a more informed estimate of the amount of oil that was released, with a view to informing the public".<sup>133</sup> In the final report, the Commission stated the Well leaked "possibly between 400 and 1500 barrels of oil per day, and unknown amounts of gas, condensate and water, until the Relief Well operations were successful in 'killing' the well over ten weeks later".<sup>134</sup>

The Commission estimated the surface coverage of the released hydrocarbons to have ranged from 6,000 to 25,000 square kilometres. The evidence before the Inquiry indicated that hydrocarbons did enter Indonesian and Timor Leste waters to a significant degree. The estimate from the Australian Maritime Safety Authority (AMSA) of the total surface area within which oil or sheen was observed at one time or another during the spill was around 90,000 square kilometres. However, as indicated by AMSA in its submission to the Inquiry, most of the hydrocarbons remained 'within 35 kilometres of the platform with patches of sheen and weathered oil reported at various distances in different directions from the platform as currents, wind and temperature varied over the three month period'.<sup>135</sup>

Even when based on the estimate of 400 barrels per day, the volume of oil spilled from the Montara wellhead platform makes it Australia's third largest oil spill. Only two oil spills from the tanker *Kirki* in 1991 and the *Princess Anne Marie* in 1975 were larger. "The Blowout caused the worst oil spill in Australia's offshore petroleum industry history. Previously, there had been six offshore blowouts in Australian waters between 1965 and 1984. These involved either no oil spill or spills of only negligible amounts. It is still fortunate, in view of the highly flammable nature of the material released, that the impact of the Blowout was not more severe and did not include the loss of human lives. Disasters such as the explosion and fire on the *Piper Alpha* gas production platform in the North Sea in 1988, which claimed 167 lives, and the *Deepwater Horizon* rig in the Gulf of Mexico in 2010, which claimed 11 lives, remind us of the potentially catastrophic consequences of failures in equipment or procedures in the offshore petroleum industry."<sup>136</sup>

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<sup>127</sup> <<http://www.au.pttep.com/>>, last accessed 7 May 2013; see also Report 2010, p. 36.

<sup>128</sup> Later PTTEP AA sought approval to batch drill two additional wells. Therefore, there were five wells at the Montara oil field, being four production wells H1, H2, H3, H4 and a gas injection well GI. See Report 2010, p. 49.

<sup>129</sup> *ibid.*, pp. 49-50.

<sup>130</sup> See the discussion in 3.5.6.

<sup>131</sup> <<http://www.au.pttep.com/media/20774/montara%20oil%20spill%20incident%20response.pdf>>, last accessed 23 April 2013.

<sup>132</sup> Report 2010, p. 26.

<sup>133</sup> Report 2010, p. 26.

<sup>134</sup> Report 2010, p. 38.

<sup>135</sup> Report 2010, p. 26.

<sup>136</sup> Report 2010, p. 38.

The reason for the incident, according to the findings of the Commission of Inquiry was that PTTEP AA “did not observe sensible oilfield practices at the Montara Oilfield. Major shortcomings in the company’s procedures were widespread and systemic, directly leading to the Blowout”. “Well control practices approved by the delegate of the Designated Authority, the Northern Territory Department of Resources, most likely would have been sufficient to prevent the Blowout if PTTEPAA had adhered to them and to its own Well Construction Standards”.<sup>137</sup>

The Commission expresses concerns since environmental impacts from the Blowout are difficult to determine and are unlikely to ever be known. This is because the location of the Montara wellhead platform is remote and there is little baseline data about species and habitats. There was also a delay before the commencement of Scientific Monitoring of the environmental impacts of the oil spill. Chapter 6 of the report discusses the spread of the pollution, the clean-up led by AMSA and the regulatory framework for environmental protection.<sup>138</sup>

“PTTEP AA volunteered to the Australian government within the first few days of the incident that the company would pay for all response and clean up costs. These have so far totaled more than A\$320 million.” “The company is also paying for a long term environmental monitoring program under a separate agreement with the Australian government.”<sup>139</sup>

The PTTEP received a fine of AUD 510,000 (approximately US\$526,320) on 31 August 2012 from the Darwin Magistrates’ Court for its actions in relation to the Montara spill. The Court found that the PTTEP was guilty on four charges: “the first three charges, each of which carries a maximum penalty of \$567,000 (AUD 550,000), fall under Clause 9(4) of the Offshore Petroleum and Greenhouse Gas Storage Act 2006. The fourth charge, which carries a maximum penalty of \$56,760 (AUD 55,000), lies under Section 569 (1) and it relates to failure to ensure that operations were conducted ‘in a proper and workman-like manner and in accordance with good oilfield practice’.”<sup>140</sup>

PTTEP could be confronted with the maximum fine of \$1.8 million (AUD 1.7 million). The Magistrate however recognized that PTTEP took on full responsibility for the incident and that the company had made every effort to transform its operations and culture. In addition, the Magistrate also acknowledged that the company had no prior accident record.<sup>141</sup> The PTTEP launched a coordinated incident response, and it has spent around \$41 million to \$52 million (AUD 40 to 50 million) in its direct environmental clean up operations.<sup>142</sup>

#### 2.5.1.2. *Transboundary complaints from Indonesia*

The Montara wellhead platform is located in the Timor Seam 254 kilometers northwest of the Western Australian coast and 685 kilometers from Darwin. The Ashmore Reef National Nature Reserve and Cartier Island Marine Reserve are approximately 157 kilometers away from Montara.<sup>143</sup> Montara is situated 250 kilometers from Australia’s Kimberly

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<sup>137</sup> Report 2010, p. 6.

<sup>138</sup> Report 2010, p. 39.

<sup>139</sup> <<http://www.au.pttep.com/media/20774/montara%20oil%20spill%20incident%20response.pdf>>, last accessed 23 April 2013.

<sup>140</sup> <[http://www.rigzone.com/news/article.asp?a\\_id=120382](http://www.rigzone.com/news/article.asp?a_id=120382)>, last accessed 23 April 2013.

<sup>141</sup> Ibid.

<sup>142</sup> Ibid.

<sup>143</sup> Christou and Konstantinidou (2012), 19.

coastline and 300 kilometers from the nearest Indonesian landfall. Some of the oil from the spill reached Indonesian water. Following the occurrence of the incident, the government of Indonesia sought US \$2.4 billion in compensation from PTTEP AA. The Indonesian government claimed that fishing grounds in the Timor Sea were polluted and catches fell significantly as a result of the spill, and inshore seaweed fishermen (particularly on the island of Rote) had their livelihoods destroyed.<sup>144</sup> PTTEP did not accept the claim on the basis that “no verifiable scientific evidence” had been presented to the company to support the Indonesian government’s claim for compensation.

After initially rejecting the demand for compensation, PTTEP was reportedly willing to compensate the fishermen partly.<sup>145</sup> The PTTEP has agreed to sign an MOU on the compensation estimated to reach around \$3 million (instead of the US\$2.4 billion as initially demanded by the Indonesian government).<sup>146</sup> However, the signing of the MOU has been postponed several times.

In general under customary international law, a state shall exercise due diligence to ensure that activities carried out within its jurisdiction do not cause extra-territorial harm to the rights or interests of other states.<sup>147</sup> Such a state responsibility shall also be applicable in the case of marine environment.<sup>148</sup> This was confirmed in the UNCLOS which stipulates that a coastal state has the exclusive sovereign rights over offshore exploration and exploitation activities that take place in EEZ and continental shelf, meanwhile, the coastal state also has a duty to protect and preserve the marine environment.<sup>149</sup> However, when an incident causes damage to other states beyond the jurisdiction of one particular coastal state, there is no international regime to solve the transboundary damage. Very often, the states would rely on regional or bilateral agreements.

However, as the Montara-case illustrates, in the absence of such an agreement, many hurdles exist as to the claims for compensation. One obvious difficulty relates to the evidentiary difficulty inherent in the transboundary claim.<sup>150</sup> As the activities take place in another state than where the damage is incurred, it is inevitably difficult for the suffering state to collect sufficient evidence to prove the causal link between the damage it has sustained and the activity in another jurisdiction. It is due to this reason that the claims from the Indonesian government were not accepted by the PTTEP.

According to Article 198 of UNCLOS, when a state is aware of imminent or actual damage to the marine environment, “it shall immediately notify other States it deems likely to be affected by such damage, as well as the competent international organizations.” On this point, the Australian government was criticized for not informing the Indonesian who could be affected by the damage caused by the Montara incident.<sup>151</sup>

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<sup>144</sup> <<http://www.au.pttep.com/media/20778/government%20of%20indonesia%20compensation%20claim.pdf>>, last accessed 23 April 2013.

<sup>145</sup> <<http://www.antaranews.com/en/news/78539/montara-oil-spill-victims-still-awaiting-promised-compensation>>, last accessed 23 April 2013.

<sup>146</sup> Ibid.

<sup>147</sup> Brownie (2008), 455.

<sup>148</sup> Smith (1988), 22.

<sup>149</sup> This was discussed in Chapter 3 of the report.

<sup>150</sup> Bosma (2012), 90.

<sup>151</sup> Crawford (2011).

## 2.5.2. Deepwater Horizon

### 2.5.2.1. *Facts of the incident and legal issues*

On 20 April 2010, the ultra-deepwater, semi-submersible mobile offshore oil rig Deepwater Horizon exploded, caught fire and sank in the Gulf of Mexico off the shores of Louisiana. The rig was owned and operated by Transocean, a Switzerland based offshore drilling contractor, and leased to British Petroleum (BP) Plc, one of the world's largest oil companies. The explosion and fire, which resulted in 11 fatalities and several injuries, occurred in spite of specialized oil spill prevention equipment called a blowout preventer (BOP), designed to avert this type of disaster.<sup>152</sup> The failure of the BOP left the well unsecured and leaking from the marine riser. According to a report of BP of September 2010 MODU, the incident started with a "well integrity failure", and then was followed by a loss of control of the pressure of the fluid in the well.<sup>153</sup> The well was capped on 15 July 2010 and permanently sealed on 19 September 2010.

With respect to the parties involved, there was a joint venture between the following parties:

1. BP owing 65% of the well;
2. Anadarko Petroleum Corporation with a 25% of the well;
3. Mitsui Oil Exploration Company of Japan (MOEX Offshore LLC) was a 10% owner of the lease for the Macondo well at the time of the incident; (MOEX is a wholly-owned subsidiary of MOEX USA Corporation, and Mitsui Oil Exploration Co. Ltd. is the corporate parent of MOEX USA, which in turn is owned by Mitsui & Co., Ltd. of Japan;
4. Transocean LTD is the owner of the oil rig Deepwater Horizon and is registered in the Marshall Islands.

Other parties involved include:

1. Cameron International as the manufacturer of the blowout preventer;
2. Halliburton as the drilling contractor that cemented the well.

The legal issues at stake can be summarized as follows:

First, as to the right of limitation of liability, according to the liability limit provision under the US Oil Pollution Act, BP's liability would be capped at \$75 million if the parties were not at gross negligence. The Deepwater Horizon is a semi-submersible drilling rig, thus a MODU, "being used as an offshore facility is deemed to be a tank vessel with respect to the discharge, or the substantial threat of a discharge, of oil on or above the surface of the water."<sup>154</sup> If the removal costs and damages resulting from an incident involving a MODU exceed the amount for which the responsible party is liable, then the MODU is deemed an offshore facility.<sup>155</sup> Thus, the responsible party for the offshore facility, the lessee or permittee, becomes liable for any excess liability with respect to the oil discharged on or above the surface of the water.<sup>156</sup>

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<sup>152</sup> Blowouts occur during offshore drilling operations when pressure exceeds the weight of the drilling fluid in the well, which results in an uncontrolled flow of oil. The oil flow could result in loss of the property at the drill site. See King (2010), 3.

<sup>153</sup> Ibid.

<sup>154</sup> 33 USC §2704(b)(1).

<sup>155</sup> 33 USC §2704(b)(2).

<sup>156</sup> Force, Davies and Force (2011), 945; see also De la Rue and Anderson (2009), 249. The lessee or permittee remains liable as well for a discharge of oil from the MODU that occurs below the surface of the water.

BP has announced that it would waive its right to limit under OPA and that it has already paid claims in excess of the statutory limit.<sup>157</sup> Nevertheless, BP reserved its right to seek reimbursement or contribution from other responsible parties and from third party for claims, costs, expenses and liabilities arising from the incident.<sup>158</sup>

Second, OPA has a requirement of providing a compulsory financial guarantee.<sup>159</sup> In the case of Deepwater Horizon, the insurance arrangements are as follows:

On the one hand, on the part of the license holders, the insurance is arrangements include:

- BP (25% interest holder) self insures through its own captive insurance company, Jupiter Insurance Ltd. Jupiter is reported to have an underwriting limit of USD 700 million and does not purchase reinsurance. In other words, any insurance cover that might be needed is taken on BP's own balance sheet;
- Anadarko (25% interest holder) has operators extra expenses (OEE) insurance with a limit of USD 250 million for 100%, equating to USD 62.5 million for its 25% interest. In addition, Anadarko has a third party liability insurance with a limit of USD 150 million.

MOEX has OEE insurance with a limit of USD 300 million for 100%, equating to USD 30 million for its 10% interest. It has also a third party liability insurance with a limit of USD 150 million.

On the other hand, the contractors involved also have certain insurance arrangements:

Transocean (the drill rig owner and operator) has several insurance arrangements:

- Hull insurance for the Deepwater Horizon drilling rig with an agreed insurance value of USD 560 million. This covers the loss of the rig itself and does not respond to any pollution liability or liability for third party claims;
- Casualty insurance programme covering up to USD 1 billion, among which USD 50 million is self insured by Transocean. This cover is placed with insurers in London, the US and Bermuda;
- Separate US workers compensation insurance for statutory limits;
- Contingent OEE insurance with USD 150 million limit in the event Transocean becomes contractually liable to pay for the costs or claims arising from the pollution.
- Halliburton (well service contractor) has third party liability insurance up to USD 600 million; and
- Cameron Iron Works (BOP supplier) has third party liability insurance up to USD 500 million.<sup>160</sup>

In addition, according to the Clean Water Act (CWA), there are relevant provisions concerning environmental crimes and administrative and civil penalties. Section 1319 of the CWA titled "Enforcement", sets forth civil and administrative penalties (§1319(d)(g)) and criminal penalties (§1319(c)) for illegal discharges. Criminal penalties are imposed for the following:

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<sup>157</sup> Statement of BP Exploration and Production Inc. re Applicability of Limit of Liability under Oil Pollution Act of 1990, in re Oil Spill by the Oil Rig "Deepwater Horizon" in the Gulf of Mexico, MDL No.2179, 2010 WL 4151003, 18 October 2010. BP also urged Transocean, Anadarko and MOEX to waive their rights to limitation "unequivocally" in its court filing.

<sup>158</sup> Force, Davies and Force (2011), 948.

<sup>159</sup> For further details see below 4.5.

<sup>160</sup> Bosma (2012), 108-109.



- negligent violations §1319(c)(1)(A) to (B),
- knowing violations §1319(c)(2)(A) to (B),
- knowing endangerment §1319(c)(A) to (B), and
- false statements (§1319(c)(4).

As to negligent violations, CWA provides in §1319(c)(1) <sup>161</sup>that anyone who “negligently” violates specified sections of the CWA has committed an offense under the Act. Such a person will be punished by a fine of between \$2,500 and \$25,000 per day of violation, or by imprisonment for not more than one year, or both. The sanctions for knowing violations are a fine of not more than \$50,000 per day of violation, imprisonment of not more than two years, or both.

The core issue is whether the spill has to be considered to be due to gross negligence or not. Under the OPA, if the responsible party is not at gross negligence, it may be entitled to a financial cap on his liability for \$ 75 million in economic damages, although he may still need to pay the full amount of cleanup costs.<sup>162</sup> If the party were at gross negligence, he may not only lose the right of limiting his liability, but also will be confronted with a higher amount of fine pursuant to the CWA. The fine under the CWA is \$1100 (no gross negligence) to \$4300 (gross negligence) per barrel spilled.

#### 2.5.2.2. *Timeline of legal proceedings*

Within a couple of months after the occurrence of the incident, some 120 lawsuits were filed against one or more of the parties mentioned above.<sup>163</sup> On 10 August 2010, all the cases against BP and other parties were consolidated (77 cases) in the US District Court for the Eastern District of Louisiana under the Multi-District Litigation docket MDL No. 2179, captioned in Re: oil spill by the oil rig Deepwater Horizon in the Gulf of Mexico on April 20, 2010, presided by Judge Barbier.<sup>164</sup>

On 15 December 2010, the US Department of Justice (DOJ) filed a civil suit against BP and other parties for violations under the Clean Water Act in the US District Court for the Eastern District of Louisiana, which was consolidated with the other cases.<sup>165</sup>

On 21 April 2011, BP filed a lawsuit in a federal court in New Orleans against the rig owner Transocean and the BOP producer (which is worth \$40 billion) against, Halliburton and Cameron.

On 2 March 2012, BP settled with approximately 100,000 individual claimants and businesses, and this was approved by court on 13 August 2012.

On 14 November 2012, BP reached agreement with the Department of Justice for a settlement of \$4.5 billion for fines and penalty, including \$4 billion to the US government over five years and \$525 million to the Securities and Exchange Commission paid over three years. The fine is the largest in the US history.<sup>166</sup>

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<sup>161</sup> 33 USC §1319(c)(1).

<sup>162</sup> See further below 4.5.2.

<sup>163</sup> This was reported by Transocean to the Congress on 27 May 2010. Around the same time, UK media reported about 130 lawsuits were filed. See the Guardian...

<sup>164</sup> Bloomberg News, 14 December 2011.

<sup>165</sup> United States of America v. BP Exploration & Production Inc. et al., Civil Action No. 2: 10-cv-04536.

<sup>166</sup> <[www.guardian.co.uk/environment/2012/nov/15/bp-largest-penalty-hisotyr-gulf-oil-spill](http://www.guardian.co.uk/environment/2012/nov/15/bp-largest-penalty-hisotyr-gulf-oil-spill)>, last accessed 17 April 2013.

On 21 December 2012 Judge Barbier approved the settlement between BP Plc and individual and businesses for economic and property damage, which was estimated to be \$7.8 billion.

On 11 January 2013, Judge Barbier approved the settlement for medical benefits.

On 29 January 2013, BP Exploration and Production plead guilty on 14 criminal charges and agreed to pay \$4 billion fines and penalties.

On 19 February 2013, BP Plc failed to reach agreement with the government and it decided to go to court (together with its partners of the well Transocean and Halliburton) for the civil proceedings, in particular to determine the payouts and fines under the CWA and the natural resource damage assessment. The court started on 25 February 2013. in New Orleans with the first phase of a trial of liability, limitation, exoneration and fault allocation commenced.

There have been two settlement agreements approved concerning the damages caused by the Deepwater Horizon incident. One was approved by a federal judge Barbier (of the US District Court for the Eastern District of Louisiana) on 21 December 2011 concerning the economic and property damages, the second one was approved by the same judge on 11 January 2013 concerning medical benefits. However, a significant amount of adjudication still needs to be conducted, since the government's multiphase limitation and liability trial has not yet begun to determine the cause of the Macondo well blowout and assign percentages of fault to the companies involved. That trial began on 25 February 2013.

On the part of MOEX Offshore 2007 LLC, it has agreed to settle its liability at \$90 million on 17 February 2012. According to the terms of the settlement, MOEX will pay \$70 million in civil penalties to resolve alleged violations of the CWA and \$20 million to facilitate land acquisition projects in several Gulf States.<sup>167</sup>

On the part of Transocean, on 3 January 2013, Transocean plead that guilty in breach of the CWA, and it agreed to pay \$1.4 billion in civil and criminal fines and penalties. On 19 February 2013, Transocean reached agreement with the DOJ for a settlement of \$1 billion in civil fine, and on 14 February 2013, for \$400 million in criminal fine.

On the part of Cameron, on 20 March 2013, Judge Barbier ruled out punitive damages against Cameron; and on 3 April 2013 Cameron was dismissed from the trial by Judge Barbier.

### 2.5.2.3. *Civil penalty settlements*

BP, Transocean and MOEX have all reached civil settlements.

On 15 November 2012, BP reached a settlement with the Securities and Exchange Commission (SEC) to resolve related civil claims. This settlement was approved by the US District Court in the Eastern District of Louisiana on 10 December 2012.<sup>168</sup> BP agreed to pay \$525 million in civil penalty and to an injunction prohibiting it from violating US securities laws and regulations.<sup>169</sup>

In the complaint filed with the court, the SEC alleged that BP "made fraudulent public statements indicating a flow rate estimate of 5,000 barrels of oil per day" whereas the

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<sup>167</sup> <<http://www.epa.gov/enforcement/air/cases/moex.html>>, last accessed 23 April 2013.

<sup>168</sup> Ramseur and Hagerty (2013), 5.

<sup>169</sup> See SEC Press Release of 15 November 2012, at <<http://www.sec.gov/news/press/2012/2012-231.htm>>, last accessed 7 May 2013; see also the website of BP: <<http://www.bp.com/sectiongenericarticle800.-do?categoryId=9048917&contentId=7082602>>.

company “possessed at least five different flow rate calculations, estimates, or data indicating a much higher flow rate”.<sup>170</sup>

On 3 January 2013, the DOJ announced the civil settlement with Transocean, whereby Transocean agreed to pay \$1 billion. Among this amount, \$800 million goes to the Gulf Coast Restoration Trust Fund, \$200 million to the OSLTF.<sup>171</sup>

On 17 February 2012, DOJ and MOEX agreed on a civil settlement, and this settlement was approved by court on 8 June 2012. MOEX agreed to pay a \$70 million civil penalty with an additional \$20 million in supplemental environmental projects. Among the \$70 million penalty, \$45 million goes to the OSLTF, and \$25 million is to be distributed among the five Gulf States: \$6.75 to Louisiana, \$5 million each to Alabama, Florida and Mississippi, and \$3.25 million to Texas.<sup>172</sup>

#### 2.5.2.4. *Criminal penalty settlements*

On 15 November 2012, BP and the US DOJ announced a criminal penalty settlement of approximately \$4 billion, which was later approved by the US District Court in the Eastern District of Louisiana on 29 January 2013. The settlement is distributed as follows:

- \$2.394 billion to the National Fish and Wildlife Foundation (NFWF) to support restoration efforts in the Gulf states,
- \$1.15 billion to the OSLTF,
- \$350 million to the National Academy of Sciences for oil spill prevention and response research,
- \$100 million to the North America Wetland Conservation Fund, and
- \$ 6 million to General Treasury.<sup>173</sup>

In accordance with the settlement, BP agreed to plead guilty to 11 felony counts of misconduct or neglect of ships officers related to the deaths of 11 people, as well as misdemeanor counts under the CWA and the Migratory Bird Treaty Act, and a felony count of obstruction of Congress.<sup>174</sup>

Transocean also reached a criminal settlement with the DOJ on 3 January 2013.<sup>175</sup> Transocean agreed to pay \$400 million for criminal charges.<sup>176</sup> The amount is to be distributed as follows:

- \$150 million to the NTWF,

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<sup>170</sup> Ibid. The SEC complaint is available at <http://www.sec.gov/litigation/complaints/2012/comp-pr2012-231.pdf>, last accessed 7 May 2013.

<sup>171</sup> The civil settlement consent decree is available at the website of US DOJ: Partial Consent Decree between the Plaintiff United States of America and Defendants Triton Asset Leasing GMBH, Transocean Holdings LLC, Transocean Offshore Deepwater Drilling Inc., and Transocean Deepwater Inc., <<http://www.justice.gov/iso/opa/resources/915201313122945254063.pdf>>, last accessed 7 May 2013.

<sup>172</sup> Consent Decree between the United States and MOEX Offshore 2007 LLC, p10. Available at <<http://www.epa.gov/compliance/resources/decrees/civil/caa/moex-cd.pdf>>, last accessed 23 April 2013.

<sup>173</sup> Ramseur and Hagerty (2013), 5.

<sup>174</sup> Ibid. The settlement agreement is available at the website of the US Department of Justice: <<http://www.justice.gov/iso/opa/resources/43320121115143613990027.pdf>>, last accessed 7 May 2013.

<sup>175</sup> “Transocean agrees to plead guilty to environmental crime and enter civil settlement to resolve US Clean Water Act Penalty Claims from Deepwater Horizon Incident”, Department of Justice Office of Public Affairs, 3 January 2013.

<sup>176</sup> The Cooperation Guilty Plea Agreement is available at <<http://www.justice.gov/opa/documents/transocean-plea-agreement.pdf>>, last accessed 7 May 2013.

- \$150 million to the National Academy of Sciences for oil spill prevention and response research, and
- \$100 million in fines would go to the OSLTF.<sup>177</sup>

#### 2.5.2.5. *Post-Macondo responses*

The Deepwater Horizon incident served as an alert for both the industry and regulators. They all took immediate reactions to the Macondo incident.

First, we address the response by industry. In July 2010, oil majors Chevron, ConocoPhillips, ExxonMobil and Shell reached an agreement to invest USD 1 billion to build and deploy a flexible and adaptable containment system capable of capturing and containing oil from any underwater well blowout in the deepwater Gulf of Mexico. The new system, expected to be completed in 2012, should be able to mobilize within 24 hours and have an initial capacity of containing 100,000 barrels per day working at depths of up to 10,000 feet. The four companies also agreed to inform a nonprofit organization, the Marine Well Containment Company, to operate and maintain this system.<sup>178</sup>

In September 2010, BP announced its intention to join the proposed project by providing the equipment and experienced BP technical personnel needed to respond to a deepwater well control incident.

Second, on the side of the regulators, after the incident, the US government tightened the regulatory mechanism concerning offshore activities. It has restructured the federal regulatory agency responsible for monitoring offshore drilling (Minerals Management Service, known as MMS was renamed BOEMRE and divided into two divisions: BOEM and BSEE). BOEMRE then issued two regulations to enhance the safety of offshore activities on 30 September 2010, the Drilling Safety Rule and the Workplace Safety Rule. The first regulation sets standards to improve the safety of offshore activities on the US outer continental shelf. The second makes mandatory the safety and environmental management system (SEMS).

A ban on offshore drilling was imposed again after the incident, but it was lifted on 12 October 2010. In December 2010 the Obama administration announced that it would not allow drilling off the Atlantic coast and in the eastern Gulf of Mexico near Florida.

Royal Dutch Shell urged the US regulator to adopt the stricter drilling regulations of the North Sea and impose them on offshore drilling companies operating in the Gulf area.<sup>179</sup> It was estimated that the tighter regulations could cost the industry up to USD 183 million per year. The new regulations are expected to add USD 1.4 million to the cost of each new deepwater well and USD 90,000 to that of each shallow water well. Overall, the number of rigs in operation is expected to fall to 15%, down from 35 to 45% before the accident, due to increased liability, tighter operating standards and higher costs.<sup>180</sup>

The US Environmental Protection Agency (EPA) announced in November 2012 that it had temporarily suspended BP Plc and other BP companies from participating in or receiving new federal contracts, or renewing an expiring one. However, the suspension does not affect existing contracts BP has with the US government.<sup>181</sup>

<sup>177</sup> Ramseur and Hagerty (2013), 6.

<sup>178</sup> New Oil Spill Containment System, Shell, 22 July 2010. See also KPMG Global Energy Institute, 2011, p. 7.

<sup>179</sup> National Post's Financial Post & FP Investing (Canada) 2010. Quoted from Hamilton (2010), 14.

<sup>180</sup> KPMG Global Energy Institute (2011), 9.

<sup>181</sup> <<http://www.bp.com/sectiongenericarticle800.do?categoryId=9048917&contentId=7082602>>, last accessed 7 May 2013.

#### 2.5.2.6. Summary

The case of the Macondo/Deepwater Horizon incident shows that, at least in the US, a operator, like in this particular case BP, but also other contractors involved in the operation of the rig can be confronted with a large variety of claims.

Although the total amounts of payments by BP and the other contractors is yet (May 2013) unknown it is important to stress that payments from BP took place at at least three different levels:

- as was just indicated an amount of \$4 billion was paid as a record criminal penalty settlement;
- an amount of \$20 billion was paid to the Gulf Coast Claims Facility (GCCF) by BP;
- as was just made clear, substantial amounts were already paid by BP in civil penalties, but precisely on the amount of civil penalties there still is debate between the parties on two crucial issues:
  - the total amount of oil released;
  - whether there was gross negligence or not. Although BP waved its right to call on the limit under OPA the question whether there is gross negligence or not is still relevant to determine the civil fine under the CWA since that is four times as high (\$4,300) in case of gross negligence than when there is no gross negligence (\$1,100).<sup>182</sup>

Although the total amounts to be paid by BP (and some of the other contractors) are hence still unknown (in May 2013) estimates by experts hold that total payments by BP could easily amount to \$40 billion.<sup>183</sup> It is, however, important to recall that those payments may hence have different legal bases. The functioning of the claims settlement in the Deepwater Horizon-case and more particularly the GCCF will be further discussed below.<sup>184</sup>

### 2.5.3. Risk on a Deepwater Horizon Oil Spill in the EU?

#### 2.5.3.1. Different depths and pressures

As we just discussed in the previous section, on 20 April 2010 an explosion tore through the Deepwater Horizon drilling rig following a blow out of the exploratory 'Macondo' oil well in the Gulf of Mexico. The disaster killed 11 platform workers, injured 17 and caused one of the greatest environmental disasters in U.S. history. Over a period of several months an unprecedented amount of oil flowed into the Gulf. By the time the well was sealed over 4 million barrels of oil had been released into sea – one barrel of oil roughly equaling 160 liters. The spill severely damaged the local oceanic environment, polluted many coastal areas and threatened the livelihoods of those living in the area. Apart from causing environmental damage the oil spill impacted on both the local economy (fisheries, tourism etc.) and the global economy – which becomes more and more dependent on a steady supply of natural resources of this kind.<sup>185</sup>

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<sup>182</sup> See *supra* 2.5.5.2.1. and see Daily Report for Executives 20 February 2013, available at <[http://dailyreport.bna.com/drpt/display/batch\\_print\\_display.adp](http://dailyreport.bna.com/drpt/display/batch_print_display.adp)> last accessed on 21 February 2013.

<sup>183</sup> Interview with Dean Kent Syverud, independant trustee of the GCCF on 5 March 2013 and interview with Dr. Philipp Wassenberg, Munich Re Insurance Company, 6 May 2013.

<sup>184</sup> See 4.9.4.

<sup>185</sup> Janssen (2012), 11 and Kerr, Kintisch and Stokstad (2010), 674-675.

The risks related to oil drilling are to a significant degree linked to water depth and the temperature and pressure characteristics of the oil well in question. The Deepwater Horizon platform drilled at a water depth of more than 1500 meters. Moreover, the concerned Macondo well is characterized by high pressures and high temperatures. Such oil wells are more than others prone to destabilization and consequently have a higher risk on unwanted escape of oil or gas. It could be argued that the most critical element of the Deepwater Horizon oil spill was not so much the depth at which was drilled, rather the fact that Macondo is a high pressure, high temperature well.<sup>186</sup>

At the North Sea, oil drilling conditions are somewhat different compared to the Gulf of Mexico. The majority of oil wells are located at depths of less than 100 meters. On the Dutch continental shelf the maximum drilling depth is 50 meters. On the Norwegian part of the North Sea the maximum drilling depth is 180 meters, off the coast of Bergen whereas on the UK continental shelf the deepest wells are located near the Shetland Islands. Depending on where you would draw the line of where the North Sea ends drilling depths extend to about 1100 meters. Moreover, nowhere at the North Sea does deepwater drilling occur in high pressure, high temperature oil wells.<sup>187</sup>

#### 2.5.3.2. *Concerns after Macondo*

Nevertheless, the Deepwater Horizon disaster incited concern in the EU as well. Shortly after the full extent of the disaster in the Gulf of Mexico became apparent Norway postponed new deepwater drilling pending an investigation of what had happened. Furthermore, the United Kingdom doubled the number of environmental oil rig inspections and the Netherlands developed new ‘best practices’ and equipment for oil spill mitigation.<sup>188</sup>

On 22 May 2010, the United States’ President Barack Obama announced the constitution of the “National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling”, also denoted as the Oil Spill Commission. It was to investigate the blowout that occurred when the Deepwater Horizon rig was drilling the Macondo well under more than 1,500 meters of the Gulf of Mexico water and about 4,000 meters of sea floor. The blow - out caused the greatest environmental disaster in U.S. history. The Commission – which was to be independent and non - partisan – was charged to provide the President, policymakers, industry, and not in the least the American people with a clear and fair elucidation of what happened, of the immediate and root causes, and of consequent opportunities to change offshore energy production into a more safe and sound enterprise. The Commission strived to avoid singling out just one bad actor or crucial misstep – the report takes an expansive view.<sup>189</sup>

The investigation of the Commission yielded four central findings. First, the oil spill can be seen as the embodiment of a long lasting culture of complacency. Over the course of years the oil industry was moving into ever more challenging environments. However, as profits expanded while accidents remained absent investments to keep up with the increased risks strongly lagged behind the actual need thereof. Second, failures on the drilling rig itself can be traced back to a lack of consistent commitment to safety by industry, from the highest management levels on down. The organizational culture allowed for missed warning signals, failure to share information and poor perception of the risks involved. Third, government

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<sup>186</sup> Janssen (2012), 15.

<sup>187</sup> Janssen (2012), 16.

<sup>188</sup> Janssen (2012), 11.

<sup>189</sup> Oil Spill Commission: National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, 2011. See also Janssen (2012), 59-60.

itself failed as well: federal regulation and oversight proved to be clearly insufficient. Legal authority, regulations, available expertise and management all fell short to provide a proper framework for deepwater drilling to take place in. Fourth, the preparedness to respond to an oil spill of the magnitude of Deepwater Horizon was greatly inadequate. For over 20 years no real improvements in response technologies had been made, coordination of the response effort – to integrate local, state and federal actors – exhibited many weaknesses, and the joint public - private response revealed the need for public and private investment. Consequently, the response by no means led to the desired result.<sup>190</sup>

The findings from the Deepwater Horizon disaster must be considered as relevant not only for the U.S. situation, but also for the EU.

### 2.5.3.3. *Expert evaluation*

As mentioned before in Section 2.2.2, differences exist between the offshore activities in e.g. the North Sea and the Gulf of Mexico. One major difference is that the water depth in the Gulf of Mexico for oil and gas activities goes much deeper than in the North Sea. In the Gulf of Mexico, offshore activities often take place at depth of thousands of meters, whereas in the North Sea, they mainly take place at a depth less than 100 meters.<sup>191</sup> Then the crucial question is to what extent the depth of offshore activities may influence the accident risks and pollution costs. Incidents like loss of well control, blowout preventer failure, or the need for relief wells, can also occur in shallow water or on shore.<sup>192</sup>

It was pointed out by some experts in the post-Macondo studies that both the velocity and irregularity of underwater currents as well as extreme pressures and temperatures put extra stress on subsea equipment in the deep. Pressure control becomes more difficulty as the drill bit descends because of the greater likelihood of encountering abnormal geopressures.<sup>193</sup> A later study by Lloyd's also reveals that the cost of drilling in deepwater is not linear with depth, but it increases exponentially.<sup>194</sup> Therefore, the risks increase significantly with the depth going further.

However, this does not necessarily mean that the risks in shallow water offshore activities (e.g. in the North Sea) are smaller than those in the deepwater (e.g. in the Gulf of Mexico). It is recognized in many studies that the water depth is not the only factor that influences the risks of the offshore activities.<sup>195</sup> Moreover, for deepwater activities, once a spill occurred, it might take longer for the spilled oil to reach shore, so in this respect the deepwater activities may have the advantage that it leaves more time for intervention to protect the coastline.<sup>196</sup> But on the other hand, due to restraints on technology, the effectiveness of currently available techniques for emergency responses remains to be tested with time. Take for instance, the use of dispersant, when the incident occurred to facilities in deepwater, using dispersant can prevent spilled oil coming to surface. Therefore, the most visible pollution seems to be

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<sup>190</sup> Ibid.

<sup>191</sup> Interview with OGP, 25 February 2013.

<sup>192</sup> National Commission on the BP Deepwater Horizon oil Spill and Offshore Drilling, Staff Working Paper No.1, A Brief History of Offshore Oil Drilling, p. 17.

<sup>193</sup> A Brief History of Offshore Oil Drilling, National Commission on the BP Deepwater Horizon oil Spill and Offshore Drilling, Staff Working Paper No.1, , p17. Available at: <<http://www.oilspillcommission.gov/sites/default/files/documents/A%20Brief%20History%20of%20Offshore%20Drilling%20Working%20Paper%208%2023%2010.pdf>>, last accessed 25 March 2013.

<sup>194</sup> Drilling in Extreme Environments: Challenges and implications for the Energy Insurance Industry, Lloyd's (2011), 10.

<sup>195</sup> E.g. the study carried out by Lloyd's, *ibid*.

<sup>196</sup> A Brief History of Offshore Oil Drilling, National Commission on the BP Deepwater Horizon oil Spill and Offshore Drilling, Staff Working Paper No.1, 2010, 16.

avoidable. However, the effect of such chemical dispersant on organisms in the sea remains to be seen.<sup>197</sup>

Yet the question of how oil reacts if it is forcefully released in deepwater remained unanswered.<sup>198</sup> Take the example of Deepwater Horizon incident where an estimated 4.9 million barrels of oil did not rise to the surface. “Estimates of what happened to the spilled oil suggest that 23% of the oil naturally evaporated or dissolved, 29% was naturally or chemically dispersed and 25% was directly recovered from the wellhead, burned or skimmed”.<sup>199</sup> Therefore, a balance of 23% is considered to be “residual”, “which includes oil that is on or just below the surfaces as light sheen, weather tar balls sand oil that has been washed ashore. The residual and dispersed oil is eventually likely to degrade naturally.”<sup>200</sup>

“Post Macondo studies have confirmed the presence of a deepwater plume of highly dispersed oil droplets and dissolved gases at between 3,200 and 4,200 feet deep extending for many miles, primarily to the southwest of the wellhead”.<sup>201</sup> “The long term of effect of these substances on the deepwater environment remains uncertain, with depletion of the oxygen supply and levels of toxicity to exposed organisms being two areas of concern. Although studies have shown that a deepwater plume would have formed naturally (as around 15% of the oil escaping the wellhead would have been physically dispersed by the fluid turbulence), the use of 18,379 barrels of dispersant injected into the oil and gas steam may have doubled its size. Injecting dispersant reduced the amount of oil rising to the surface and the risk of highly visible damage to shorelines and surface wildlife, but at the cost of more oil remaining within the water column and the risk of longer term impact on deepwater ecosystems. Further studies and monitoring may show whether the approach used at Macondo was correct and this will clearly influence future remedial operations in the event of a similar deepwater blowout.”<sup>202</sup>

Therefore, the influence of water depth on the risks is not fully projected due to technical restraints.

In addition to the water depth, the climate conditions may also influence the risks. The oil and gas industry is aware of the inhospitable climate in the North Sea,<sup>203</sup> and such weather conditions require the facilities to be built in such a way that it can survive the strong currents and pressure.<sup>204</sup> On the other hand, the advantage of strong wind and currents might be that the spilled oil can be quickly dispersed.<sup>205</sup> However, almost any argument in favour of “Europe is less risky” scenario almost inevitably also has a counter argument. One expert for example held that especially when addressing the risks for example in the West Shetlands it should also be taken into account that the waters there are considerably colder than in the Gulf of Mexico as a result of which natural dispersion of the oil may in fact be more difficult than in the Gulf.<sup>206</sup>

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<sup>197</sup> Ibid.

<sup>198</sup> Lloyd's (2011), 17-18.

<sup>199</sup> National Oceanic and Atmospheric Administration – oil budget Technical report, 23 November 2010.

<sup>200</sup> Lloyd's (2011), 18.

<sup>201</sup> National Commission on the BP Deepwater Horizon oil Spill and Offshore Drilling 2011, Final Report, January 2011.

<sup>202</sup> Lloyd's (2011), 18.

<sup>203</sup> Interview with OGP, 25 February 2013.

<sup>204</sup> <<http://www.oilgasarticles.com/articles/77/1/North-Sea-Oil-and-Gas/Page1.html>>, last accessed 16 March 2013.

<sup>205</sup> Interview with OGP, 25 February 2013.

<sup>206</sup> So Dr. Philipp Wassenberg of Munich Re Insurance Company, interview on 6 May 2013.



Another risk factor lies in the fact that in the North Sea some offshore fields *inter alia* in the Netherlands are mainly gas fields and not oil fields.<sup>207</sup> The different nature of oil and gas means that the damage caused by an offshore incident would be different when it involves gas or oil. The major damage caused by a gas facility is mainly personal injury and probably less on the environment,<sup>208</sup> whereas an oil incident will have larger influence on the environment than gas.

All the factors mentioned above are objective factors that may influence the accident risks for offshore activities. Besides, the subjective factors may also have some influence, e.g. the perspective of people on risks. The Deepwater Horizon incident has changed people's perspective on offshore incidents and the risks related to offshore activities. Prior to the occurrence of this incident, the estimated amount of deepwater wells drilled worldwide was 14,000, and there was no known major incidents.<sup>209</sup> The industry was aware of the potential risks, and they have developed plans for pollution incident based on other types of offshore spills, deepwater field tests and modelling of the likely flow dynamics.<sup>210</sup>

Some industry commentators argue that 50,000 wells have been drilled since 1947 with only one occurrence of a Macondo scale event. However, others counter that these numbers may be masking reality, as the absence of more incidents does not necessarily mean that the risk is a 1/50,000 event. The study completed by the Deepwater Horizon Study Group found that of the 5,000 wells drilled since 1993 only 43 were as complex as the Macondo well. Is the probability of another Macondo type event therefore 1 in 43, or even higher, given that the rate of wellbore instability in these 43 wells is unusually high?<sup>211</sup>

#### 2.5.3.4. *Limits of expert opinion*

Behavioral science tells us that people can misjudge risk due to some bias. People may misjudge risk due to an inability to conceive possible negative events, as desired scenarios or outcomes are easier to imagine, known as scenario bias. Furthermore, a failure resulting from a very unlikely chain of events is considered to have a negligible probability of occurrence.<sup>212</sup> The Deepwater Horizon Study Group study suggests that a scenario involving total blow out, total loss of rig and complete loss of well control for 87 days, as happened with Macondo, was not even considered possible.<sup>213</sup> Behavioural law and economics has shown that experts are subject to all kind of "biases". The most general bias from which experts suffer is a too large trust in their own expertise. This is referred to as "overconfidence". Various studies have provided evidence of this overconfidence. It was for example shown that experts have largely overestimated the precision with which one could predict the likelihood of a meltdown of the nuclear core in a nuclear installation. Experts also showed an irresponsible large trust in the stability of the Teton Dam, notwithstanding several problems that had occurred during the construction of the dam. The Teton Dam eventually collapsed in 1976.<sup>214</sup> Slovic and others point at several factors which cause experts to grossly underestimate specific risks and catastrophic events. It concerns *inter alia*:

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<sup>207</sup> Interview with OGP, 25 February 2013.

<sup>208</sup> Although methane is a strong greenhouse gas, which is damaging to the environment.

<sup>209</sup> Society of Petroleum Engineer Notes 2010, <[www.spe.org/notes/](http://www.spe.org/notes/)> 6 July 2010.

<sup>210</sup> Lloyd's (2011), 17.

<sup>211</sup> Lloyd's (2011), 28.

<sup>212</sup> Lloyd's (2010): Emerging Risks report, Behaviour: Bear, bull or lemming? <[http://www.lloyds.com/-/meida/Lloyds/Repports/360%20Emerging%20risk%20reports/EmergingRiskreportBehaviour\\_March2010\\_v2.pdf](http://www.lloyds.com/-/meida/Lloyds/Repports/360%20Emerging%20risk%20reports/EmergingRiskreportBehaviour_March2010_v2.pdf)>.

<sup>213</sup> Lloyd's (2011), 28.

<sup>214</sup> For a summary of these studies see Slovic, Fischhoff and Lichtenstein (2000), 104 *et seq.*

- The failure to recognize that human failure can substantially influence the effectiveness of technological systems. This became clear after the nuclear incident at Three Mile Island where operators repeatedly wrongly assessed problems with the nuclear reactor and failed to intervene on time;
- Overestimating the current level of scientific development and knowledge;
- Underestimating the integral functioning of technological systems. Engineers for example failed to discover that the reason for the failure of the DC-10 after its first flights was a decompression in the cargo part of the plane which led to a destruction of vital control systems;
- A well known problem with experts is also that they make mistakes in assessing probabilities. The latter is referred to as “calibration”. Physicians for example systematically overestimate the likelihood of survival of a patient with cancer.<sup>215</sup>

These examples show that one hence has to be extremely careful with expert evidence concerning the likelihood of a Deepwater Horizon incident in Europe given the overconfidence and other biases, which may even influence expert judgments.

There is also a risk that both the energy and insurance industries do not learn from their experience of Macondo due to hindsight bias, by which people conclude that their ability to handle a past event was higher than it really was. It is also possible that the more time that passes without any incident, the more easily organizations lower their estimates of the probability of an accident occurring.<sup>216</sup> A study carried out by Lloyd’s in 2011 also suggests that the absence of events in recent history and a good safety record should not be taken as evidence that the risk is low.<sup>217</sup>

#### 2.5.3.5. Summary

This overview of the various opinions shows that there is a lot of debate on the likelihood of a Deepwater Horizon-type accident in the EU. Many point at the fact that there are differences between the Gulf of Mexico and European waters, but others point at the fact that these differences should not be overstated and that hence, also in Europe, when a large scale disaster would happen, the potential damage can be substantial. The estimate of the potential damage caused by a disaster scale incident is of course very important, especially when it comes to the question how much financial capacity should be available to cover the risks from a major offshore accident. Hence, we will come back to this point when it is addressed below in Chapter 6.<sup>218</sup>

The goal to be pursued within this first task is to sketch the offshore industry in Europe and to analyse the details of the incidents that occurred in Europe, specially focusing on the amount of (traditional) damage caused by these incidents and the type of damage caused by these incidents.

Based on the research conducted, the following conclusions can be drawn:

- Reliable data on the actual number of offshore facilities in the EU are not readily available and existing data are in some cases not comparable. Hopefully, in this

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<sup>215</sup> Meadow and Sunstein (2001), 634.

<sup>216</sup> Nancy Leveson, MIT World 2010, Moving ahead: Engineering challenges of deep water drilling and future oil resource recovery, 28 September 2010.

<sup>217</sup> Lloyd’s (2011), 28. This was also held by Mr. De Jong, Inspector-General of the State Supervision of Mines in the Netherlands.

<sup>218</sup> See 6.1.2.

respect, one may hope with the implementation of Directive 2013/30/EU, the situation can be improved;

- The most important fact is that the number of offshore facilities is likely to rise in the (near) future, with oil and gas discoveries offshore Norway, in the Mediterranean and in the Black Sea. Furthermore, although not definitive yet, there are ideas to build offshore facilities in the Arctic, which is a much more difficult and risky environment to work in;
- Although many point at differences in the drilling conditions between the Gulf of Mexico (where the Deepwater Horizon incident happened) and the EU, data show that in the EU and Norway incidents do happen at various scales;
- Data of Norway and the UK show that personal injuries as well as hydrocarbon releases decreased over the last decade. Nevertheless, a few significant releases happened as well in the last decade;
- Due to fortunate circumstances (e.g. Statfjord A or Gannet Alpha) these releases did not cause severe personal or environmental damage;
- It therefore is difficult to examine insurance claims over the last decade;
- An analysis of recent incidents (last 5 years), shows that the reasons for these incidents have similar explanations in Norway and the UK and that these explanations might be worrisome. Both PSA as HSE investigation reports identify backlog of maintenance, deficient maintenance management, inadequacies in risk identification and deficient barrier management as causes of the incidents;
- Up to now, this has not led to severe environmental and personal damage, but we should not wait for a severe accident to happen, in order to develop proper regulation.



### 3. Analysis of existing legal regimes<sup>219</sup>

#### 3.1. Introduction

The goal to be achieved within this chapter is to analyze existing legal arrangements to cover civil liability for offshore incidents. Of course, a selection had to be made. We will therefore focus on the legal regime in some EU Member States, whereby we have obviously selected those Member States that have many offshore installations and thus a larger exposure to potential liability. However, a highly interesting non-EU country is Norway. As chapter 2 indicated, Norway has an impressive amount of offshore installations and therefore an analysis of its legal regime is important as well. In addition to the EU, also the civil liability regime of some other major offshore nations such as the US and Australia will be briefly addressed. In addition, it may also be interesting to look at regional, multi-lateral and bilateral arrangements, but also at the way in which civil liability is dealt with in other high risk sectors (such as more particularly the nuclear industry). Looking at the nuclear industry may constitute an interesting example of how a liability regime for offshore installations could be shaped as well or at least the study of the nuclear liability regime may show some problematic aspects from which a potential EU offshore liability regime could learn. Therefore, the nuclear liability regime will be analyzed in a rather detailed way. The reason is especially that the international nuclear liability regime has been the subject of a lot of criticism because of low limits on the liability of the nuclear power plant operator and because of public funding of the compensation. In that respect, a comparison with the US Price Anderson Act is quite interesting since public funding is absent and moreover a system of retrospective pooling is introduced (to be further discussed in 4.4.2.1) which does not necessitate money to be paid *ex ante*, but is based on *ex post* retrospective premiums. That may be an interesting model for the compensation for damage caused by offshore installations as well.

The remainder of this chapter is structured as follows: first, we will present the international legal framework (3.2); then we will discuss some regional arrangements concerning offshore liability regimes (3.3). next, we move to the current EU regime on offshore activities (3.4) and then present a few country studies concerning offshore liability regimes (3.5). Finally we will look at a liability regime in another high risk sector, more particularly the nuclear industry (3.6). A few concluding remarks from the analysis in this chapter are presented in 3.7.

#### 3.2. International legal framework

In order to better understand the role of civil liability for pollution damage caused by offshore activities, it may be useful to first have an overview of the entire legal structure on offshore oil and gas exploration activities.

The history of development of international law applicable to offshore activities can be traced back to the United Nations Geneva Conference of 1958, often referred to as UNCLOS I. The result of this conference was the adoption of four conventions on the law of the sea, among which the Convention on the Continental Shelf 1958. It was in this convention that coastal states were conferred the right to explore and exploit the mineral resources of their continental shelves.<sup>220</sup> This was superseded by the United Nations Convention on the Law of the Sea 1982 (UNCLOS 1982).

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<sup>219</sup> This corresponds with Task 2 of Work Package 1 of the Invitation to Tender.

<sup>220</sup> Oil and Gas UK Environmental Legislation, The Statutory Regime, see the website: <[www.ukooaenvironmentallegislation.co.uk/contents/pages/statutory.htm](http://www.ukooaenvironmentallegislation.co.uk/contents/pages/statutory.htm)>, last accessed 10 October 2012.

At the international level, many international conventions may be relevant for offshore activities, but they mainly regulate the safety of the offshore industry by setting technical standards (1973 International Convention for the Prevention of Pollution from Ships as amended by the Protocol 1978, known as MARPOL 73/78), or address the emergency response and preparation for offshore pollution incidents (International Convention on Oil Pollution Preparedness, Response and Co-operation 1990, known as the OPRC Convention). When it comes to the compensation and civil liability for offshore oil pollution damage, there has until now been no internationally accepted convention dealing specifically with liability issues. However, UNCLOS 1982 includes some general provisions on the obligations of states in regulating offshore related issues.

At various (sea) regions, there are often regional sea programs under the auspices of UNEP (United Nations Environment Programme). However, the liability issue is not the focus of these programs either. When it comes to national legislation, the one that comes in the spotlight is US law, as it has particular provisions in the Oil Pollution Act 1990 dealing with offshore pollution liability and financial security.

On the other hand, in Europe, although with a large amount of offshore oil reserves in the North Sea (and hence frequent offshore exploration activities) and yet some in the Mediterranean Sea, the domestic laws from various countries with particular attention to the liability issue related to offshore activities do not seem to be so well established.

In the following sections, the relevant international conventions will be analysed, focusing on the way these conventions tackle offshore issues.

### 3.2.1. UNCLOS

UNCLOS 1982 provides a general legal framework for the adoption of legal regimes dealing with sea-related activities. It is therefore often called the constitution of the seas. The most important provisions in the UNCLOS for offshore exploration activities are probably those related to the jurisdiction of a state related to offshore activities. Offshore exploration activities often take place in the exclusive economic zone and on the continental shelf, and the jurisdiction of these areas is exclusively granted to the coastal state under the UNCLOS.<sup>221</sup> It grants exclusive sovereign rights to coastal states for the purpose of exploring and exploiting the natural resources of their exclusive economic zones and continental shelves, including inter alia the non-living resources with respect to the seabed and subsoil.<sup>222</sup>

As far as pollution from offshore activities is concerned, coastal states with the sovereign rights to exploit their natural resources, shall have the duty to protect and preserve the marine environment.<sup>223</sup> They shall, according to the UNCLOS, either individually in national laws or jointly as appropriate, adopt laws and take measures to prevent, reduce and control pollution of the marine environment, especially take those measures designed to minimize “pollution from installations and devices used in exploration or exploitation of the natural resources of the seabed and subsoil”<sup>224</sup> Article 235 of UNCLOS further requires states to “ensure that recourse is available in accordance with their legal systems for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment by natural or juridical persons under jurisdiction.” In order to fulfil such an objective, states shall “cooperate in the implementation of existing international law and the further development of international law relating to responsibility and liability for the

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<sup>221</sup> These are embodied in Articles 56, 60, 77 and 81.

<sup>222</sup> See Articles 56 and 77 of UNCLOS 1982, respectively.

<sup>223</sup> Article 193 of UNCLOS 1982.

<sup>224</sup> Articles 194 and 208 of UNCLOS 1982.

assessment of and compensation for damage and the settlement of related disputes, as well as, where appropriated, development of criteria and procedures for payment of adequate compensation, such as compulsory insurance or compensation funds.”

Annex III of UNCLOS 1982 sets up “basic conditions of prospecting, exploration and exploitation”. It provides for general requirements for the qualifications of applicants, transfer of technology, approval of plans of work and financial terms of contract. Some provisions may be worth special attention as they concern the liability issue.

First in Article 11 of Annex III on joint arrangements, it provides that :

- “1. Contracts may provide for joint arrangements between the contractor and the Authority through the Enterprise, in the form of joint ventures or production sharing, as well as any other form of joint arrangement, which shall have the same protection against revision, suspension or termination as contracts with the Authority.
2. Contractors entering into such joint arrangements with the Enterprise may receive financial incentives as provided for in article 13 of this Annex.
3. Partners in joint ventures with the Enterprise shall be liable for the payments required by article 13 of this Annex to the extent of their share in the joint venture, subject to financial incentives as provided in that article.”

The “joint arrangements” with a certain extent of state participation are often a requirement for a legal entity to acquire a licence for offshore activities, e.g. in Norway, since the state wants to remain a certain extent of control of its natural resources. The legal entities that have obtained the licence to carry out offshore activities may of course benefit from the profits of such activities, but they are at the same time required to pay in the form of taxes or royalties (e.g. the production fees in the Norwegian system) to the state. The legal entity’s liability shall be proportionate to his share of the enterprise of offshore activities as provided in Article 11 of UNCLOS.

Article 22 of Annex III provides that:

“The contractor shall have responsibility or liability for any damage arising out of wrongful acts in the conduct of its operations, account being taken of contributory acts or omissions by the Authority. Similarly, the Authority shall have responsibility or liability for any damage arising out of wrongful acts in the exercise of its powers and functions, including violations under article 168, paragraph 2, account being taken of contributory acts or omissions by the contractor. Liability in every case shall be for the actual amount of damage.”

This provision establishes that the contractor and the state authority shall be liable for its wrongful act during operations or when exercising its functions. The liability shall in theory be to the full and actual amount of damage.

### **3.2.2. MARPOL73/78**

Article 2 of MARPOL defines a ship as “a vessel of any type whatsoever operating in the marine environment and includes hydrofoil boats, air-cushion vehicles, submersibles, floating craft and fixed or floating platforms”.<sup>225</sup> Therefore, a ship under MARPOL may cover offshore facilities only when they are “fixed or floating platforms”.

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<sup>225</sup> Article 2(4) of MARPOL.

However, Article 2, containing the definition of “discharge”, states that “discharge” specifically excludes a “release of harmful substances directly arising from the exploration, exploitation and associated offshore processing of sea-bed mineral resources”.<sup>226</sup> Nevertheless, Annex I of MARPOL which is the Regulations for the Prevention of Pollution by Oil, provides that fixed or floating offshore oil rigs must comply with the requirements “applicable to ships of 400 tons gross tonnage and above other than oil tankers” and may not discharge oil or oily mixtures into the sea “except when the oil content of the discharge without dilution does not exceed 15 parts per million”.<sup>227</sup> This seems confusing as to the applicability of MARPOL to offshore facilities.

The Unified Interpretation of MARPOL clarifies this issue. Of the five categories of discharge from offshore installations, the Annex I requirements only apply to two categories: the discharge of oil from “contaminated ballast” and from “machinery space drainage”, which is produced by generators, fuels tanks, and pumps of offshore installations.<sup>228</sup> MARPOL Annex I does not regulate the discharge of oil from “offshore processing drainage”, “production water discharge”, or “displacement water discharge”, which are the forms of pollution “directly related to offshore petroleum production”.<sup>229</sup>

### 3.2.3. The OPRC Convention

The OPRC Convention specifically applies to ships and offshore units. The “offshore unit” is defined as “any fixed or floating offshore installation or structure engaged in gas or oil exploration, exploitation or production activities, or loading or unloading of oil”. It requires the operator of offshore units to have oil pollution emergency plans which are approved by the competent national authority. In the event of a discharge or probable discharge of oil (whether on the offshore unit or only observed at sea), the persons in charge of offshore units shall report to the coastal state to whose jurisdiction the unit is subject. The Convention requires state parties to establish a national or regional system “for responding promptly and effectively to oil pollution incident”, and it further encourages international co-operation in pollution response.

From the discussion in the previous sections it becomes clear that at the international level there is in fact no convention dealing directly with offshore-related damage. However, when a well is discovered and drilling activities have to take place usually so-called mobile drilling units (abbreviated as MODU) will be used. These qualify as ships (to the extent that they are mobile) and hence the so-called Bunker Convention<sup>230</sup> or other conventions regulating damage resulting from maritime transport could apply. In this study we will mostly concentrate on the pure offshore-related damage (and hence not on the modus). One should, however, realise that to the extent that a unit is mobile (and can hence be considered as a ship) also either maritime international conventions (like the Bunker Convention) could apply or national legislation (so as the US OPA) that applies to damage caused by maritime transport.<sup>231</sup>

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<sup>226</sup> Article 2(3)(b)(ii) of MARPOL.

<sup>227</sup> Annex I Regulation 21 of MARPOL.

<sup>228</sup> Unified Interpretation of MARPOL 73/78, Annex I, 56.2.

<sup>229</sup> See Fowler (2012); see also Gao (1998), 103-104.

<sup>230</sup> See Shan (2010).

<sup>231</sup> So Mr. Alan Spackman, Vice-President IADC, interview on 5 June 2013.



### 3.2.4. Ongoing discussion at the International Maritime Organization (IMO)

At the 99<sup>th</sup> session of the IMO Legal Committee in April 2012 the possibility of a global liability and compensation regime for offshore oil and gas activities was re-examined. This option was first proposed by the Indonesian delegation in September 2010 and followed the Montara offshore oil pollution incident that occurred in August 2009, where damage was caused in the Timor Sea.

The Legal Committee recognized that bilateral and regional arrangements are the most appropriate means to address the matter and hence decided not to pursue an international regime as there was no compelling need to do so.<sup>232</sup>

More recently, on 22 February 2013 the Legal Committee of the IMO issued another statement concerning the liability and compensation issues connected with transboundary pollution damage from offshore oil exploration and exploitation activities. According to this report from the Legal Committee the IMO was still considered the most appropriate forum to deal with the issue of transboundary damage caused by offshore pollution due to its extensive experience and skill in various maritime and marine environmental issues. Hence it was agreed that Indonesia should continue the process of developing principles in order to assist states to enter into bilateral or regional arrangements. The principles to which the Legal Committee explicitly referred are the (i) precautionary approach; (ii) strict liability and (iii) the polluter-pays-principle. The issue would hence be further discussed within the Legal Committee.<sup>233</sup>

However, an expert to the IMO declared that there is in fact generally little appetite to take the issue up properly in the IMO. The reason is that many members of IMO are of the view that offshore liability is outside the scope of the IMO, which is primarily focused on shipping.<sup>234</sup> The IMO has hence started to work on the issue, but with a very low key approach. For those reasons regional or bilateral arrangements are preferred to a truly IMO initiative.<sup>235</sup> The problem is that it is held that currently IMO does not have the competence to e.g. make a convention for offshore-related risks. The IMO Council decided that they are not willing to take up the issue. Of course oil companies may, especially when they are state-owned, have a strong influence on the position that will formally be taken by the state which is the member of IMO.<sup>236</sup>

## 3.3. Offshore liability regimes: regional arrangements

### 3.3.1. Regional arrangements

In 1972, the UN Conference on the Human Environment was held in Stockholm and has led to the Declaration of Principles. These Principles provide general requirements for the protection of the marine environment from toxic and other wastes, for the development of liability arrangements, and for the conservation of flora and fauna. The conference further established an action plan and instituted the United Nations Environment Programme (UNEP), part of which resulted in the development of a framework convention for now 13 regional sea

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<sup>232</sup> <<http://www.imo.org/MediaCentre/MeetingSummaries/Legal/Pages/LEG-99th-session.aspx>>, last accessed 16 January 2013.

<sup>233</sup> This statement followed an international conference that took place on Bali (21-23 November 2012) concerning liability and compensation for transboundary oil damage resulting from offshore exploration and exploitation activities.

<sup>234</sup> Opinion of Mr. Richard Mason, Accredited Representative of the European Commission to the International Maritime Organisation, email of 20 March 2013 to Michael Faure.

<sup>235</sup> *Ibidem*.

<sup>236</sup> Interview with Mr. Alan Spackman, Vice-President Offshore Division IADC on 5 June 2013.

programmes. Today, more than 143 countries participate in 13 Regional Sea programmes established under the auspices of UNEP.<sup>237</sup> In addition, there are five partner programmes for the Antarctic, Arctic, Baltic Sea, Caspian Sea and North-East Atlantic regions.

Given the geographic location of the current 28 EU Member States, the Member States mainly border the North Sea, the Mediterranean Sea, the Baltic Sea and the Black Sea (Bulgaria and Romania). There is at least one regional arrangement covering each sea area for marine environmental protection, which also addresses the issue of offshore pollution.

### **3.3.2. Northeast Atlantic Ocean (North Sea)**

#### *3.3.2.1. OSPAR Convention*

The North Sea countries (UK, Denmark, the Netherlands and Norway) produce 90% of all the offshore oil and gas in Europe,<sup>238</sup> and it has the largest oil and natural gas reserves in Western Europe.<sup>239</sup> In the North Sea, there is a Convention for the Protection of the Marine Environment of the North-East Atlantic of 1992 (OSPAR Convention), which was adopted on 22 September 1992, and entered into force on 25 March 1998.<sup>240</sup> Sixteen states are parties to the OSPAR Convention: Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxemburg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and UK, as well as the European Union.

The essential principles enshrined in the OSPAR Convention are the precautionary principle, the polluter pays principle, the use of best available techniques and best environmental practice, and where appropriate clean technologies.

One important provision in the OSPAR Convention concerning the liability issue is Article 2 (2) (b). It requires the application of “the polluter pays principle, by virtue of which the costs of pollution prevention, control and reduction measures are to be borne by the polluter.” The OSPAR Convention specifically states that for “pollution from offshore sources”, all contracting states shall take “individually and jointly, all possible steps to prevent and eliminate” such pollution.<sup>241</sup>

Annex III of the OSPAR Convention deals with “the prevention and elimination of pollution from offshore sources”, and was last amended in 2007. It requires the use of “best available techniques” and “best environmental practice” when adopting measures to prevent and eliminate pollution from offshore sources.<sup>242</sup> Annex III also stresses the prohibition of dumping disused offshore facilities and appropriate measures to be taken for state authorities to deal with the abandonment of offshore facilities.<sup>243</sup>

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<sup>237</sup> These regional seas programmes cover Black Sea, Wider Caribbean, East Asian Seas, Eastern Africa, South Asian Seas, POPME Sea Area, Mediterranean, North-East Pacific, Northwest Pacific, Red Sea and Gulf of Aden, South-East Pacific, Pacific and Western Africa. See the website of UNEP, <<http://www.unep.org/regionalseas/about/default.asp>>, last accessed 11 October 2012.

<sup>238</sup> <[www.oilandgasuk.co.uk/ProposedEURegulation.cfm](http://www.oilandgasuk.co.uk/ProposedEURegulation.cfm)>, last accessed 12 November 2012.

<sup>239</sup> Country Analysis Brief: North Sea, available at: <<http://www.eia.doe.gov/emeu/cabs/northsea.html>>.

<sup>240</sup> The OSPAR Convention replaced two predecessor conventions, being the Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft of 1974 (Oslo Convention) and the Convention for the Prevention of Marine Pollution from Land-Based Sources of 1978 (Paris Convention).

<sup>241</sup> Article 5 of OSPAR Convention.

<sup>242</sup> Article 2 of Annex III of the OSPAR Convention.

<sup>243</sup> Articles 5-8 of Annex III of the OSPAR Convention.

### 3.3.2.2. *Nordic Convention*

The Scandinavian countries have their own regional arrangement in addition to participating in the OSPAR Convention. In 1974, Denmark, Finland, Norway and Sweden adopted the Nordic Environmental Protection Convention (Nordic Convention)<sup>244</sup> to safeguard their environmental interests.<sup>245</sup>

The Nordic Convention is designed to protect the Nordic countries from environmentally harmful activities, which may include discharge from (offshore) installations into the sea. The Nordic Convention applies to the continental shelves of the parties.<sup>246</sup> As far as compensation for environmental damage is concerned, Article 3 establishes that anyone who suffers damage caused by environmentally harmful activities in another contracting state shall have the right to institute proceedings for compensation before a court or administrative authority of that state. It further provides that “The question of compensation shall not be judged by rules which are less favourable to the injured party than the rules of compensation of the State in which the activities are being carried out.”

### 3.3.3. **Mediterranean Sea**

The Mediterranean Sea borders 21 countries and 3 continents. All these countries participate in the Barcelona Convention, being the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean. It was signed on 16 February 1976 and entered into force on 12 February 1978 (the original name of the convention was Convention for the Protection of the Mediterranean Sea against Pollution). The Barcelona Convention was later amended on 10 June 1995 and entered into force on 9 July 2004. The current version of the Convention refers to the amended one of 1995. The Barcelona Convention was concluded mainly because the Mediterranean states believe of that the existing relevant international conventions could not entirely meet the special requirements of the Mediterranean Sea area.<sup>247</sup>

All the seven EU member states on the Mediterranean Sea are parties to the Barcelona Convention: France, Greece, Italy, Spain, Malta, Slovenia and Cyprus. The EU is also a party to the Convention.<sup>248</sup>

Article 7 provides that parties to the convention shall combat pollution resulting from offshore operations. It states that contracting parties shall “take all appropriate measures to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area resulting from exploration and exploitation of the continental shelf and the seabed and its subsoil”. Article 12 further provides that the parties shall “cooperate as soon as possible in the formulation and adoption of appropriate procedures for the determination of liability and compensation for damage resulting from the pollution of the marine environment.”<sup>249</sup>

One important Protocol to the Barcelona Convention that is relevant to the offshore activities is the so-called Offshore Protocol (Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and

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<sup>244</sup> Stockholm, 19 February 1974.

<sup>245</sup> For a further discussion on the Nordic Convention, see Koivurova 1997, p. 505-526.

<sup>246</sup> Article 13 of the Nordic Convention.

<sup>247</sup> Preamble of the Barcelona Convention.

<sup>248</sup> For further information on the Barcelona Convention, see the website of UNEP: <<http://www.unepmap.org/index.php?module=content2&catid=001001004>>, last accessed 27 November 2012.

<sup>249</sup> This was reiterated in Article 16.

the Seabed and Its Subsoil, 1994). It was adopted on 14 October 1994 and entered into force on 24 March 2011 (parties that have ratified it are: Albania, Tunisia, Morocco, Libya, Cyprus and Syria). The EU has acceded to the Offshore Protocol through Council Decision 2013/5/EU of 17 December 2012.<sup>250</sup>

The Offshore Protocol covers the entire process of offshore exploration and exploitation activities, from the permit requirements to the removal of abandoned or disused installations. It covers a wide range of issues including use and removal of harmful substances, liability and compensation requirements, coordination with other parties of the Convention and provisions on safety, contingency planning and monitoring.<sup>251</sup> The Offshore Protocol requires the use of “best available techniques” which are “environmentally effective and economically appropriate” to “prevent, abate, combat and control pollution” from offshore activities.<sup>252</sup> The European Commission did not get the approval from the Council to sign the Offshore Protocol because the focus of the work at the time was on a Community regime for environmental liability, which turned out to be the Environmental Liability Directive 2004.<sup>253</sup> In October 2011, the European Commission proposed again to the Council to ratify the Offshore Protocol.

The Offshore Protocol requires that parties shall “cooperate as soon as possible in formulating and adopting appropriate rules and procedures for the determination of liability and compensation for damage resulting from the (offshore) activities”.<sup>254</sup> Pending the development of such procedures, the Offshore Protocol further requires that each party shall “take all measures necessary to ensure that liability for damage caused by activities is imposed on operators, and they shall be required to pay prompt and adequate compensation”, and shall “take all measures necessary to ensure that operators shall have and maintain insurance cover or other financial security of such type and under such terms as the Contracting Party shall specify in order to ensure compensation for damages caused by the activities covered by this Protocol”.<sup>255</sup>

### 3.3.4. The Baltic Sea

In the Baltic Sea, the Helsinki Convention applies, being the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992. It entered into force on 17 January 2000.<sup>256</sup> The contracting states include Denmark, Estonia, European Community, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden.

The Helsinki Convention seeks to assure the ecological restoration of the Baltic Sea by ensuring the possibility of self-regulation of the marine environment.<sup>257</sup> It has some general requirements on prevention of pollution from offshore activities.<sup>258</sup> In Annex VI, the use of best available technology and best environmental practice is reinforced. The Annex also contains provisions on environmental impact assessment, discharge standards, and contingency planning. As far as liability for pollution damage is concerned, the Helsinki

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<sup>250</sup> Council Decision of 17 December 2012 on the accession of the European Union to the Protocol for the Protection of the Mediterranean Sea against pollution resulting from exploration and exploitation of the continental shelf and the seabed and its subsoil, *OJ L4/13-14*, 9 January 2013.

<sup>251</sup> COM(2011) 690 final, p. 2.

<sup>252</sup> Article 3 of the Offshore Protocol.

<sup>253</sup> COM(2011) 690 final, p. 2.

<sup>254</sup> Article 27 of the Offshore Protocol.

<sup>255</sup> Article 27 of the Offshore Protocol.

<sup>256</sup> <[http://www.helcom.fi/Convention/en\\_GB/convention/](http://www.helcom.fi/Convention/en_GB/convention/)>, last accessed 27 November 2012.

<sup>257</sup> Preamble of the Helsinki Convention.

<sup>258</sup> Article 12 of the Helsinki Convention.

Convention only requires the application of the polluter pays principle.<sup>259</sup> Article 25 of the Convention is on the responsibility for damage and it urges states to jointly develop rules concerning damage resulting from acts or omissions in contravention of the convention.

### 3.3.5. The Black Sea

In the Black Sea, there is a regional sea program known as the Bucharest Convention, the Convention for the Cooperation in the Protection of the Black Sea against Pollution, 1992.<sup>260</sup> The two EU member states that are in this region, Bulgaria and Romania, are both parties to the Bucharest Convention.

When it comes to liability for pollution damage caused by offshore activities, the Bucharest Convention has only some general provisions.<sup>261</sup> It requires parties to adopt rules and regulations on liability for pollution damage from offshore operations, with the aim of ensuring “the highest degree of deterrence and protection for the Black Sea as a whole”. The Bucharest Convention states that the compensation should be prompt and adequate with recourse for redress in accordance with the legal systems of the parties.<sup>262</sup>

### 3.3.6. Summary of the regional seas arrangements

The regional seas programmes mainly address the particularity of each individual sea area, and mainly focus on general principles such as the use of best available technology/techniques and the polluter pays principles. The major goal of these regional programmes is to establish cooperation among parties in the interest of the particular sea areas. They contain only very general provisions on the establishment of liability and compensation system for offshore related pollution. The Conventions and regional arrangements are not sufficient for the evaluation of the function of various legal regimes on offshore activities. Therefore, the examination of individual states’ national laws on offshore activities remains necessary.

## 3.4. The current EU regime on offshore activities

### 3.4.1. The general EU regime on maritime safety/marine environmental protection

The General approach of the EU was to rely on the Member States to ratify various international maritime conventions concluded under the auspices of the International Maritime Organization (IMO). At a certain point, when the European Commission was dissatisfied with the measures taken at the international level, it started to initiate legislation at the European level for a better protection of the European waters from the risks of oil pollution.<sup>263</sup> The European Commission subsequently adopted the so-called Erika I and Erika II packages in which it *inter alia* proposed to set up a European fund (referred to as the Cope fund) with an updated ceiling of € 1 billion (instead of the € 200 million that was then applicable under the international conventions).<sup>264</sup> Interestingly, this European

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<sup>259</sup> Article 3.

<sup>260</sup> For further details, see <[http://www.blacksea-commission.org/\\_convention.asp](http://www.blacksea-commission.org/_convention.asp)>, last accessed 27 November 2012.

<sup>261</sup> Mainly Articles XI and XVI of the Bucharest Convention.

<sup>262</sup> Article XVI of the Bucharest Convention.

<sup>263</sup> See in this respect more particularly the publication on 24 February 1993 the long-awaited Communication on Safe Seas, COM(93) 66 final.

<sup>264</sup> See the amended proposal for a regulation of the European Parliament and of the council on the establishment of a fund for the compensation of oil pollution damage in European waters and related measures, *OJ* C227 E/487 of 24 September 2002.

activism led the IMO to increase the limits of the 1992 CLC and the Fund Convention by 50%, with effect from November 2003. This was the adoption of a supplementary fund for oil pollution damage, leading to a total amount of compensation (again, only in case of vessel source pollution) of 750 million Special Drawing Rights (SDR), which at the time of adoption corresponded to approximately US \$ 1 billion. Hence, one could notice that the European activism led to actions at the international level where the IMO basically took over the initiative proposed by the European Commission which obviously made European initiative in that domain no longer necessary.<sup>265</sup> Whereas EU activism hence led to a widely satisfying liability and compensation regime in case of vessel source pollution, the incident with the Deepwater Horizon<sup>266</sup> led again to a shock, realizing that huge damage can also be caused by offshore facilities of which the liability and financial security is largely left to Member State law. More particularly, given the often transboundary character of spills and accidents taking place from an offshore facility, there is a strong argument for a transnational regulation of civil liability and financial security, hence at least for EU action and (perhaps following the example of vessel source pollution) eventually for IMO action as well.

Erika III packages were adopted on 23 April 2009, and they address mainly the following aspects: the establishment of a Community vessel traffic monitoring and information system, port state control, investigation of accidents in the maritime transport sector, ship inspection procedures, compliance with flag state requirements, shipowner's insurance for maritime claims, and liability of passengers' carriers by sea in the event of accidents. Obviously, none of these legal instruments tackles the offshore pollution issue.

### **3.4.2. The specific EU regime on offshore activities**

#### *3.4.2.1. The EU interest in offshore activities*

There are, also as far as Europe is concerned, quite a few reasons for concerns with respect to damage which may be caused by offshore incidents. There is in fact internationally quite an impressive record of offshore incidents, but also the North Sea has witnessed many offshore accidents. Just to name a few: Alexander Kielland (1980), Piper Alpha (1988), Forties Alpha (2003), Gullfaks C (2010) and most recently Gannet Alpha (2011) are incidents that occurred in the North Sea and have increased concerns on consequences of those incidents in Europe as well.<sup>267</sup>

Prior to the occurrence of Deepwater Horizon, there was no separate European regime dealing particularly with offshore pollution issues. Since 2010, various legislative initiatives concerning different aspects of offshore activities were proposed and it has been debated by all stakeholders. It is until June 2013 that a separate European regime on offshore safety is finally established. Therefore certain legislation and legal documents that are relevant for offshore activities will be summarized as follows.

#### *3.4.2.2. Council Directive 92/91 EEC*

This Directive concerns the minimum requirements for improving the safety and health protection of workers in the mineral-extracting industries through drilling.<sup>268</sup>

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<sup>265</sup> For a sketch of these developments see Wang (2007), 197-241.

<sup>266</sup> For a detailed analysis of the Deepwater Horizon case, see also Perry (2011), 1-68.

<sup>267</sup> For details of offshore pollution incidents and offshore activities in Europe, see the discussion in Task 1.

<sup>268</sup> OJ L 348, 28 November 1992, p. 9-24.

#### 3.4.2.3. *Hydrocarbons Licensing Directive 1994 (94/22/EC)*

Directive 94/22/EC<sup>269</sup> is often referred to as the Hydrocarbons Licensing Directive. It establishes common rules that member states must follow when issuing petroleum licences, with the goal of ensuring a competitive, non-discriminatory and transparent European market and improving the security of supply. Under the Directive 94/22/EC, the sovereign rights of member states over hydrocarbon resources are recognized.<sup>270</sup> Therefore, it is up to the national governments to determine the geographical areas for prospecting, exploring and for producing hydrocarbons. The member states are required to provide annual reports on the geographical areas which have been opened, the authorizations granted, the entities holding those authorizations and the reserves available in their territory.

On 29 July 1998, the Commission submitted a report on the implementation of the Directive 94/22/EC.<sup>271</sup> The report mainly centres on the question of reciprocity, i.e. non-discriminatory access for Community firms to the activities of prospecting, exploration and production in third countries. The conclusions from the Commission are that all the member states have transposed Directive 94/22/EC into national laws (except for Luxembourg and Finland which are exempt from transposition because they do not have any potential hydrocarbon resources). The Commission also states that “no reciprocity problems have been reported, as is borne out by the increased opening-up of exploration and production activity worldwide”.<sup>272</sup>

#### 3.4.2.4. *The Marine Strategy Framework Directive*

The Marine Strategy Framework Directive plays an important role as well.<sup>273</sup> This Directive “requires addressing the cumulative impacts from all activities on the marine environment” and “is relevant to offshore oil and gas operations as it requires linking the particular concerns from each economic sector with the general aim of a comprehensive understanding of the oceans, seas and coastal areas, with the objective to develop a coherent approach to the seas taking into account all economic, environmental and social aspects through the use of Maritime spatial planning and Marine knowledge.”<sup>274</sup>

#### 3.4.2.5. *Communication 2010*

When the Deepwater Horizon incident occurred on 20 April 2010 in the Gulf of Mexico, the Commission launched immediately in October a Communication to assess the risks in the offshore oil and gas industry in European waters.<sup>275</sup> The Commission has explored a wide range of problems including the licensing, controls by public authorities and spill response. In particular, when it addressed the liability issue, the Commission considered the possibility of extending the Environmental Liability Directive<sup>276</sup> to cover environmental damage to all marine waters as defined in the Marine Strategy Framework

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<sup>269</sup> Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the conditions for granting and using authorization for the prospecting, exploration and production of hydrocarbons, *OJ* 164/3-8, 30 June 1994.

<sup>270</sup> Preamble of Directive 94/22/EC.

<sup>271</sup> COM(1998) 447 final, Report from the Commission to the Council of 29 July 1998 on Directive 94/22/EC on the conditions for granting and using authorizations for the prospecting, exploration and production of hydrocarbons.

<sup>272</sup> See <[http://europa.eu/legislation\\_summaries/energy/internal\\_energy\\_market/l27007\\_en.htm](http://europa.eu/legislation_summaries/energy/internal_energy_market/l27007_en.htm)>, last accessed 12 November 2012.

<sup>273</sup> Directive 2008/56/EC.

<sup>274</sup> COM(2011) 688 final, p. 14.

<sup>275</sup> COM(2010) 560 final, Communication from the commission to the European Parliament and the Council Facing the Challenge of the Safety of Offshore Oil and Gas Activities, 12 October 2010.

<sup>276</sup> Directive 2004/35/EC.

Directive,<sup>277</sup> and the applicability of the Waste Framework Directive.<sup>278</sup> The Commission also realized that the issues of a financial cap on the liability and the possibility of mandatory financial security worth further analysis.<sup>279</sup> The Commission was not only concerned with offshore activities in the EU waters, but also showed concerns to the EU based offshore industry operating in other parts of the world, and it called on the industry's international obligation as responsible operators.<sup>280</sup>

#### 3.4.2.6. *Directive on Safety of Offshore Oil and Gas Operations*

Following the Communication of 2010, the Commission initiated on 27 October 2011 two proposals, one for a Regulation on safety of offshore activities, and the other for the accession of the EU to the Offshore Protocol of the Barcelona Convention. The proposed Regulation (COM (2011) 688 final) follows on the principal issues raised in the Communication in 2010, and imposes stricter safety standards for offshore activities in Europe and gives national regulators more power to inspect their operations. It also extends 16-fold the zone in which companies will be held liable for environmental damage. It specifies that the licensee shall be held "liable for the prevention and remediation of environmental damage" pursuant to the Environmental Liability Directive.<sup>281</sup>

During the political debate, it was decided that a directive rather than the proposed regulation would be the best legal instrument to address the risks posed by offshore installations. On 12 June 2013, the directive was signed jointly by the Presidents of the Council and of the European Parliament. Finally on 28 June 2013, Directive 2013/30/EU on Safety of Offshore Oil and Gas Operations was published in the Official Journal. The Directive will enter into force 20 days after publication in the Official Journal of the EU.

The objective of Directive 2013/30/EU is "to reduce as far as possible the occurrence of major accidents relating to offshore oil and gas operations and to limit their consequences... and to improve the response mechanisms in case of an accident."<sup>282</sup> The offshore regime established in accordance with the Directive applies to offshore operations carried out on both fixed and mobile installations, and to the whole lifecycle of exploration and production activities from design to decommissioning.<sup>283</sup>

It reiterates the importance of the provision in Directive 94/22/EC that the licensing authority is required to consider the technical and financial capability of the licensee. It stresses that Member States shall verify that the applicants have provided "appropriate evidence and adequate provisions have been or are to be made to cover liabilities deriving from major accidents."<sup>284</sup> Moreover, Member States are required to ensure effective controls through "continuous expert regulatory oversight" by the states.<sup>285</sup> Member States are also required to provide periodic reports on offshore activities and incidents to the Commission.<sup>286</sup>

Directive 2013/30/EU makes a clear distinction between the licensee and operator,<sup>287</sup> and offshore operations should be conducted only by "operators" that are to be "appointed by

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<sup>277</sup> Directive 2008/56/EC.

<sup>278</sup> COM(2010) 560 final, p 8.

<sup>279</sup> COM(2010) 560 final, p 8.

<sup>280</sup> COM(2010) 560 final, p 13.

<sup>281</sup> COM(2011) 688 final, Article 7.

<sup>282</sup> Preamble (2) of Directive 2013/30/EU, OJ L178/66.

<sup>283</sup> Preamble (24) of Directive 2013/30/EU, OJ L178/69.

<sup>284</sup> Preamble (10) of Directive 2013/30/EU, OJ L178/67.

<sup>285</sup> Preamble (12) of Directive 2013/30/EU, OJ L178/67.

<sup>286</sup> Article 25 of Directive 2013/30/EU.

<sup>287</sup> Article 2 of Directive 2013/30/EU.



licensees or licensing authorities”.<sup>288</sup> The operator, together with the licensee and owner, should always bear the primary responsibility for safe operations, and they are not allowed to delegate their liability through contract; even when the accident was caused due to actions or omissions by contractors, the liability of operators should not be relieved.<sup>289</sup> The operators have the obligation to report to Member States about the occurrence of a major accident.<sup>290</sup> In order to ensure effective emergency response, operators are required to prepare internal response plans.<sup>291</sup>

The Directive includes in Annex I the information to be submitted by the operator and owner for carrying out offshore operations, and the information to be included in report on major hazards.<sup>292</sup>

However, as to the issue of financial security by operators, the Directive 2013/30/EC only has such a general requirement because “no existing financial security instruments, including risk pooling arrangements, can accommodate all possible consequences of major accidents”. Therefore, “the Commission should undertake further analysis and studies of the appropriate measures for damages relating to offshore oil and gas operations, requirements on financial capacity including availability of appropriated financial security instruments or other arrangements. This may include an examination of the feasibility of a mutual compensation scheme.”<sup>293</sup>

As to the application of ELD in the offshore activities, Directive 2013/30/EU clarifies that “holders of authorisations for offshore oil and gas operations” are also the “operators” within the meaning of ELD that will be held liable for the prevention and remediation of environmental damage.<sup>294</sup> Moreover, the Directive stresses that the holders of authorisations are not allowed to delegate their liability for environmental damage to third parties through contract.<sup>295</sup> In addition, Directive 2013/30/EU requires amendment to be made with respect to the definition of water damage in the ELD so that the liability of the licensees under ELD shall also apply to marine waters of member states as defined under the Marine Framework Directive (Directive 2008/56/EC).<sup>296</sup>

Realizing that offshore activities may have transboundary effect, Directive 2013/30/EU requires Member States to share information on the operations that may have transboundary effects;<sup>297</sup> and in the event of a major accident, a Member State should inform immediately the Commission and the Member State that may be affected by the accident.<sup>298</sup> When a Member State considers that offshore activities under its jurisdiction may likely have “significant effects on the environment in another Member State”, it shall forward the relevant information to the Member State that may be potentially affected. When a Member State considers that it may be potentially affected by offshore activities in jurisdiction of another Member State, it shall require relevant information from the other Member State.<sup>299</sup> The goal of these provisions in the Directive is to promote joint actions between Member States in preventing damage and responses.

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<sup>288</sup> Preamble (13) of Directive 2013/30/EU..

<sup>289</sup> Preamble (11), (13), (36) and Article 3.2 of Directive 2013/30/EU.

<sup>290</sup> Preamble (34) of Directive 2013/30/EU, OJ L178/70.

<sup>291</sup> Article 28 of Directive 2013/30/EU.

<sup>292</sup> As to the documentation requirements, see also Articles 11-14 of Directive 2013/30/EU.

<sup>293</sup> Preamble (63) of Directive 2013/30/EU.

<sup>294</sup> Preamble (11) and Article 7 of Directive 2013/30/EU.

<sup>295</sup> Ibid.

<sup>296</sup> Preamble (58) of Directive 2013/30/EU.

<sup>297</sup> Articles 31-33 of Directive 2013/30/EU.

<sup>298</sup> Preamble (45) of Directive 2013/30/EU, OJ L178/71.

<sup>299</sup> Article 31 of Directive 2013/30/EU.

As to the extra-territory effect of the Directive, Preamble (38) provides that Member States “should ensure that operators and owners include their offshore oil and gas operations outside the Union in their corporate major accident prevention policy documents.” Article 20 of the Directive requires Member States to ensure that companies registered in their territory conducting offshore activities outside the Union as licence holders or operators report to them on major accident in which they have been involved.

The Directive requires the establishment of a common data reporting format across all Member States by operators and owners.<sup>300</sup> The idea of such a format is to facilitate sharing of comparable data between Member States, so that it would “provide transparency of the safety and environmental performance of operators and owners” and “would facilitate dissemination lessons learned from major accidents and near misses”.<sup>301</sup> As we have shown in section 2.3.1 above, the current information on offshore accidents from various sources is difficult to compare due to lack of harmonized criteria. A common data reporting format as envisaged in the Directive may be useful in improving the current situation. However, the information in the format is to be provided by operators and owners in various Member States, and the transposition of Directive into national laws may still take two years. Therefore, it will still take some time before the effect of a common data reporting format can be seen.

### **3.5. Offshore liability regimes: country studies**

#### **3.5.1. Introduction**

In this section, various countries will be selected for a detailed study based on the criteria developed in Task 1 (inter alia, the amount of facilities and occurrences of incidents). These countries are mostly countries where offshore oil and gas activities frequently take place, or where catastrophic incidents involving offshore facilities have occurred. The UK, Denmark and the Netherlands are EU Member States with strong offshore interests as their offshore exploration and exploitation activities in the North Sea play an important role. Norway, although not an EU Member State, has offshore activities in the North Sea that clearly will have transboundary influence on EU Member States in the same sea region. In the Mediterranean Sea, France and Italy are the major players in offshore oil and gas activities. Furthermore, Australia and the US have been selected for our country study since they both have witnessed some major offshore incidents, which triggered some changes in their legal regimes.

The legal regimes in these countries on liability and compensation for offshore pollution damages will be discussed. In order to carry out the research in an integrated manner, a checklist is used to examine individual legal systems in a systematic way. The checklist will facilitate the comparative study of different legal regimes. The countries will hence be analyzed on the basis of specific similar criteria that can be found in a checklist. In order to provide readability of this report the checklist is provided in Annex 2 to this study. The following overview of the countries will hence to the extent possible follow this checklist.<sup>302</sup>

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<sup>300</sup> Preamble (42), Article 23 and Annex IX of Directive 2013/30/EU.

<sup>301</sup> Preamble (42) of Directive 2013/30/EU.

<sup>302</sup> See Annex 2.

## 3.5.2. UK

### 3.5.2.1. *National interest in offshore activities*

The UK has strong interests in offshore oil and gas activities. The UK government believes that “UK deepwater oil and gas production is necessary during the UK’s transition to a low carbon economy. Oil and gas are still a major UK resource; although some 40 billion barrels of oil equivalent (BOE) have been produced so far, there are perhaps 20 billion BOE, or more, left to produce. Overall the deepwater oil and gas resource potential is estimated to be around 3 to 3.5 billion BOE, some 15-17.5% of UK total resources.”<sup>303</sup>

According to the statistics from the government, “the UK gas fields in the southern North Sea are mainly located in shallow waters of less than 50 meters depth, whereas the oil fields further north are in water depths of between 50 and 250 meters. However, to the west and north of Shetland, there are a number of fields and appraised prospects in water depths of up to 1,000 meters, and proposals to drill exploration and appraisal wells in water depths of up to approximately 1,500 meters. The UK Continental Shelf to the west of Scotland, which may be the subject of oil and gas exploration in the future, includes areas where the water depth is in excess of 3,000 meters. The deepest well so far drilled on the UK continental shelf was in roughly 1,900 meters water depth (The Macondo well lies in roughly 1520 meters water depth).”<sup>304</sup>

According to figures provided by the Department of Energy and Climate Change, over the last 30 years a shift can be observed towards even smaller spill volumes and a reduction in the number of spills reported every year.<sup>305</sup> The most serious blowout occurred in September 1988 when an explosion on the Ocean Odyssey (Piper Alpha happened in June 1988) caused by a blowout whilst drilling on a high pressure high temperature field in the central North Sea, killed one member of the crew in the subsequent fire.<sup>306</sup>

### 3.5.2.2. *Legal regime*

#### 3.5.2.2.1. Statutory laws and regulations

The legislation in the UK, as far as it concerns offshore oil and gas activities, may include a large amount of acts and regulations. They cover various aspects of the offshore exploration and exploitation activities, mainly licensing requirements, emergency response, clean-up operations and counter-pollution or remediation measures, performance/operational standards, and liability/compensation issues. The offshore legal regime in the UK has gone through some major changes after the Piper Alpha incident in 1988.<sup>307</sup> Following the Deepwater Horizon incident, the UK legal regime concerning offshore activities has been again critically reviewed.<sup>308</sup>

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<sup>303</sup> Information from the website of the Department of Energy and Climate Change of the UK, see <[http://www.decc.gov.uk/en/content/cms/meeting\\_energy/oil\\_gas/incident\\_mgt/faqs/faqs.aspx](http://www.decc.gov.uk/en/content/cms/meeting_energy/oil_gas/incident_mgt/faqs/faqs.aspx)>, last accessed 9 November 2012.

<sup>304</sup> Information from the website of the Department of Energy and Climate Change of the UK, see <[http://www.decc.gov.uk/en/content/cms/meeting\\_energy/oil\\_gas/incident\\_mgt/faqs/faqs.aspx](http://www.decc.gov.uk/en/content/cms/meeting_energy/oil_gas/incident_mgt/faqs/faqs.aspx)>, last accessed 9 November 2012.

<sup>305</sup> <[www.oilandgasuk.co.uk/knowledgecentre/Background\\_Information.cfm](http://www.oilandgasuk.co.uk/knowledgecentre/Background_Information.cfm)>, last accessed 9 November 2012.

<sup>306</sup> Ibid.

<sup>307</sup> In this respect, Lord Cullen’s report plays a crucial role. The changes include, inter alia, a separate health and safety executive, goal setting regime, and safety case regime.

<sup>308</sup> Following the Deepwater Horizon incident, the UK government has e.g. increased the amount of inspectors and the number of annual environmental inspections by Department of Energy and Climate Change. It launched a new joint industry and government group called the Oil Spill Prevention and Response Advisory Group (OSPRAG) to review the UK’s ability to prevent and respond to oil spills.

Relevant laws and regulations on offshore oil and gas exploration and exploitation in the UK include various laws covering different aspects of the offshore activity. These may include, first for licensing:

- Hydrocarbons Licensing Directive Regulations 1995: to implement Hydrocarbons Licensing Directive 1994 (94/22/EC);
- Petroleum Act 1998: vests all rights to petroleum<sup>309</sup> in the Crown, including the rights to search for, bore for and get it. It empowers the Secretary of State to grant licences to search for and bore for and get petroleum to such persons as they see fit;
- Petroleum Licensing (Exploration and Production) (Seaward and Landward Areas) Regulations 2004 (S.I. 2004/352): it has three sets of model clauses for different types of licences known as traditional, frontier and promote licences;
- Energy Act 2008: improves licensing to respond to changes in the commercial environment and enables the Department of Energy and Climate Change to carry out its regulatory functions more effectively.<sup>310</sup> This Energy Act 2008 introduces two new licensing regimes, for the storage (Chapter 2) and the permanent storage of carbon dioxide (Chapter 3);
- Petroleum Licensing (Production) (Seaward Areas) Regulations 2008 (2008 No. 225): mainly incorporate changes reflected in the Energy Act 2008, replace the 1988 version of the Regulations. It has a single set of model clauses that apply in the case of all three types of licences, traditional, frontier and promote;
- Offshore Gas Storage and Unloading (Licensing) Regulations 2009: these Regulations are made under Part 1 Chapter 2 of the Energy Act 2008, which establishes a new licensing regime for the offshore storage and unloading of combustible gas,
- Offshore Exploration (Petroleum, and Gas Storage and Unloading) (Model Clauses) Regulations 2009: These Regulations prescribe model clauses for offshore exploration licences granted under section 3 of the Petroleum Act 1998 and under section 4 of the Energy Act 2008.

The Petroleum Act 1998, which consolidated the Petroleum (Production) Act 1934<sup>311</sup>, provides that the exploration for, and production of, oil and gas in the UK and the UK sector of the North Sea can only be undertaken in accordance with the conditions of a license issued by the UK government.<sup>312</sup> The Secretary of State, on behalf of the UK government, issues licenses through annual licensing rounds.<sup>313</sup> The Department of Energy and Climate Change (DECC) is the department responsible for the regulation of all oil and gas licensing within the UK, its territorial sea and on the UK continental shelf.<sup>314</sup> The conditions to issue licences are prescribed in a series of model clauses set out in Regulations in force when the licence is granted, subject to later amendment by Act of Parliament. There are production licenses and seaward exploration licenses. DECC issues licences through competitive licensing rounds which generally take place every year. Licences issued after 6 April 2008 have model clauses

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<sup>309</sup> Meaning the petroleum in the strata of the Great Britain and in the territorial sea of the UK and UK continental shelf. Separate legislation applies to Northern Ireland and waters adjacent to Northern Ireland up to the landward boundary of the territorial sea.

<sup>310</sup> <[http://www.decc.gov.uk/en/content/cms/legislation/energy\\_act\\_08/energy\\_act\\_08.aspx](http://www.decc.gov.uk/en/content/cms/legislation/energy_act_08/energy_act_08.aspx)>, last accessed 24 October 2012.

<sup>311</sup> The Petroleum (Production) Act 1934 grants the rights to all oil and gas in the UK and its territorial waters to the Crown and gives the government the exclusive right to award licences to explore for and exploit these resources.

<sup>312</sup> For a detailed discussion, see Easo (2010), p. 18-22.

<sup>313</sup> Some licensing is “made out of round”.

<sup>314</sup> Separate legislation applies to Northern Ireland and waters adjacent to Northern Ireland up to the landward boundary of the territorial sea. See the website of the Department of Energy and Climate Change (UK), Oil and Gas: <[www.decc.gov.uk/en/content/cms/meeting\\_energy/oil\\_gas/oil\\_gas.aspx](http://www.decc.gov.uk/en/content/cms/meeting_energy/oil_gas/oil_gas.aspx)>.

as set out in the schedule to the Petroleum Licensing (Production) (Seaward Areas) Regulations 2008.

One important provision of the model clauses requires licensees to demonstrate that they have funds available to meet liability for oil spills in the course of licensed activities and DECC requires all operators to have signed up to OPOL. The model clauses require all licensees to operate in accordance with the methods customarily used in good oilfield practice; and take all steps practicable to prevent the escape of oil in the licensed area. Model Clauses 23(9) and 38 provide the mechanism to meet the costs of loss and damage in the event of an oil pollution incident. Licensees are required to have sufficient funds available to discharge any liability that they may accrue for damage in connection with any oil pollution. Although Licensees must keep the Secretary of State fully indemnified against all actions, proceedings, costs, claims and demands that may be brought by third parties in connection with the license, the model clauses do not specify how this indemnity is to be achieved and the onus of establishing and maintaining the required insurance is entirely on the licensee. Later in November 2012, DECC introduced a document to detail the requirements for operators to demonstrate their financial mechanisms to meet the risks of the operation.<sup>315</sup>

Second, there is legislation particularly aiming at emergency plans:

- The Merchant Shipping Act 1995: This Act implements the OPRC Convention in the UK;
- The Merchant Shipping (Oil Pollution Preparedness, Response and Cooperation Convention) Regulations 1998: These Regulations implement, in part, the OPRC Convention 1990. They require harbour authorities and operators of oil handling facilities and of offshore installations, to have in place oil pollution emergency plans. The oil pollution emergency plans have to be approved by the Secretary of State. The Regulations also require the ones in charge of harbours, oil handling facilities and offshore installations to report certain events involving the discharge of oil. The Secretary of State is empowered to inspect offshore installations and pipelines (Regulation 8).<sup>316</sup> But now the oil pollution emergency plan (OPEP) has to be approved by the DECC. The Maritime and Coastguard Agency (MCA), is the competent UK authority in terms of counter pollution measures and response at sea. In addition, the Joint Nature Conservation Committee (JNCC) and other environmental organizations, provide advice on environmental sensitivities which may be impacted as a result of any oil spill. Both MCA, JNCC and other environmental organizations as required, are consulted as part of the oil pollution emergency plan (OPEP) review and regulatory approval process;<sup>317</sup>
- The Offshore Installations (Emergency Pollution Control) Regulations 2002: this regulation gives the Secretary of State power to intervene in the event of an incident involving an offshore installation where there is a risk of significant pollution.

Although the response depends on many factors, one of which is the volume of oil spilled, the response can be referred to in the following categories:

- Tier 1: a small operational spill employing local resources during any clean-up (100 tonnes spill);

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<sup>315</sup> This document will be further discussed in detail in 3.5.2.10.

<sup>316</sup> Explanatory Note of the Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998.

<sup>317</sup> See the website of the Department of Energy and Climate Change of the UK, <[http://www.decc.gov.uk/en/content/cms/meeting\\_energy/oil\\_gas/incident\\_mgt/faqs/faqs.aspx](http://www.decc.gov.uk/en/content/cms/meeting_energy/oil_gas/incident_mgt/faqs/faqs.aspx)>, last accessed 9 November 2012.

- Tier 2: a medium sized spill, requiring regional assistance and resources (500 tonnes spill);
- Tier 3: a large spill requiring national assistance and resources. The national contingency plan will be activated in this case (10,000 tonnes spill).<sup>318</sup>

Third, there is legislation dealing mainly with the environmental aspects of offshore activities, e.g. performance or operational standards (MARPOL related), remediation of environmental damages:

- Environmental Protection Act 1990;
- Pollution Prevention and Control Act 1999;
- Control of Major Accident Hazards Regulations 1999: this is to implement Directive 96/82/EC. These regimes require action to be taken in the public interest by public authorities such as local authorities or HSE and the Environment Agency. They require damage to be put right by those responsible for it, or put the damage right themselves and then recover the costs afterwards from those responsible;
- Merchant Shipping (Prevention of Oil Pollution) Regulations 1996: These Regulations consolidate the 1983 version of the Regulations and subsequent amendments. In addition, the Regulations include amendments made to Annex I of the MARPOL Convention to provide a legal basis for port states to carry out inspections of shipboard operations procedures;
- Offshore Petroleum Production and Pipe-lines (Assessment of Environmental Effects) Regulations 1998 & Offshore Petroleum Production and Pipe-lines (Assessment of Environmental Effects) (Amendment) Regulations 2007;
- Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001, Offshore Petroleum Activities (Conservation of Habitats, &c.) Regulations 2007 & Offshore Petroleum Activities (Conservation of Habitats, &c.) (Amendment) Regulations 2012: the Regulations 2001 implement Council Directive 92/43 on the conservation of natural habitats and of wild fauna and flora, and Council Directive 79/409 on the conservation of wild birds, in relation to oil and gas activities carried out wholly or partly on the UK continental shelf. Regulations 2012 make further provision transposing certain aspects of the Wild Birds Directive (Directive 2009/147/EC);
- The Offshore Combustion Installations (Prevention and Control) Regulations 2013:<sup>319</sup> The Regulations 2013 are made under section 2 of the Pollution Prevention and Control Act 1999. They establish a pollution control regime in relation to offshore installations for the purpose of implementing Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control);
- Offshore Chemicals Regulations 2002 & Offshore Chemicals (Amendment) Regulations 2011: The Regulations 2002 are made under section 2 of the Pollution Prevention and Control Act 1999. They establish a regime for the purpose of implementing the UK's obligation under the OSPAR Convention (Decision 2000/2) on a harmonized mandatory control system for the use and reduction of the discharge of offshore chemicals in relation to offshore activities. The Regulations 2002 were amended by the Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 and by the Energy Act 2008 (Consequential Modifications) (Offshore Environmental Protection) Order 2010, which extends the Regulations 2002 to the use and discharge of chemicals in offshore gas storage and unloading activities;
- Offshore Installations (Emergency Pollution Control) Regulations 2002;

<sup>318</sup> <[www.oilandgasuk.co.uk/knowledgecentre/Background\\_Information.cfm](http://www.oilandgasuk.co.uk/knowledgecentre/Background_Information.cfm)>, last accessed 9 November 2012. These criteria are developed by the Oil & Gas US. Therefore, the amount of spilled oil to decide on the scale of an incident is only used here as a reference.

<sup>319</sup> These Regulations 2013 replace Offshore Combustion Installations (Prevention and Control of Pollution) Regulations 2001 & the Offshore Combustion Installations (Prevention and Control of Pollution) (Amendment) Regulations 2007.

- Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 & the Offshore Petroleum Activities (Oil Pollution Prevention and Control) (Amendment) Regulations 2011: Under Regulations 2005, it is an offence to make an unlawful discharge of oil, i.e. a discharge of oil other than in accordance with the permit granted under these regulations for oily discharges. The Regulations 2005 were amended by the Energy Act 2008 (Consequential Modifications) (Offshore Environmental Protection) Order 2010 to extend those Regulations to the discharge of oil in offshore gas storage and unloading activities;
- Environmental Damage (Prevention and Remediation) Regulations 2009: to implement EU Environment Liability Directive, and applies to some offshore activities as well;
- Energy Act 2008 (Consequential Modifications) (Offshore Environmental Protection) Order 2010.

The Environmental Damage (Prevention and Remediation) Regulations 2009 apply to the seabed of the continental shelf of the UK (where the offshore exploration and exploitation activities take place) for the purpose of protected species and natural habitats.<sup>320</sup>

Fourth, there is legislation dealing with health and safety aspects of offshore activities:

- Employers' Liability (Compulsory Insurance) Act 1969: requires employers to insure against their liability for personal injury to their employees;
- Health and Safety at Work etc. Act 1974: applies to offshore activities as well: wide ranging regulations contain numerous duties, and a breach of any one is a criminal offence;
- Offshore Safety Act 1992: extends the application of Part I of the Health and Safety at Work etc. Act 1974;
- Offshore Installations and Pipeline Works (Management and Administration) Regulations 1995: These Regulations contain requirements for the management and administration of offshore oil and gas installations, for purposes of health and safety.<sup>321</sup> They also modify certain provisions in the Employers' Liability (Compulsory Insurance) Act 1969 (c.57) (Regulation 21) and the Mineral Workings (Offshore Installations) Act 1971 (c.61) (Regulation 22);
- Offshore Installations (Prevention of Fire and Explosion, and Emergency Response) Regulations 1995: These Regulations contain requirements for measures for the protection of persons on offshore oil and gas installations from fire and explosion, and for securing effective emergency response, which means action to safeguard the health and safety of persons on such installations in an emergency;<sup>322</sup>
- Offshore Installations and Wells (design and construction) Regulations 1996;
- Management of Health and Safety at Work Regulations 1999: most frequently prosecuted for failure to carry out suitable and sufficient risk assessment;
- Offshore Installation (Safety Case) Regulations 2005: these regulations are made under the Health and Safety at Work Act 1974, and revoke and replace the Offshore Installation (Safety case) Regulations 1992. The "duty holder" is usually the owner or operator of the installation. The liability is strict if a breach has occurred;
- Control of Noise at Work Regulations 2005;
- Control of Substances Hazardous to Health Regulations 2002.

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<sup>320</sup> See Regulation 6 of the Environmental Damage (Prevention and Remediation) Regulations 2009. Further details, see The Environmental Damage (Prevention and Remediation) Regulations 2009 Guidance for England and Wales, November 2009, the Department for Environment, Food and Rural Affairs (DEFRA), p10.

<sup>321</sup> Explanatory Note of the Offshore Installations and Pipeline Works (Management and Administration) Regulations 1995.

<sup>322</sup> Explanatory Note.

The regulatory institutions within the UK government for offshore activities are separate in the sense that DECC regulates licensing and environmental aspects of offshore activities, the HSE regulates the safety aspect of the offshore activities. When a pollution incident related to offshore activities occurs, it is the MCA to take counter pollution measures and respond at sea.

The safety case regime in the UK requires the operator of each installation to make the case that the design and operation of that installation is safe. In detail, they are required to include sufficient particulars to demonstrate that:

- “(a) his management system is adequate to ensure -
- (i) that the relevant statutory provisions will, in respect of matters within his control, be complied with; and
  - (ii) the satisfactory management of arrangements with contractors and sub-contractors;
- (b) he has established adequate arrangements for audit and for the making of reports thereof;
- (c) all hazards with the potential to cause a major accident have been identified; and
- (d) all major accident risks have been evaluated and measures have been, or will be, taken to control those risks to ensure that the relevant statutory provisions will be complied with.”<sup>323</sup>

#### 3.5.2.2.2. Liability for offshore pollution

As far as liability for offshore oil pollution damage is concerned, there is no specific legislation dealing particularly with this issue. There exists since the 1970s an industry scheme Offshore Pollution Liability Agreement (known as OPOL)<sup>324</sup> that provides for compensation for oil pollution caused by offshore activities. When the damages are not covered by the OPOL system or the coverage by the OPOL scheme is insufficient, the claimant may still resort to legal remedies.

The liability for offshore incidents in the UK can be threefold:

- a. Liability based on OPOL: strict liability and speedy compensation since there is no need for litigation;
- b. Liability based on statute and model clauses: Environmental Damage (Prevention and Remediation) Regulations 2009. the model clauses require all licensees to operate in accordance with the methods customarily used in good oilfield practice and take all steps practicable to prevent the escape of oil in the licensed area;<sup>325</sup>
- c. Liability based on tort.

The industry scheme OPOL came into being due to the concern of increasing oil exploration activities taking place at the seabed off Northwest Europe since the 1970s.<sup>326</sup> People were conscious of the potential risks of pollution caused by offshore activities. Therefore, some countries in the region decided at the end of 1976 to establish a legal regime to cover the damage caused by offshore pollution incidents.<sup>327</sup> They have signed on 1 May 1977 the Convention of Civil Liability for Oil Pollution Damage resulting from Exploration for and the Exploitation of Seabed Mineral Resources (CLEE).<sup>328</sup> However, the ratification of an international convention is a long process. OPOL thus came into effect as an interim measure while waiting for the ratification of the CLEE. In the end, the CLEE could not come into

<sup>323</sup> Regulation 12 of the Offshore Installations (Safety Case) Regulations 2005 (SI 2005/3117).

<sup>324</sup> It was adopted on 4 September 1974 and entered into force on 1 May 1975.

<sup>325</sup> The applicability of these Regulations remains to be confirmed with the DECC.

<sup>326</sup> OPOL will be further discussed in detail when discussing pooling arrangements below in 4.2. However, since membership of OPOL is mandatory in the UK already at this stage we discuss the importance of OPOL briefly.

<sup>327</sup> These countries include UK, Germany, Ireland, the Netherlands, Norway and Sweden.

<sup>328</sup> <<http://sedac.ciesin.org/entri/register/reg-092.rrr.html>>, last accessed 12 November 2012.



effect and the UK government decided its interest might be better protected through the continuing function of OPOL.

OPOL covers escapes or discharges of oil from offshore facilities of any “designated state” specified in the OPOL agreement.<sup>329</sup> However, it does exclude the offshore facilities located in the Baltic and Mediterranean Seas. (Problems in countries e.g. France would be that different regimes may apply to different sea areas.) Parties to OPOL are “Operators of or intend to be the Operators of Offshore Facilities” used for oil and gas exploration and production.<sup>330</sup> In the UK, all offshore operators active in exploration and production on the UK continental shelf are party to the OPOL.<sup>331</sup> To be a member of OPOL is a pre-condition for license for the UK offshore operators. There is no obligation to take out financial security under statutory laws, but effectively it is implemented through the DECC practices in the licensing process: prior to consenting to any exploration or appraisal drilling operations, DECC requires the operator of the offshore facility to be a member of OPOL. In addition, evidence of financial responsibility will also be required to be evidenced. Whilst OPOL covers third party liability to a limit of US\$250 million, the evidence of separate financial responsibility to DECC also looking at third party liability and where appropriate ensuring there is sufficient money in excess of US\$250 million, also takes into account first party costs, such as bringing a well under control and drilling a relief well.

The offshore facilities covered by OPOL include: wells, drilling units, platforms, offshore storage/loading systems, pipelines, where they are to seaward of the coastal low water line, including gas wells when being drilled, recompleted or worked upon. They do not include abandoned wells, installations or pipelines, or facilities for the production treatment or transport of natural gas or natural gas liquids.<sup>332</sup>

OPOL does not exclude the claimant’s right to pursue full compensation under statutory law of the UK in the event that the compensation provided through OPOL is inadequate. In such a case, several laws and regulations may play a role.

The Environmental Damage (Prevention and Remediation) Regulations 2009 introduce two types of liability: strict liability in respect of environmental damage caused by a specified range of “occupational activities”; and fault liability in respect of environmental damage to protected species and natural habitats from all other occupational activities.

The “occupational activities” listed in Schedule 2 of the Regulations that are subject to strict liability without the need of showing fault include:

- Activities requiring Environmental Permits;
- Discharges to water;
- Groundwater discharges;
- Water abstraction or impoundment;
- Use of pesticides, biocides or dangerous substances;
- Use and release of Genetically Modified Organisms; and
- Transporting dangerous goods.

In the DECC’s view, offshore oil and gas activities shall not be simply considered “activities requiring environmental permits”. As to liability for environmental damage concerning

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<sup>329</sup> Nine states: UK, Denmark, Germany, France, Ireland, the Netherlands, Norway, the Isle of Man and the Faroe Islands.

<sup>330</sup> See Preamble of Offshore Pollution Liability Agreement, amended 4 July 2012.

<sup>331</sup> <<http://www.opol.org.uk/>>, last accessed 22 October 2012.

<sup>332</sup> Clause I.8 of OPOL.

offshore oil and gas activities, it is rather complicated to decide under the Environmental Damage (Prevention and Remediation) Regulations 2009.

First, strict liability requires an activity listed in Schedule 2. The only paragraph which seems relevant is paragraph 2 of Schedule 2, which itself refers out to activities listed in Annex I to Directive 2008/1/EC. In respect of that list, the one which seems relevant is, 1.1 Combustions installations with a rated thermal input exceeding 50 MW. For such an installation, the Regulations 2009 also require the damage to be in an area specified in the table to regulation 6(1). Damage to water applies only to the first nautical mile of waters around England. Otherwise, the seabed to the limit of the continental shelf or EEZ is an area of damage but only in respect of protected species or natural habitats. Given the Regulations 2009 are England and reserved matters, “seabed” does not include areas of the sea adjacent to Scotland or Northern Ireland which are part of those territories.

Second, as to liability with fault (i.e. negligence or with intent), there is no limit to the type of activity, therefore all offshore petroleum activities may be in scope. In terms of the area of damage, it is the seabed to the limit of the continental shelf or EEZ. However, there must be damage to a protected species or natural habitat within that area.

There is a separate issue of what environmental damage means, in order for someone to be liable for it. In relations to damage to protected species or natural habitats, it means damage as set out in Schedule 1 to the Regulations 2009. Paragraph 1 of schedule 1 refers to damage “such that it has a significant adverse effect on reaching or maintaining the favourable conservation status of the species or habitat”. Paragraph 5 of Schedule 1 excludes damage caused by an act expressly authorized under listed legislation, which includes the Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001. Those have been amended since 2001 and the only authorization left is for geological surveys.

### 3.5.2.3. *Basis of liability*

Under the OPOL regime, the liable parties are operators of the offshore facilities, and the liability is strict for pollution damage and cost of remedial measures. The exemptions of liability are when the incident is caused by following reasons:

- a. act of war or force majeure;
- b. wholly caused by an act or omission done with intent to cause damage by a third party;
- c. wholly caused by the negligence or other wrongful act of government authority, or resulted from compliance with conditions imposed or instructions given by the government; or
- d. resulted wholly or partially, either from an act or omission done with intent to cause damage by a claimant, or from the negligence of that claimant. In such a case, the operator shall be exonerated wholly or partially from his obligations to the claimant.<sup>333</sup>  
This is known as a comparative negligence defence.

As mentioned before, the statutory regime may also be relevant in case of insufficient compensation through OPOL. Under the Environmental Damage (Prevention and Remediation) Regulations 2009, the environmental damage caused by a specified range of “occupational activities” (e.g. activities requiring environmental permits which is the case for offshore activities) is based on strict liability.

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<sup>333</sup> Clause IV. B of OPOL Agreement (as amended 4 July 2012).

In the event of a fatality or personal injury, a claimant is likely to have rights to compensation under the UK statutes, regulations and under the common law of tort. In some cases strict liability will apply and in others a claimant may have to establish fault.

#### 3.5.2.4. *Relationship with regulation*

Normally, if an incident occurs, the operator is subject under OPOL scheme to a no fault liability regime and compliance with regulations does not exempt the operator from liability. OPOL provides that if the incident resulted from compliance with conditions imposed or instructions given by the government, the operators may be exempted from liability.<sup>334</sup> Clause IV.B reads:

“No obligation shall arise hereunder with respect to Remedial Measures and/or Pollution Damage arising from an Incident if the Incident: [...] 3. was wholly caused by the negligence or other wrongful act of any Government or other authority or resulted from compliance with conditions imposed or instructions given by the Government of the State which issued the Licence as to the Offshore Facility involved...”

Compliance with regulatory requirements does not negate a party from their obligations under UK laws to pay unlimited compensation.

#### 3.5.2.5. *Causation*

Since under the OPOL Agreement the operators shall bear strict liability, it does not require proof of fault. The burden of proof is on the operators in the sense that the operators shall be held strictly liable unless they can establish that the incident is caused by one of the following events as provided in the exemption clause:

- a. act of war or force majeure;
- b, wholly caused by an act or omission done with intent to cause damage by a third party;
- c. wholly caused by the negligence or other wrongful act of government authority, or resulted from compliance with conditions imposed or instructions given by the government; or
- d. resulted wholly or partially, either from an act or omission done with intent to cause damage by a claimant, or from the negligence of that claimant. In such a case, the operator shall be exonerated wholly or partially from his obligations to the claimant.<sup>335</sup>

The claimant yet has to prove there is a causal link between the incident and the damage he has suffered. The implication might be that the chances of recovering the damage might be higher compared with a negligence rule. In turn, it impels the operator to operate with utmost due care.<sup>336</sup>

#### 3.5.2.6. *Attribution of liability*

Under OPOL, the operator of an offshore facility is primarily responsible for payment of the costs of remedial measures and pollution damage. In addition, the parties to the OPOL Agreement have agreed that in the event a party fails to satisfy its obligations to claimants

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<sup>334</sup> Ibid.

<sup>335</sup> Ibid.

<sup>336</sup> Budiman, On Liability for Offshore Oil Spillage: Strictly Settled, see <[http://www.ibanet.org/LPD/SEERIL/Oil\\_Gas\\_Law/Publications.aspx](http://www.ibanet.org/LPD/SEERIL/Oil_Gas_Law/Publications.aspx)>.

under the Agreement the parties will contribute sums to enable those claims to be met. This is referred to as the OPOL Guarantee. Contributions by the remaining parties would be proportionate to the number of offshore facilities operated by the parties.<sup>337</sup> To this extent, offshore operators in the UK take part in a scheme which would provide compensation for certain environmental and economic consequences of an offshore oil spill.<sup>338</sup>

When it comes to a multiple party causation, OPOL does not have a specific provision.

### 3.5.2.7. Damages – remedies

The claims to be covered through OPOL concern two categories, “pollution damage” and “remedial measures”. All claims must be “reasonable, quantifiable and justifiable”.

“Pollution Damage” to be compensated by OPOL is defined as “direct loss or damage (other than loss of or damage to any Offshore Facility involved) by contamination which results from a Discharge of Oil”.<sup>339</sup> Therefore, only “direct” damage is covered under the OPOL. The meaning of “direct loss or damage” would be determined by applying the laws of England. Those laws provide that each case will be considered on its merits. Any claims for economic loss would be decided by reference to the facts of each case. Some elements of economic loss may be recoverable by a claimant under OPOL scheme whilst other elements may not be recoverable. The question may arise if damage to the environment itself shall be considered as such a “direct” damage.<sup>340</sup>

“Remedial Measures” are “reasonable measures taken by any Party from any of whose Offshore Facilities a Discharge of Oil occurs, and of which such Party is the Operator, and by any Public Authority to prevent, mitigate or eliminate Pollution Damage following such Discharge of Oil or to remove or neutralize the Oil involved in such discharge, excluding however, well control measures and measures taken to protect, repair or replace any such Offshore Facility.”<sup>341</sup> Claims admissible for remedial measures or pollution damage thus fall into the following categories: clean-up operations on shore or at sea, property damage, disposal costs of collected material and other losses which must be quantifiable and which must result directly from the contamination itself.<sup>342</sup> As explained, whether the element of loss or damage is considered directly from contamination would be decided on the basis of the facts applicable to each case. Recovery of the costs of Remedial Measures can be made by government and public authorities (not by individuals or companies).

Recovery of the costs of Pollution Damage can be made by any claimant, including an individual or company, in accordance with the OPOL Agreement.

Personal injury does not fall under the scope of OPOL. Since the damage compensable under OPOL must be “direct”, it is arguable whether economic losses as a result of an offshore pollution incident is compensable. For this reason, the definition of “direct damage” under OPOL was criticized for being unclear.<sup>343</sup>

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<sup>337</sup> OPOL website, <<http://www.opol.org.uk/about-2.htm>>, last accessed 24 April 2012.

<sup>338</sup> Offshore Oil and Gas in the UK – An Independent Review of the Regulatory Regime, December 2011, p. 5, 76, 153.

<sup>339</sup> Clause I.13 of OPOL Agreement.

<sup>340</sup> This concern was raised e.g. in the Second Report UK Deepwater Drilling – Implications of the Gulf of Mexico Oil Spill, available at the official website of the UK Parliament: <[www.publications.parliament.uk/pa/cm201011/cmselect/cmenergy/450/45007.htm](http://www.publications.parliament.uk/pa/cm201011/cmselect/cmenergy/450/45007.htm)>, last accessed 9 November 2012.

<sup>341</sup> Clause I. 15 of OPOL Agreement.

<sup>342</sup> Guidelines for Claimants, OPOL.

<sup>343</sup> Energy and Climate Change Committee 2011, p. 26.

The judicial demarcation between “direct” losses and indirect or consequential losses has been widely debated in the UK. According to some, the current English law regards loss of profits as “direct” loss.<sup>344</sup> In practice, the contracts often define the term “consequential loss” specifically, deeming to be consequential certain types of loss that would be regarded as direct as a matter of law. Under the joint operating agreement, indirect or consequential loss is defined to include: loss in relation to delay or loss of petroleum production; loss of use, profit, revenue, bargain or opportunity; or loss in relation to reservoir damage.<sup>345</sup>

In the Environmental Damage (Prevention and Remediation) Regulations 2009, environmental damage is damage to “(a) protected species or natural habitats, or a site of special scientific interest, (b) surface water or groundwater, or (c) land”.<sup>346</sup> The Regulations apply to “the prevention and remediation of environmental damage”.<sup>347</sup>

### 3.5.2.8. Amount of compensation

The OPOL liability limit has been reviewed on a number of occasions. In August 2010, as a consequence of the Deepwater Horizon incident, the liability limit was increased to US\$250 million, and this entered into effect as of 1 October 2010.<sup>348</sup>

The overall amount per incident is USD 250 million, which includes maximum USD 125 million for “remedial measures” incurred by public authorities and another maximum USD 125 million for “pollution damage”. When all the claims in one category have been met, any surplus may be used to meet unsatisfied claims in the other category. If the total claims in a category exceed the sums available in that category, after surplus from the other category has been fully utilised, the compensation is pro-rated among the claimants.

OPOL does not take away a claimant’s right to seek redress through the courts for losses which exceed the maximum recoverable under the OPOL Agreement, or those beyond the scope of the OPOL Agreement.<sup>349</sup>

The general principles in the UK law do not impose statutory limitation on the liability of an offshore operator. However, the Environmental Damage (Prevention and Remediation) Regulations 2009 provides in Regulation 7 that the provisions in the Regulations “are without prejudice to the right of an operator to limit liability in accordance with the Convention on Limitation of Liability for Maritime Claims 1976.”<sup>350</sup> The Convention on Limitation of Liability for Maritime Claims 1976 only covers liability for vessels, and not for offshore facilities. Therefore, the operators of facilities under the UK jurisdiction are subject to unlimited liability beyond their USD 250 million limit under the OPOL arrangement.

The 250 million USD limit was questioned e.g. by a UK House of Commons Select Committee Report in December 2010. It raised the question whether 250 million USD would be sufficient to cover costs of a blowout in the UK continental shelf.<sup>351</sup> In contrast, another study commissioned by OPOL and Oil& Gas UK in 2012 concluded that the current limit of

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<sup>344</sup> Easo (2010), p. 21.

<sup>345</sup> Ibid.

<sup>346</sup> Regulation 4 of the Environmental Damage (Prevention and Remediation) Regulations 2009.

<sup>347</sup> Regulation 4 (1) of the Environmental Damage (Prevention and Remediation) Regulations 2009.

<sup>348</sup> <[http://www.oilandgasuk.co.uk/knowledgecentre/Keey\\_issues.cfm](http://www.oilandgasuk.co.uk/knowledgecentre/Keey_issues.cfm)>, last accessed 10 October 2012.

<sup>349</sup> OPOL Guidelines for Claimants, see <<http://www.opol.org.uk/downloads/opol-guidelines-oct10.pdf>>, last accessed 8 November 2012.

<sup>350</sup> Regulation 7(2) of Environmental Damage (Prevention and Remediation) Regulations 2009.

<sup>351</sup> Energy and Climate Change Committee (2011), 24-26.

250 million USD was considered adequate for the vast majority of UK well operations; only in certain limited cases, the clean-up costs and compensation could result in claims for amounts above the limit.<sup>352</sup> The process introduced by DECC on 1 January 2013, requiring evidence of financial responsibility captures those drilling operations where the cost of Pollution Damage and Remedial Measures exceeds 250 million USD. Such operations have to be “topped” up to the financial level identified through the accepted industry assessment process to cover the potential Pollution Damage and Remedial Measures that may have to be undertaken for that particular operation.

### 3.5.2.9. *Applicability in time*

The goal of OPOL is said to facilitate rapid payment since it does not need a lengthy legal action.<sup>353</sup>

Clause VI of the OPOL Agreement (amended 4 July 2012) provides that: “No Party shall have any obligation under this Contract with respect to any Claim filed over one year from the date of the Incident which resulted in the Pollution Damage or the taking of the Remedial Measures in question.” Hence, the liability of the operators under the OPOL Agreement will cease unless the claim is submitted within one year since the time the cause of action arises.

In the event of a dispute arising between a claimant and an operator as a party to OPOL, it shall be settled under the rules of arbitration of the International Chamber of Commerce by one or more arbitrators.<sup>354</sup> Arbitration is generally considered faster and speedier than litigation. The compensation mechanism of OPOL is designed to provide a quick settlement of claims without the expense of court proceedings.<sup>355</sup> “In arbitration settlements, the parties are able to choose their decision maker, unlike the court, who they think has specific expertise on the nature of the case. Added to comparatively informal procedure, the dispute would be settled much faster than through litigation. Arbitration brings certainty faster, even more as its award is final and binding hence no delay as a result of an appeal. It also means that the process of arbitration may be cheaper than court settlement.”<sup>356</sup>

The OPOL arrangement may indeed be faster, compared to litigation in court. The scheme calls on the claimant to notify an operator as soon as possible after an oil spill incident that damage has been suffered and/or costs incurred. OPOL states the scheme is intended to ensure that all claims associated with an oil spill are settled in an orderly and quick manner. However, it does not have a mechanism that would provide immediate compensation to the victims. The mutual guarantee under OPOL is to assure the capability of paying sums due to claimants under OPOL. However, OPOL is not a fund.

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<sup>352</sup> Oil Spill Cost Study (2012), p. 46.

<sup>353</sup> See OPOL website. OPOL is discussed in further detail in section 4.1 below.

<sup>354</sup> Clause IX of OPOL Agreement, as amended 4 July 2012.

<sup>355</sup> Niall Scott, Offshore Industry Compensation Regime, speech at Interspill Conference and Exhibition, London, 2012. Available at: <[http://www.interspill.com/previous-events/2012/14-March/pdfs/Offshore%20Forum%20Panel%20-%20UK%20Regime/Niall%20Scott%20\(OPOL\)%20-%20Offshore%20Industry%20Compensation%20Regime.pdf](http://www.interspill.com/previous-events/2012/14-March/pdfs/Offshore%20Forum%20Panel%20-%20UK%20Regime/Niall%20Scott%20(OPOL)%20-%20Offshore%20Industry%20Compensation%20Regime.pdf)>, last accessed 24 December 2012.

<sup>356</sup> Budiman, On Liability for Offshore Oil Spillage: Strictly Settled, see <<http://www.ibanet.org/Document/Default.aspx?DocumentUidentified>>.

### 3.5.2.10. Compensation mechanisms

In the regulations on licensing in the UK, financial capacity and membership of OPOL is made a precondition for a licence to be granted for an offshore operator.<sup>357</sup> It is further reinforced by the inclusion of a standard OPOL Clause in all joint operating agreements. The operator must establish and maintain its financial capability to meet claims that arise under OPOL by producing evidence of insurance, self-insurance or other satisfactory measures, with the financial responsibility to meet such capability allocated contractually between the operator and non-operators under a joint operating agreement.<sup>358</sup>

Therefore, in the UK legal regime the financial capacity of the (potential) offshore operators is a condition for granting licences and the compliance with regulatory requirements does not exclude operators from assuming liability for pollution damage.

The Petroleum Act 1998 provides in the model clauses that all licensees shall take “all steps practicable” to prevent the escape of oil in the licensed area and the licensees are required to have sufficient funds available to discharge any liability that they may accrue for damage in connection with any oil pollution. There is no statutory obligation to take out pollution liability insurance under the Petroleum Act for the licensing requirements, but OPOL and effectively all operators have some financial security through OPOL. Under the requirements of the Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998 there is a legal obligation upon operators to have adequate financial security in place in order to assure DECC that the provisions for implementation of counter pollution measures, as detailed within the OPEP, can be carried out.

According to the Rules of the Offshore Pollution Liability Association Limited (as of 1 January 2012), the financial responsibility can be established through insurance, guarantee or self-insurance. In practice, most members of OPOL use insurance as their preferred method of satisfying financial responsibility.<sup>359</sup>

First, for evidence of insurance, verification of insurance from an insurance company or insurance broker or agent is acceptable to the Association, for an amount of note less than USD 250 million per incident and USD 500 million in the annual aggregate. Second, for an operator that wishes to rely upon a guarantee, the verification of a guarantor must be acceptable to the Association. Third, in order to qualify as a self-insurer, the operator must have one or more of the credit or financial strength ratings from an internationally recognized credit rating agency, such as Standard & Poor’s (A- or higher), A. M. Best (A- or higher), Moody’s (A3 or higher), and Fitch (A or higher). If the operator elects to use insurance or a guarantee to meet their obligations to evidence financial responsibility under the OPOL

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<sup>357</sup> Petroleum (Production) (Seaward Areas) Regulations 2008, Clause 23(9). It provides that: “The Licensee shall comply with any reasonable instructions from time to time given by the Minister with a view to ensuring that funds are available to discharge any liability for damage attributable to the release or escape of Petroleum in the course of activities connected with the exercise of rights granted by this licence; but where the Minister proposes to give such instructions he shall before giving them –

(a) give the Licensee particulars of the proposal and an opportunity to make representations to the Minister about the proposal; and

(b) consider any representations then made to him by the Licensee about the proposal.”

<sup>358</sup> Offshore Pollution Liability Limited, Offshore Pollution Liability Association Limited Rules, <[www.opol.org.uk/rules-2.htm](http://www.opol.org.uk/rules-2.htm)>.

<sup>359</sup> UK Oil Spill Prevention and Response Advisory Group (OSPRAG), Strengthening UK Prevention and Response, Final Report, September 2011, p. 33.

Agreement the insurer or guarantor must also meet one or more of the ratings as specified above.

Most joint operating agreements require operator to take out insurance for joint operations, and partners can join in operator's insurance or take out their own. Some large oil companies do not insure with the market.

Typically, licensees maintain various insurances relevant to blowout including: property, control of well (aka Operator's Extra Expense or OEE insurance), sudden and accidental pollution, and third party legal liability.<sup>360</sup>

The UK licensing regulations require demonstration of financial competence.<sup>361</sup> There are two aspects of financial competence. The first aspect is to carry out the anticipated operations under the licence, namely the day to day operations (which is matter primarily covered by the model clauses); the second aspect is the financial competence to deal with the adverse environmental consequences of drilling activity, namely unplanned/accidental events, dealt with as part of the approval of OPEPs under the OPRC Regulations. According to DECC, the granting of a licence and/or drilling consent is conditional on a company showing that they have sufficient financial resources to cover the costs of a spill. However, the ability to pay is not publicly available and impossible to verify.<sup>362</sup> Whilst the ability to pay is not made public, the process by which an operator as to evidence to DECC that sufficient moniew are in place does provide assurance of the operator's capability to cover both first and third party costs, in relation to drilling (at present) operations, should a spill incident occur.

Due to concerns raised by the Deepwater Horizon incident, the Department of Energy and Climate Change announced on 8 June 2010 that it would review the indemnity and insurance requirements for operating on the UK continental shelf.<sup>363</sup>

Following the study carried out by OSPRAG (Oil Spill Prevention and Response Advisory Group), DECC indicated "its need to be assured that appropriate contingency finances are available to respond to and compensate for any incident arising from licensees carrying out work programme on their petroleum licences."<sup>364</sup> DECC normally carries out checks on the finances of a company before granting a licence. However, this process according to the study by OSPRAG focuses "more on a company's ability to carry out the agreed work programme than its ability to pay for unforeseen events".<sup>365</sup> DECC issued a letter to the operators in the UK in December 2010, stating that it now requires explicit confirmation that sufficient finance or insurance/indemnity provision is available to drill a relief well in a timely manner.<sup>366</sup> DECC published in November 2012 the "Guidance Note to UK Offshore Oil and Gas Operators on the Demonstration of Financial Responsibility before Consent May Be Granted for Exploration and Appraisal Wells on the UKCS" (DECC Guidance Note).<sup>367</sup> This document outlines DECC's expectations for demonstrating that "the risks of the operation

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<sup>360</sup> Aldersey-Williams (2011).

<sup>361</sup> Offshore Oil and Gas in the UK – An Independent Review of the Regulatory Regime, December 2011, p. 76.

<sup>362</sup> Offshore Oil and Gas in the UK – An Independent Review of the Regulatory Regime, December 2011, p. 76-77, see the opinion of the Greenpeace.

<sup>363</sup> DECC, UK increases North Sea rig inspections, Press Release, 1-/067, 8 June 2010, see the website of DECC: <[www.decc.gov.uk/en/content/cms/news/pn10\\_067/pn10\\_067.aspx](http://www.decc.gov.uk/en/content/cms/news/pn10_067/pn10_067.aspx)>.

<sup>364</sup> UK Oil Spill Prevention and Response Advisory Group (OSPRAG), Strengthening UK Prevention and Response, Final Report, September 2011, p. 34.

<sup>365</sup> Ibid.

<sup>366</sup> Ibid.

<sup>367</sup> The DECC Guidance Note has become effective as of 1 January 2013.



have been appropriately estimated and that the financial mechanisms are in place to meet those risks, should they materialize”.<sup>368</sup>

The DECC Guidance Note specifies that the financial mechanisms shall be accompanied with the oil pollution emergency plans (OPEPs) during the licensing process. “OPEPs contain worst case scenario information and details are provided of the incident response actions to be implemented should such a scenario occur, including loss of well containment/well blow out.” “All the response mechanisms to be used by operators during any such incidents will be expensive (first party costs), as may the compensation costs for pollution damage (third party costs).”<sup>369</sup> For that purpose, the level of financial responsibility should cover the two aspects of costs:

- costs of well control and
- cost of financial remediation and compensation from pollution.<sup>370</sup>

The DECC Guidance Note also specifies that financial responsibility can be verified by means of the following:

“reliance on credit/financial strength rating of the operator or co-venturer;  
insurance;  
parent company guarantee/affiliate undertaking; and  
any combination of the above”.<sup>371</sup>

DECC is aware of the work of Oil and Gas UK and OSPRAG, and it specifically mentions in the Guidance Note that the Guidelines “are not DECC Guidance, but DECC intends to give considerable weight in each case to an operator who can show that the guidelines have been met”.<sup>372</sup>

OSPRAG recommended that the industry should be issued with good practice guidance on the requirements for operators to demonstrate adequate financial resources to DECC with respect to the costs arising from a potential incident. A working group was tasked to implement this recommendation and as a result of the work carried out by this working group, some guidelines are published in November 2012.<sup>373</sup> These guidelines propose methods to assess the two elements of costs identified in DECC’s Guidance Note, being the cost of bringing a well under control following a blowout, and the cost of remedial measures and payments of compensation to third parties for pollution damage. The figures resulting from these two estimates are then aggregated to produce the total amount of financial resources which it is recommended should be demonstrated to DECC.<sup>374</sup> However, as explained in the Guidelines, these guidelines are to be considered as good industry practice, and following these guidelines may not necessarily fulfil all DECC’s requirements in every case.<sup>375</sup>

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<sup>368</sup> DECC, Guidance Note to UK Offshore Oil and Gas Operators on the Demonstration of Financial Responsibility before Consent May Be Granted for Exploration and Appraisal Wells on the UKCS, 2012.

<sup>369</sup> Ibid.

<sup>370</sup> Ibid.

<sup>371</sup> Ibid.

<sup>372</sup> Ibid. DECC strongly collaborated with Oil & Gas UK on the drafting of the Guidelines, but explicitly held that the Guidelines are formally from Oil & Gas UK and not from DECC. This has the advantage that if an operator were to show financial responsibility via another means than those mentioned in the Guidelines DECC would still have the possibility to accept that (interview with Wendy Kennedy, Head of Offshore Oil & Gas at the Department of Trade and Industry (Department of Energy and Climate Change DECC) on 29 April 2013).

<sup>373</sup> Oil & Gas UK, Guidelines to Assist Licensees in Demonstrating Financial Responsibility to DECC for the Consent of Exploration & Appraisal Wells in the UKCS, Issue 1, November 2012, p. 2.

<sup>374</sup> Ibid.

<sup>375</sup> Ibid., Foreword.

According to the Guidelines, the largest part of the cost of bringing an exploration or appraisal well under control is the cost of drilling a relief well.<sup>376</sup> In this respect, Oil & Gas UK has also developed guidelines, being Guidelines for Relief Well Planning – Subsea Wells. Depending on the complexity of the relief well, different procedures should be followed by the operators. The primary factors that influence the cost of drilling a well includes location , water depth, well depth and geo-environment.<sup>377</sup>

In addition to the cost of drilling a relief well, other elements that may have influence on the cost of well control, according to the Guidelines, include e.g. the cost of deploying a capping device, where appropriate. The capping device is a further means of capping a subsea well in case that the blowout preventer failed.<sup>378</sup> This capping device was recommended by the OSPRAG as good industry practice. These costs are estimated to be US\$40million for 30 days operation, where appropriate; or zero where a capping device is not appropriate.<sup>379</sup>

As to the second aspect of the cost factor, remedial measures and compensation, as membership of OPOL is obligatory for operators in the UK, for most cases, the limit of US\$250 million per incident under OPOL is considered sufficient for the cost of compensation.<sup>380</sup> The Guidelines further list a number of categories of well for which the likelihood of pollution is considered “extremely remote and costs are highly unlikely to exceed” the OPOL limit of US \$250 million.<sup>381</sup> This category mainly includes gas wells, gas condensate wells (other than HP/HT wells),<sup>382</sup> and wells which require artificial lift to flow.<sup>383</sup> For the other wells, the assessment of costs depends on the band which they fall in:

- “(1) BAND 1: Costs unlikely to exceed US \$250m (FR demonstrated to OPOL deemed to be sufficient);
- (2) BAND 2: Costs over US \$250 but under US \$275m;
- (3) BAND 3: Costs over US \$375 but under US \$500m;
- (4) BAND 4: Costs over US \$ 500m.”<sup>384</sup>

The Guidelines specifies that only the recognized modelling methods shall be used to determine the costs, including the Oil Spill Information System (OSIS), Oil Spill Contingency and Response (OSCAR) and Oilmap.<sup>385</sup> The results of the modelling should be analyzed to determine coverage in the following four categories:

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<sup>376</sup> Ibid., p. 8.

<sup>377</sup> Ibid., p. 9.

<sup>378</sup> Ibid., p. 11.

<sup>379</sup> Ibid., p. 12.

<sup>380</sup> This s also the findings of the joint study carried out by OPOL and UK Oil & Gas in February 2012.

<sup>381</sup> Oil & Gas UK, Guidelines to Assist Licensees in Demonstrating Financial Responsibility to DECC for the Consent of Exploration & Appraisal Wells in the UKCS, Issue 1, November 2012, p. 13.

<sup>382</sup> The Guidelines define these wells as follows:

“(1) Gas condensate: a portion of natural gas of such composition that it is in the gaseous phase at temperature and pressure of the reservoirs, but that, when produced, it is in the liquid phase at surface pressure and temperature. Normally condensate has a composition of C5 and C8 and an API gravity of greater than 40.

(2) HT: any well where the anticipated undisturbed bottom hole temperature is greater than 300 degrees F or 150 degrees C.

(3) HP: any well where the maximum anticipated pore pressure of the porous formation to be drilled exceeds a hydrostatic gradient of 0.8 psi/ft, or the well requires pressure control equipment with a rated working pressure in excess of 10,000 psi or 69MPa.”

Ibid., p. 14.

<sup>383</sup> Ibid., p. 13-14. However, it is also noted in the Guidelines that for gas and gas condensate wells it will still be appropriate to demonstrate financial responsibility in relation to the costs of control of well.

<sup>384</sup> Ibid., p. 14.

<sup>385</sup> Ibid., p. 14. In the UK, two models are often used to assess and plan for oil industry risks: OSIS developed by BMT ARGOSS and OSCAR developed by SINTEF. This was explained in the study in February 2012 by OPOL and UK Oil & Gas. For the purpose of the Guidelines, it is assumed that the release is a point surface release. Moreover, the modeling assumes that the well flows for thirty days before being effectively capped and the oil

“(1) Marine fishing areas;  
Aquaculture areas;  
Amount of oil on the coastline;  
Length of coastline becoming oiled.”

These categories are chosen because they have the most influence on cost according to the OPOL/Oil & Gas Oil Spill Cost Study - OPOL Financial Limits. Each category mentioned above shall be graded as high, medium or low based on certain criteria and the grading is translated to a numerical value: high category scores three points, medium two points and low one point. Corresponding with the scores, different amount of financial responsibility recommended to be demonstrated.<sup>386</sup>

### *3.5.2.11. Jurisdictional issues*

Since the offshore activities take place mainly on the UK continental shelf, the UK then has exclusive jurisdiction according to the UNCLOS 1982. This is reiterated in UK law as well. OPOL Agreement in Clause XII states that any dispute or claim (whether contractual or otherwise) shall be governed and construed in accordance with the Law of England. It further confirms that the operator party to OPOL shall not be required:

- “1. To incur any obligation or take any action with respect to any Incident which would violate the laws or Government regulations applicable to that Party.
2. To incur any obligations or take any action which would, if a majority of the stock of said Party is owned directly or indirectly by another entity, violate any laws or Government regulations which may apply to said other entity.”

### *3.5.2.12. Criminal liability*

There are several laws and regulations that have provisions related to the criminal liability for offshore activities.

First, in Part II of the Petroleum Act 1998 (which is titled “Offshore activities”) section 10 provides that criminal law is applicable to waters including the territorial sea and the continental shelf.<sup>387</sup> This Act also mentions that when “a body corporate is guilty of an offence by virtue of an Order in Council”, the “director, manager, secretary or other similar officer of the body corporate or any person who was purporting to act in any such capacity, he as well as the body corporate shall be guilty of that offence and shall be liable to be proceeded against and punished accordingly.”<sup>388</sup>

In addition, the Environmental Protection Act 1990 also has provisions on penalties for offences of polluting controlled waters which concerns criminal liability for actions during the offshore activities. Section 145 of the Environmental Protection Act 1990 refers to the Water Act 1989 (penalties for offences of polluting controlled waters or contravening consent conditions) and Control of Pollution Act 1974 (corresponding penalties for Scotland). The penalties are as follows:

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released during that time continues to travel until reaching a shoreline or until such oil has become insignificant at sea.

<sup>386</sup> Ibid., p. 15-17.

<sup>387</sup> Section 10 (7) of Petroleum Act 1998.

<sup>388</sup> Section 10 (4) of Petroleum Act 1998.

- on summary conviction, to imprisonment for a term not exceeding three months or to a fine not exceeding £20,000 or to both;
- on conviction on indictment, to imprisonment for a term not exceeding two years or to a fine or to both.

Furthermore, the Offshore Chemicals Regulations 2002 has in Regulation 18 provisions on criminal offences. The penalties largely reflect the provisions in Environmental Protection Act 1990, and the corporate liability is in line with that under Environmental Protection Act 1990. In addition, the Offshore Chemicals Regulations 2002 also defines what constitutes an offence. The relevant provisions in Regulation 18 are as follows:

- “(1) Subject to paragraph (2), a person is guilty of an offence if he—
- (a) contravenes regulation 3(1);
  - (b) fails to comply with the terms of a direction given under regulation 16(4);
  - (c) fails to supply any information required to be supplied by virtue of regulation 3(3) or 15;
  - (d) fails to supply any information required to be supplied by virtue of the terms of any permit granted under these Regulations;
  - (e) knowingly or recklessly makes a statement which he knows to be false or misleading in a material particular where such a statement—
    - (i) is made in connection with or for the purposes of any permit application or any application under regulations 10 or 11; or
    - (ii) is made for the purposes of satisfying any requirement under these Regulations for the supply of information to the Secretary of State or an inspector appointed pursuant to regulation 16;
  - (f) wilfully obstructs an inspector appointed under regulation 16; or
  - (g) without reasonable excuse fails to comply with a requirement imposed in pursuance of regulation 16 or prevents another person from complying with such a requirement.
- (2) Where a person is charged with an offence under paragraph (1)(a) or (1)(b), it is a defence to prove that the contravention—
- (a) arose as a result of something which could not have been reasonably prevented by him; or
  - (b) was due to something done as a matter of urgency for the purposes of securing the safety of any person.
- (3) A person guilty of an offence under this regulation shall on summary conviction be liable to a fine not exceeding the statutory maximum and on conviction on indictment to a fine.”

The Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 contain some provisions in Regulation 16 on Offences as well, which specifies the concept of an offence and prescribes penalties:

- “(1) Subject to paragraphs (2) and (4), a person is guilty of an offence if he—
- (a) contravenes regulation 3(1);
  - (b) fails to comply with the terms of an enforcement notice or a prohibition notice;
  - (c) fails to supply any information required to be supplied by virtue of the terms or conditions of any permit granted under these Regulations;
  - (d) fails to supply any information required to be supplied by virtue of regulation 3(4);
  - (e) wilfully obstructs an inspector appointed under regulation 12;
  - (f) without reasonable excuse, fails to comply with a requirement imposed in pursuance of regulation 12(3), or prevents another person from complying with such a requirement;
  - (g) knowingly or recklessly makes a statement which he knows to be false or misleading in a material particular where such a statement—
    - (i) is made in connection with, or for the purposes of, any application for a permit, the renewal of a permit, the variation of a permit or the assignment of a permit; or

(ii) is made for the purposes of satisfying any requirement under these Regulations for the supply of information to the Secretary of State or an inspector appointed by her pursuant to regulation 12.

(2) Where a person is charged with an offence under paragraph (1)(a), (1)(b), (1)(c) or (1)(d), it is a defence to prove that the contravention or failure—  
(a) arose as a result of something which could not reasonably have been prevented by him; or  
(b) subject to paragraph (3), was due to something done as a matter of urgency for the purpose of securing the safety of any person.

(3) A person does not have the defence provided by paragraph (2)(b) if the court is satisfied—  
(a) that the thing done—  
(i) was not necessary for the purpose mentioned in that paragraph; and  
(ii) was not a reasonable step to take in the circumstances; or  
(b) that it was necessary for the purpose mentioned in that paragraph but the necessity was due to the fault of the defendant.

(4) The discharge of oil into relevant waters in contravention of any one or more of the terms of or conditions attached to a permit shall not constitute an offence for the purpose of this regulation where the term or condition in question relates exclusively to one or more of the trading schemes.

(5) A person guilty of an offence under this regulation shall, on summary conviction, be liable to a fine not exceeding the statutory maximum and, on conviction on indictment, to a fine.”

Moreover, the Environmental Damage (Prevention and Remediation) Regulations 2009 also has relevant provision in Regulation 34:

“(1) A person guilty of an offence under these Regulations is liable—  
(a) on summary conviction, to a fine not exceeding the statutory maximum or to imprisonment for a term not exceeding three months or both; or  
(b) on conviction on indictment, to a fine or to imprisonment for a term not exceeding two years or both.  
(2) Where a body corporate is guilty of an offence under these Regulations, and that offence is proved to have been committed with the consent or connivance of, or to have been attributable to any neglect on the part of—  
(a) any director, manager, secretary or other similar person of the body corporate, or  
(b) any person who was purporting to act in any such capacity,  
that person is guilty of the offence as well as the body corporate.  
(3) For the purposes of paragraph (2), “director”, in relation to a body corporate whose affairs are managed by its members, means a member of the body corporate.”

### 3.5.3. Norway

#### 3.5.3.1. *National interest in offshore activities*

The Petroleum industry is Norway’s largest industry and the country has considerable oil and gas reserves.<sup>389</sup> All of Norway’s oil reserves are located offshore on the Norwegian continental shelf. Norway is the world’s largest offshore oil producer and second largest natural gas producer.<sup>390</sup> Oil production on the Norwegian continental shelf started since 15 June 1971 at the Ekofisk oil field. According to the statistics from the government, 35% of

<sup>389</sup> From the website of the Norwegian government - Ministry of Petroleum and Energy, <<http://www.regjeringen.no/en/dep/oed/Subject/Oil-and-Gas.html?id=1003>>, last accessed 24 December 2012.

<sup>390</sup> Ibid.

the assumed resources on the continental shelf have been produced, and there is still a huge potential for value creation on the Norwegian continental shelf. The Ekofisk field remains one of the largest Norwegian oil producing fields and the production is expected to continue until 2050.<sup>391</sup>

### 3.5.3.2. *Legal framework*

The Norwegian legal regime concerning offshore activities started to develop since the discovery of Ekofisk oil field in December 1969. Following the incident of Alexander Kielland in 1980, the Norwegian regulators recognized that the inspection-based approach was wholly inadequate. In the years subsequent to the incident, the legal regime has changed to a risk-based approach, being regulations describe what must be achieved, not how it must be achieved.<sup>392</sup>

Currently, the legal regime in Norway concerning offshore activities is mainly established through several statutes and related regulations. The statutes include the Petroleum Activities Act, supplemented by other statutes including mainly the Pollution Control Act, the Petroleum Taxation Act and the Working Environment Act.

Pursuant to Petroleum Activities Act, secondary legislation<sup>393</sup> adopted includes:

- Petroleum Activities Regulation;<sup>394</sup>
- Regulations relating to the Petroleum Register;<sup>395</sup>
- Regulations relating to refunding of expenses in connection with regulatory supervision of safety, working environment and resource management in the petroleum activities;<sup>396</sup>
- Fishermen Compensation Regulations;<sup>397</sup> and
- Regulations on compensation to fishermen for lost fishing time at the location, recording and bringing ashore of scrap that is not derived from petroleum activities.<sup>398</sup>

There are, in addition, regulations focusing on the health, safety and environment aspect of the offshore activities.<sup>399</sup> These mainly include:

- the Framework Regulations (Regulations relating to health, safety and the environment in the petroleum activities and at certain onshore facilities);
- the Management Regulations (Regulations relating to management and the duty to provide information in the petroleum activities and at certain onshore facilities);
- the Facilities Regulations (Regulations relating to design and outfitting of facilities, etc. in the petroleum activities);

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<sup>391</sup> Ibid.

<sup>392</sup> Dagg, Holroyd, Lemphers, Lucas and Thibault (2011), 37-39.

<sup>393</sup> All these regulations are available at the website of the Norwegian Petroleum Directorate: <<http://www.npd.no/en/Regulations/Regulations/>>, last accessed 22 November 2012.

<sup>394</sup> Regulations to Act relating to petroleum activities, last amended by Royal Decree 2 July 2012 No. 729.

<sup>395</sup> Laid down by Royal Decree 19 June 1997 pursuant to Act 29 November 1996 No. 72 relating to petroleum activities, section 6-1 and section 10-18.

<sup>396</sup> Laid down by Royal Decree 27 June 1997 pursuant to Act 29 November 1996 No. 72 relating to petroleum activities, section 10-18, cf. section 10-3 and Act 4 February 1977, No. 4 relating to worker protection and working environment, section 83. Last amended 14 December 2009.

<sup>397</sup> Regulations to the Act 29 November 1996 No. 72 relating to petroleum activities, Chapter 8 on compensation to fishermen. These regulations are only available in Norwegian.

<sup>398</sup> Only available in Norwegian.

<sup>399</sup> Available at the website of Petroleum Safety Authority, <<http://www.ptil.no/regulations/category216.html>>, last accessed 22 November 2012.

- the Activities Regulations (Regulations relating to conducting petroleum activities), and
- Technical and Operational Regulations (Regulations relating to Technical and Operational Matters at Onshore Facilities in the petroleum activities, etc.): These regulations only apply to onshore facilities.

Norway's Petroleum Activities Act was originally adopted in November 1996 and later amended in June 2009.<sup>400</sup> The most recent amendment was made in June 2011.<sup>401</sup> The Petroleum Activities Act lays down the general framework for offshore oil exploration and exploitation on the Norwegian continental shelf. It establishes requirements for safe and environmentally sound oil exploitation. The Act lays down the procedure of licensing and the considerations that shall be taken into account when making decisions on the allocation of licences.<sup>402</sup> It further requires licensees to ensure that they have a competent organization, submit a development plan for approval and maintain efficient emergency preparedness. The Act has a separate chapter dealing with liability of the licensee. It also has provisions on the establishment of safety zones around offshore installations and sanctions.

The liability for pollution damage is generally governed by rules in Chapter 7 of the Petroleum Activities Act under the title "Liability for pollution damage". Chapter 8 further provides "Special rules relating to compensation of Norwegian fisherman". Detailed rules and methods on fishermen's compensation are implemented in two regulations, the Fishermen Compensation Regulations, and the Regulations on compensation to fishermen for lost fishing time at the location, recording and bringing ashore of scrap that is not derived from petroleum activities.

The Pollution Control Act was first adopted in 1981<sup>403</sup> and last amended in 2003. The Pollution Control Act contains provision on the protection of the outdoor environment against pollution. Under the act, pollution is forbidden unless it is specifically permitted by law, regulations and individual permits. "Almost all pollution activity in Norway is based on individual permits or licences issued by the Climate and Pollution Agency or the country environmental agencies. Whether a permit is granted or not, depends on the professional judgement of the pollution control authorities."<sup>404</sup> Pollution Control Act is an enabling act. This means that the details in each case are outlined in discharge permits and regulations issued by the pollution control authorities.<sup>405</sup>

The regulatory authorities in Norway for offshore activities are mainly as follows:

- Norwegian Petroleum Directorate (NPD), established in 1972, is a governmental specialist directorate and administrative body, and it reports to the Ministry of Petroleum and Energy (MPE). NPD is a key advisor to the MPE. It is responsible for negotiating lease concessions based on competition among companies on technical competence and financial commitments.<sup>406</sup> The NPD has a national responsibility for data from the Norwegian continental shelf. The NPD's data, overview and analyses

<sup>400</sup> Petroleum Activities Act, Act 29 November 1996 No.72 amended by Act 19 June 2009 No.104.

<sup>401</sup> The last changes were made by Act 24 June 2011 No. 38. Accessible at the website of Norwegian Petroleum Directorate, which has an unofficial English translation of the Act: <[www.npd.no/en/Regulations/Acts/Petroleum-activities-act/#1-1](http://www.npd.no/en/Regulations/Acts/Petroleum-activities-act/#1-1)>, last accessed 19 November 2012.

<sup>402</sup> These provisions are supplemented and implemented in the Petroleum Activities Regulations.

<sup>403</sup> Act of 13 March 1981 No. 6 concerning Protection against Pollution and concerning Waste. An English version of the Act is found at: <<http://www.regjeringen.no/en/doc/Laws/Acts/Pollution-Control-Act.html?id=171893>>, last accessed 19 November 2012.

<sup>404</sup> <[http://www.klif.no/artikkel\\_\\_\\_\\_33746.aspx](http://www.klif.no/artikkel____33746.aspx)>, last accessed 23 November 2012.

<sup>405</sup> Ibid.

<sup>406</sup> Staff Working Paper No.21 2010, p. 23.

constitute a crucial factual basis on which the activities are founded. The NPD sets frameworks, stipulates regulations and makes decisions in areas where it has been delegated authority. It is also responsible for conducting metering audits and collecting fees from the petroleum industry.<sup>407</sup>

As for the licensing procedure, application for exploration licenses shall be submitted to the NPD<sup>408</sup> and production licences shall be submitted to the Ministry of Petroleum and Energy with a copy to the NPD.<sup>409</sup>

- The Climate and Pollution Agency (Klif) reports to the Ministry of the Environment. Klif exercises regulatory authority and carries out inspections (through granting of permits, establishing requirements, setting emission limits and ensuring compliance), monitors (and informs about) the state of the environment, provides expert advice to the Ministry of Environment and promotes key environmental initiatives, and participates in international environmental and development cooperation.<sup>410</sup> Klif sets demands for emergency preparedness.<sup>411</sup> It mainly regulates among others, operational discharge to the sea, measures to detect acute discharges, and emergency preparedness measures against acute discharges (environmental risk assessments, emergency response analyses and contingency plans). This largely mirrors the responsibilities of DECC Offshore Environmental Inspectorate in the UK.<sup>412</sup> Klif should be responsible for providing environmental information to the Petroleum Safety Authority in relation to major offshore accident hazards.

The legal basis for Klif's work is mainly three legislations: the Pollution Control Act, the Product Control Act and the Greenhouse Gas Emission Trading Act.<sup>413</sup>

- The Petroleum Safety Authority (PSA), as an independent government regulator subordinate to the Ministry of Labour, acts as the regulatory authority for the technical and operational safety aspect of the petroleum sector in Norway. This mainly covers emergency preparedness and the working environment throughout all phases of petroleum activities (planning, design, construction, operation and possible ultimate removal).<sup>414</sup> Prior to the establishment of PSA in 2004, these issues were regulated by the Norwegian Petroleum Directorate. PSA has delegated authority from the Ministry of Labour to "issue more detailed regulations for safety and the working environment in the industry, and to take specific decisions in the form of permits and consents, orders, enforcement fines, halting operations, prohibitions, dispensations and so forth".<sup>415</sup> The PSA coordinates among the three regulatory bodies (i.e. the NPD, the PSA and the Klif). It performs inspections, provides advice and information to the Ministry of Labour. Through audits (systematic examination of management and control systems), the PSA carries out supervision of the established systems.

Acts under PSA's area of authority include the Petroleum Activities Act, Working Environment Act,<sup>416</sup> the Fire and Explosion Prevention Act, Pollution Control Act.<sup>417</sup>

"PSA also participates in the evaluations. Companies must be approved by the PSA, which sets standards and limits on participation depending on the location, both at the initial leasing stage and subject to review prior to any development activity.

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<sup>407</sup> <<http://www.npd.no/en/About-us/>>, last accessed 22 November 2012.

<sup>408</sup> Section 3 of Petroleum Activities Regulations.

<sup>409</sup> Section 8 of Petroleum Activities Regulations.

<sup>410</sup> <<http://www.klif.no/no/english/english/About-Us/>>, last accessed 22 November 2012.

<sup>411</sup> Janssen (2012), 162.

<sup>412</sup> Offshore Oil and Gas in the UK (2011), 147-148.

<sup>413</sup> <<http://www.klif.no/no/english/english/Legislation/>>, last accessed 22 November 2012.

<sup>414</sup> <<http://www.ptil.no/about-us/category89.html>>, last accessed 22 November 2012.

<sup>415</sup> <<http://www.ptil.no/role-and-area-of-responsibility/category165.html>>, last accessed 22 November 2012.

<sup>416</sup> Act relating to working environment, working hours and employment protection, etc., as subsequently amended, last by Act of 19 June 2009. Available at: <<http://www.arbeidstilsynet.no/binfil/download2.php?tid=92156>>, last accessed 22 November 2012.

<sup>417</sup> An English version of the act is available at: <[http://www.ptil.no/getfile.php/Regelverket/-Forurensingsloven\\_e.pdf](http://www.ptil.no/getfile.php/Regelverket/-Forurensingsloven_e.pdf)>, last accessed 22 November 2012.



Companies new to the region or lacking experience are accepted only as part of an experienced team. Projects are managed collectively, with all parties liable. The NPD participates on the management committee of each development and has access to all data and plans, which it shares with the PSA. If the PSA is not convinced that the companies have adequately considered all risk, a project is not allowed to proceed. The NPD approves development plans to ensure efficient and optimal recovery of resources, but the PSA must consent to drilling plans before activity proceeds.”<sup>418</sup>

The PSA created a requirement for an “Acknowledgement of Compliance” for drilling rigs (similar to UK safety case). A rig owner must go through a detailed certification process and meet the requirements for equipment and workforce.

- Norwegian Coastal Administration (NCA) is an agency of the Ministry of Fisheries and Coastal Affairs. It is responsible for maritime safety and infrastructure, transport efficiency and emergency response to acute pollution.<sup>419</sup>
- Ministry of Health and Care Services.

It should be mentioned that the Norwegian government plays an important role in the oil sector. Statoil, which is 67% state owned,<sup>420</sup> controls over 60% of Norway’s oil and gas production. In the Petroleum Activities Act, there are specific provisions on the state’s participation in petroleum activities.<sup>421</sup> According to the Act, the state reserves a specified share of a licence and in the joint venture established by a joint operating agreement.<sup>422</sup>

Initially, the Norwegian state’s participation in petroleum activities was largely organized through Statoil. In 1985, the Norwegian state established the State’s Direct Financial Interest (SDFI), through which the Norwegian state has direct participating interests in the licences and petroleum activities on the Norwegian continental shelf. Petrol AS (wholly state-owned company) was established in 2001 to manage the SDFI assets.<sup>423</sup>

### 3.5.3.3. *Basis of liability*

The liability for offshore pollution damage under Norwegian law is imposed on the “licensee” or “operator” and is based on strict liability. Section 7-3 of the Petroleum Activities Act specifically provides that: “The licensee is liable for pollution damage without regard to fault. The provisions relating to the liability of licensees apply correspondingly to an operator who is not a licensee when the Ministry has so decided in connection with the approval of operator status.”

Section 8-3 titled “pollution and waste” (which concerns compensation to Norwegian fishermen) also contains similar provision on the strict liability of the licensee: “The licensee is liable, regardless of fault, in respect of financial losses incurred as a result of pollution and waste from the petroleum activities, and the cost of reasonable measures to avert or limit such damage or such loss, including damage or loss as a result of such measures.”

The exemptions to the licensee’s liability are mainly force majeure, act or war or exercise of public authority.<sup>424</sup> However, an exemption does not remove the full responsibility of the

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<sup>418</sup> Staff Working Paper No. 21 2010, p. 23.

<sup>419</sup> Janssen (2012), 162.

<sup>420</sup> The State’s Ownership Report 2010, Norwegian Ministry of Trade and Industry, p. 17. Available at: <[http://eierberetningen.no/2010/asset/ownership\\_report\\_2010.pdf](http://eierberetningen.no/2010/asset/ownership_report_2010.pdf)>, last accessed 19 November 2012.

<sup>421</sup> Chapter 11 Management of the state direct financial interest of the Petroleum Activities Act.

<sup>422</sup> Section 11-1 of the Petroleum Activities Act.

<sup>423</sup> <<http://www.statoil.com/AnnualReport2011/en/OurOperations/ApplicableLawsAndRegulations/Pages/ApplicableLawsAndRegulations.aspx>>, last accessed 24 December 2012.

<sup>424</sup> Section 7-3 of the Petroleum Activities Act.

licensee. Under the Norwegian law, his liability may “be reduced to the extent it is reasonable, with particular consideration to the scope of the activity, the situation of the party that has sustained damage and the opportunity for taking out insurance on both sides”, when the exemption event “has contributed to a considerable degree to the damage or its extent under circumstances which are beyond the control of the liable party”. “In the event of pollution damage from a facility located in an area outside the Norwegian continental shelf, the party who has approval from the competent authority to conduct the activities to which the facility is connected, is regarded to be a licensee.”<sup>425</sup>

The Model JOA states in Article 7 “liabilities and payments” that “[u]nless otherwise specified in this Agreement, the Parties shall be primarily liable to each other on a pro rata basis, secondarily jointly and severally liable for all obligations arising by virtue of the joint venture’s activities. This applies irrespective of a liability towards third parties.”<sup>426</sup>

All these provisions are in line with each other pointing at a strict liability of the licensee under the Norwegian law.

#### *3.5.3.4. Relationship with regulation*

There are two categories of licences under Norwegian law, the exploration licence and the production licence. The exploration licence is granted by the Ministry (of Petroleum and Energy),<sup>427</sup> and the production licence is granted by the King in Council and has to be registered in the Norwegian Register of Business Enterprises.<sup>428</sup> As for the production licence, “the technical competence and financial capacity of the applicant” is one of the criteria for granting such a licence.<sup>429</sup> Therefore, in the Norwegian regime, financial capacity to pay for compensation is only a requirement for the production licence, not for the exploration licence. The Petroleum Activities Regulations only mention “financial capacity” as a precondition for a production licence, but does not specify how the financial capacity of each individual potential licensee is to be decided and what is considered sufficient capacity.

The Petroleum Activities Regulations contain provisions on the application for various types of licences, required information and documents, and access to upstream pipeline networks. In addition, none of the regulations concerning environmental aspects, health and safety issues of the offshore activities as mentioned above states that compliance with relevant regulations would exempt the licensee from liability for offshore incidents. Moreover, the specific provision in the Petroleum Activities Act makes clear that the liability is strict, and is not conditional on the breach of regulations.

#### *3.5.3.5. Causation*

As far as causation is concerned, since it is strict liability on the licensee, the claimant normally has to prove the causal link between the damage he has suffered and the incident. Where there is causal uncertainty, i.e. when it is impossible to identify who has actually caused the damage, the licensees shall be jointly and severally liable under Section 8-4 of the

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<sup>425</sup> Ibid.

<sup>426</sup> Available at the website: <<http://www.regjeringen.no/Upload/OED/Vedlegg/Konsesjonsverk/k-verk-vedlegg-1-2-eng.pdf>>, last accessed 24 December 2012.

<sup>427</sup> Section 2-1 of Petroleum Activities Act. The application for licence is submitted to the NPD, thus the NPD carries out the licensing duty on behalf of the MPE. See Petroleum Activities Regulations, Section 3.

<sup>428</sup> Section 3-3 of Petroleum Activities Act. The application for production licence is submitted to the Ministry of Petroleum and Energy with a copy to NPD as stated in Section 8 of Petroleum Activities Regulations.

<sup>429</sup> In addition, another criterion is “the applicant’s plan for exploration and production in the area for which a production licence is sought.” This is provided in Section 10 of Petroleum Activities Regulations.

Petroleum Activities Act, “insofar as the damage may be believed to have been caused by petroleum activities in connection with the licence in question.”

There are in addition particular rules when it concerns the “financial losses incurred by Norwegian fishermen”. Section 8-1 of the Petroleum Activities Act specifies that the compensable damage has to come “as a result of the petroleum activities occupying fishing fields or resulting in pollution and waste, or as a result of damage caused by a facility or actions in connection with the placing of a facility.”<sup>430</sup> Therefore, the fisherman has to prove the causal link between the damage he has suffered and the offshore incident, being the occupation of fishing fields or placing of a facility, or a pollution incident. Hence, the occurrence of a pollution incident is not the sole cause for compensation for fishermen’s loss, but other aspects of the offshore activities which may also hinder the fishery and cause financial losses of the fishermen are also covered by the Act and compensable.

### 3.5.3.6. Attribution of liability

The Norwegian Petroleum Activities Act imposes liability on the licensee, and exclusively on the licensee. This is known as channelling of liability. Section 7-4 of the Act provides that: “The liability of a licensee for pollution damage may only be claimed pursuant to the rules of this Act.” The Petroleum Activities Act has further a list of parties whose liability shall be excluded:

“Liability for pollution damage cannot be claimed against:

- a. anyone who by agreement with a licensee or his contractors has performed tasks or work in connection with the petroleum activities;
- b. anyone who has manufactured or delivered equipment to be used in the petroleum activities;
- c. anyone who undertakes measures to avert or limit pollution damage, or to save life or rescue values which have been endangered in connection with the petroleum activities, unless the measures are performed in conflict with prohibitions imposed by public authorities or are performed by someone other than public authorities in spite of express prohibition by the operator or the owner of the values threatened;
- d. anyone employed by a licensee or by someone mentioned under literas a, b or c.”<sup>431</sup>

According to the Petroleum Activities Act in Section 10-9 titled “Liability for damage caused”, if “liability in respect of a third party” (which obviously includes pollution damage) is “incurred by anyone undertaking tasks for a licensee”, “the licensee shall be liable for damages to the same extent as, and jointly and severally with, the perpetrator and, if applicable, his employer”. Therefore the Petroleum Activities Act provides that the liability is imposed on the licensee and it cannot be channelled to parties down the production chain. Norwegian regulations require operators to take responsibility for their contractors. This reduces the chances for oil companies to point at others for who is to blame.<sup>432</sup>

However, in the event of multiple licensees, the liability is joint and several among the licensees. When there are multiple licensees under one licence, they are “jointly and severally responsible to the state for financial obligations arising out of petroleum activities pursuant to the licence.”<sup>433</sup> “If there are several licensees under the licence and one of them is the operator, or if the Ministry has made a decision according to the first paragraph, claims for

<sup>430</sup> Section 8-1 Scope of application and definitions.

<sup>431</sup> Section 7-4 of the Petroleum Activities Act.

<sup>432</sup> Janssen (2012), 173.

<sup>433</sup> Section 10-8 of the Petroleum Activities Act.

compensation shall initially be directed to the operator. If any part of the compensation is left unpaid on the due date by the operator, this part shall be covered by the licensees in accordance with their participating interest in the licence. If someone fails to cover his share, this shall be allocated proportionately between the others.”<sup>434</sup>

When the licensee “fails to pay within the time limit stipulated by the judgement, the party that has sustained damage may bring action against the party that has caused the damage to the same extent as the licensee may bring action for recourse against the party causing the damage”.<sup>435</sup> Nevertheless, the “licensee may claim compensation from the party causing pollution damage to him to the same extent as the licensee may bring action for recourse against the party causing the damage.”<sup>436</sup>

### 3.5.3.7. Damages – remedies

Pollution damage is defined as “damage or loss caused by pollution as a consequence of effluence or discharge of petroleum from a facility, including a well, and costs of reasonable measures to avert or limit such damage or such loss, as well as damage or loss as a consequence of such measures. Damage or loss incurred by fishermen as a consequence of reduced possibilities for fishing is also included in pollution damage.”<sup>437</sup>

The Act also specifically states that “financial losses incurred by Norwegian fishermen as a result of the petroleum activities” are compensable.<sup>438</sup> It further provides that financial losses of the fishermen are compensable when “incurred as a result of pollution and waste from the petroleum activities, and the cost of reasonable measures to avert or limit such damage or such loss, including damage or loss as a result of such measures.”<sup>439</sup> They shall include “damage and inconvenience due to pollution and waste as a result of supply vessel and support vessel traffic, as well as during relocation of the facility to or from the field concerned.”<sup>440</sup>

There are two Norwegian Regulations on fishermen compensation, but these are only available in Norwegian.

### 3.5.3.8. Amount of compensation

There is no financial cap on the amount of compensation in the case of a pollution incident. Operating companies have unlimited liability for offshore pollution incidents.<sup>441</sup>

### 3.5.3.9. Applicability in time

As far as compensation to Norwegian fishermen is concerned, there are some provisions on the time limit for the settlement of the claims. Section 8-6 of the Petroleum Activities Act reads as follows: “Claims made pursuant to this chapter, shall be dealt with by a commission [...] Decisions made by the administrative appeal body may be brought straight before the

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<sup>434</sup> Section 7-3 of the Petroleum Activities Act.

<sup>435</sup> Section 7-4 of the Petroleum Activities Act.

<sup>436</sup> Section 7-4 of the Petroleum Activities Act.

<sup>437</sup> Section 7-1 Definition of the Petroleum Activities Act, and Section 8-3 has similar provision.

<sup>438</sup> Section 8-1 Scope of application and definitions of the Petroleum Activities Act.

<sup>439</sup> Section 8-3 of the Petroleum Activities Act.

<sup>440</sup> Section 8-3 Pollution and waste of the Petroleum Activities Act.

<sup>441</sup> Janssen (2012), 173.

district court, within two months of the party in question having been notified of the decision by summons. After expiry of the time limit for lodging a complaint or expiry of the time limit stipulated in the second paragraph, claims upheld by the commission or by the administrative appeal body shall be grounds for enforcement of distraint. When the deadline in the second paragraph is exceeded, the administrative appeal body may, pursuant to the rules in Section 31 of the Public Administration Act, decide that the district court shall hear the matter. Decisions regarding failure to comply with deadlines may be appealed to the district court.”

This two month time limit may be used to restrict the time for claims settlement. However, this applies only to the compensation of fishermen, not to other types of claims arising out of an offshore incident.

Section 10-10 of the Petroleum Activities Act provides that “[i]f a serious accident has occurred in connection with petroleum activities comprised by this Act, the Ministry may appoint a special commission of inquiry. The same applies to incidents in the activities which have led to serious danger of loss of life or major damage to property or pollution of the marine environment. The members of the commission shall represent sufficient legal, nautical and technical expertise [...] The rules of the Maritime Act regarding an investigation of maritime accidents and regulations laid down pursuant to the Maritime Act Chapter 18 II shall apply correspondingly, as appropriate.”

There is no relevant provision for other types of claims than fishermen’s losses to be rapidly handled. Therefore, a rapid claims handling mechanism is lacking in the Norwegian legislation.

#### *3.5.3.10. Compensation mechanisms*

Both the Petroleum Activities Act and the Petroleum Activities Regulations have some provisions on financial security. The Petroleum Activities Act provides in Section 10-7 that “[u]pon granting a licence and subsequently, the Ministry may decide that the licensee shall provide such security as approved by the Ministry for fulfilment of the obligations, which the licensee has undertaken, as well as for possible liability in connection with the petroleum activities.” Therefore, the licensee must prove financial security upon the licence being granted. However, it does not specify the type of financial security and other details such as how to decide on the amount of financial security.

The Petroleum Activities Regulations contain in Section 73 more detailed (compared with the provisions in the Petroleum Activities Act) provisions on insurance. It requires that the offshore activities carried out under Chapters 3 and 4 of the Petroleum Activities Act “shall be insured at all times”. These activities refer to production of petroleum under a production licence. It does not mention if activities conducted under Chapter 2 of the Petroleum Activities Act, being the exploration activities should also be covered by the insurance requirement.

The Petroleum Activities Regulations further provide that

“[t]he insurance must at least cover:

- a. damage to facilities;
- b. pollution damage and other liability towards third parties;
- c. wreck removal and cleanup as a result of accidents;
- d. insurance of the licensee’s own employees who are engaged in the activities.”

The licensee shall ensure that contractors and subcontractors engaged in the activities take out insurance for their employees to the same extent as the operator insures his own employees.

When taking out insurance as mentioned in the first paragraph literas a) to c), the licensee shall provide reasonable insurance cover, taking into consideration risk exposure and premium costs. Insurance as mentioned under litera d) shall be taken out as further agreed with the organizations of the employees. At the end of each calendar year, the licensee shall inform the Ministry (of Petroleum and Energy) about existing insurance agreements, with an indication of the main terms. The Ministry may require further insurance to be taken out.”<sup>442</sup>

Statoil for instance purchases insurance for, among other things, physical loss of or damage to oil and gas properties, liability to third parties, workers’ compensation and employers’ liability, general liability, pollution and well control.<sup>443</sup>

The well control policy covers costs relating to well control incidents (including pollution and cleanup costs). The well control policy is subject to a gross limit per incident: for Norwegian continental shelf, it is NOK 2,500 million per incident for exploration wells, and NOK 2,000 million per incident for production wells; for the Gulf of Mexico, it is USD 300 million (approximately NOK 1,800 million) per incident.<sup>444</sup> The insurance of Statoil is subject to deductibles, excesses and self-insured retentions (SIR) that must be borne prior to recovery; and exclusions and limitations. The SIR varies between approximately NOK 16 and 581 million per loss on the Norwegian continental shelf depending on the ownership percentage interest in the well and certain other factors. The SIR in the Gulf of Mexico would be approximately NOK 150 million per incident assuming 100% ownership.<sup>445</sup>

In excess of the well control insurance, Statoil has in place a third party liability insurance program with a gross limit of NOK 4,800 million per incident. The SIR is insignificant (maximum NOK 6 million).<sup>446</sup> Statoil also acknowledges that the insurance may not adequately protect the company “against liability for all potential consequences and damages”.<sup>447</sup>

### 3.5.3.11. Jurisdictional issues

Petroleum Activities Act specifically states that “The Norwegian State has the proprietary right to subsea petroleum deposits and the exclusive right to resource management.”<sup>448</sup> “Resource management is executed by the King in accordance with the provisions of this Act and decisions made by the Storting (Parliament)”.<sup>449</sup> This complies with the principles embodied in the UNCLOS.

Section 7-2 of Petroleum Activities Act states:

“The provisions of this chapter are applicable to liability for pollution damage from a facility when such damage occurs in Norway or inside the outer limits of the Norwegian continental shelf or affects a Norwegian vessel, Norwegian hunting or catching equipment or Norwegian facility in adjacent sea areas. With regard to measures to avert or limit pollution damage it is sufficient that damage may occur in such area. The provisions of this chapter are also applicable to pollution damage from facilities used in petroleum activities according to this Act, when the damage occurs in onshore or

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<sup>442</sup> Section 73 of the Petroleum Activities Regulations.

<sup>443</sup> <[www.statoil.com/annualreport2010/en/ouoperations/pages/insurance.aspx](http://www.statoil.com/annualreport2010/en/ouoperations/pages/insurance.aspx)>, last accessed 29 November 2012.

<sup>444</sup> Ibid.

<sup>445</sup> Ibid.

<sup>446</sup> Ibid.

<sup>447</sup> Ibid.

<sup>448</sup> Section 1-1 of the Petroleum Activities Act.

<sup>449</sup> Section 1-2 of the Petroleum Activities Act.

offshore territory belonging to a state which has acceded to the Nordic Convention on Environment Protection of 19 February 1974.

The King may, irrespective of the provisions contained in this Act, by agreement with a foreign state issue rules relating to liability for pollution damage caused by petroleum activities pursuant to this Act. Such rules shall, however, not restrict the right to compensation according to this Act in respect of any injured party under Norwegian jurisdiction.”

In general, the jurisdiction for offshore activities taking place on the Norwegian continental shelf belongs to the coastal state – Norway, which is in accordance with the principles in the UNCLOS. However, complications may arise when devices used for offshore activities are registered in another jurisdiction. In such a case, question may be asked when deciding on the liability caused by foreign registered facility, whether the national law of the registered country could apply.<sup>450</sup>

#### 3.5.3.12. *Criminal liability*

The Petroleum Activities Act provides in Section 10-17 that:

“Wilful or negligent violation of provisions or decisions issued in or pursuant to this Act shall be punishable by fines or imprisonment for up to 3 months. In particularly aggravating circumstances, imprisonment for up to 2 years may be imposed. Complicity is punishable in the same way. These provisions shall not apply if the violation is subject to a more severe penalty under any other statutory provision.”

### 3.5.4. Denmark

#### 3.5.4.1. *National interest in offshore activities*

In Denmark, the first exploration licence was granted in 1935. The first hydrocarbon discovery in the Danish offshore was made in 1966 A.P. Møller, which was also the first find in the North Sea. The first oil was produced from the Dan field in July 1972.<sup>451</sup> Since then, the search for new oil and gas fields has brought about a multitude of activities as well as major investments in the establishment of North Sea production facilities.<sup>452</sup> “The Danish state derives proceeds from North Sea oil and gas production via direct revenue from various taxes and fees: corporate income tax, hydrocarbon tax, royalty, the oil pipeline tariff, compensatory fee and profit sharing.”<sup>453</sup> “In addition to the direct revenue from taxes and fees, the Danish state receives indirect revenue from the North Sea by virtue of its shareholding in DONG Energy, generated by the subsidiary DONG E&P A/S, which participates in oil and gas activities. In the long term, the state will also receive revenue through the Danish North Sea North.”<sup>454</sup>

All producing fields in Denmark are located offshore in the North Sea.<sup>455</sup> According to the Danish Energy Agency, there are in total 19 producing fields of various size and three operators are responsible for production from these fields: DONG E&P A/S, Hess Denmark ApS and Mærsk Olie og Gas A/S.<sup>456</sup> A total of ten companies participate in the production

<sup>450</sup> For a discussion on this issue, see Kaasen (2013), version 10 December 2012, 108-110.

<sup>451</sup> See the website of Danish Energy Agency, <<http://www.ens.dk/en-US/OilAndGas/Licences/Sider/Forside.aspx>>, last accessed 22 December 2012.

<sup>452</sup> Danish Energy Agency, Oil and Gas Production in Denmark 2011, p. 3.

<sup>453</sup> Danish Energy Agency, Oil and Gas Production in Denmark 2011, p. 53.

<sup>454</sup> Ibid.

<sup>455</sup> Danish Energy Agency, Oil and Gas Production in Denmark 2011, p. 20.

<sup>456</sup> Ibid.

from Danish fields. Dansk Undergrunds Consortium (DUC), consisting of Shell, A.P. Møller – Mærsk and Chevron, has the largest share, accounting for 86% of oil production and 97% of gas exports.<sup>457</sup>

The official statistics released by the Danish Energy Agency (DEA) states that in 2011, production in the Danish part of the North Sea derived from a total of 278 active production wells, of which 199 were oil wells and 79 were gas wells.<sup>458</sup>

The operating companies are obliged to report all major hydrocarbon releases and significant releases to the Danish Energy Agency immediately. Major releases are defined as releases of more than 300 kg or with a release rate of more than 1kg/sec. for more than five minutes. Significant releases are defined as releases of 1-300 kg or with a release rate of 0.1-1 kg /second with a duration of two to five minutes.<sup>459</sup> According to the records of the Danish Energy Agency, there were no major releases in 2011, but six significant releases were reported.<sup>460</sup> (DEA hydrocarbon gas releases?)

#### 3.5.4.2. *Legal framework*

Companies are required to have a licence to explore hydrocarbons. Licences are granted through licensing rounds and via the Open Door procedure which was introduced in 1997.<sup>461</sup> Since 1983 areas in the North Sea have been offered to interested oil companies in a system of rounds. Six licensing rounds have been held, the latest in 2005/2006. Furthermore in 1996 an Open Door procedure for areas east of 6° 15' eastern longitude was introduced.

Important legislation related to offshore oil and gas activities in Denmark concerns following acts, orders and guidelines:

- Subsoil Act:<sup>462</sup> The Subsoil Act lays down the basic framework for oil and gas exploration and production in Denmark. “It regulates exploitation and recovery activities in the Danish subsoil and on the Danish Continental Shelf concerning raw materials, and specifically hydrocarbons.”<sup>463</sup> The Subsoil Act states that the raw materials shall belong to the Danish state; the exploration for and production of the raw materials shall be subject to a licence granted by the Minister for Climate and Energy;<sup>464</sup>
- Offshore Safety Act:<sup>465</sup> The health and safety aspect of the offshore activities in the Danish continental shelf is regulated by this Act and regulations issued under the Act;
- Act No. 291 of 10 June 1981, as revised by Consolidated Act No. 957 of 9 September 2011 on the Establishment and Use of a Pipeline for Transport of Crude Oil and Condensate;

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<sup>457</sup> Ibid.

<sup>458</sup> Ibid.

<sup>459</sup> Danish Energy Agency, Oil and Gas Production in Denmark 2011, p. 33.

<sup>460</sup> Ibid.

<sup>461</sup> See the website of Danish Energy Agency, <<http://www.ens.dk/en-US/OilAndGas/Licences/Sider/Forside.aspx>>, last accessed 29 November 2012.

<sup>462</sup> Act No. 293 of 10 June 1981 as revised by Consolidated Act No. 960 of 13 September 2011 on the Use of the Danish Subsoil. No. 526 of 11 June 2002 on the Use of the Danish Subsoil (from DEA website)

<sup>463</sup> A Guide to Hydrocarbon Licences in Denmark: Exploration and Drilling Activities, September 2011, Danish Energy Agency, p. 10.

<sup>464</sup> Part 1. 2 of the Subsoil Act.

<sup>465</sup> Act No. 1424 of 21 December 2005 on Safety, etc. on Offshore Installations for Exploration, Extraction and Transport of Hydrocarbons (Offshore Safety Act). The Offshore Safety Act has later been amended by Act No. 107 February 2007, section 32 in Act No.512 of 6 June 2007 and section 1 in Act No. 1400 of 27 December 2008. Subsequently, the Offshore Safety Act has been amended by Act No. 287 of 15 April 2009 and by Act No. 467 of 18 June 2011.



- Continental Shelf Act;<sup>466</sup> and
- Marine Environment Protection Act.<sup>467</sup>

The environmental aspects of the offshore activities are regulated through the Subsoil Act, the Continental Shelf Act and the Marine Environment Protection Act. In addition to the above-mentioned legislation, general regulations and guidelines are set out in model licences and joint model joint operating agreements. The use of model JOA in Denmark is to secure the rights of the state participants, and its terms are negotiable. However, the JOA is subject to the approval of the Danish Energy Agency.<sup>468</sup>

The regulatory authorities for offshore activities in Denmark are the Danish Energy Agency (DEA) and the Danish Environmental Protection Agency (DEPA). The DEA has the authority to decide on granting of licences (development plans for oil and gas fields must be pursuant to the Subsoil Act and the establishment of pipelines must be pursuant to the Continental Shelf Act) and environmental impact assessment if necessary,<sup>469</sup> and it is the supervising authority on health and safety aspect regarding offshore activities on the Danish continental shelf.<sup>470</sup> Within the DEA, there are two separate divisions in charge of environmental and health and safety issues respectively, being the Offshore Installations Division is in charge of offshore health and safety issues, and the Oil and Gas Division is in charge of environmental issues.

As far as the environmental aspect of the offshore activities is concerned, the DEPA “lays down requirements regarding the quantity of substances and materials that may be discharged into the atmosphere and the sea (the external environment)”, whereas the DEA “draws up design requirements that offshore installations must meet in order to observe the principle of using the Best Available Techniques (BAT) to reduce harmful environmental impacts”.<sup>471</sup> DEPA regulates issues like emissions to the environment.

When it concerns health and safety aspect of offshore activities, DEA issues permits and approvals for offshore installations, including inter alia, operation permit, manning and organization plan approval and approval for contingency plan.<sup>472</sup>

### 3.5.4.3. Basis of liability

According to Section 35 of the Subsoil Act, the “licensee” is strictly liable “to pay damages for any loss, damage or injury caused by the activities carried out under the licence”.<sup>473</sup> The comparative negligence defence of the victim is also taken into account.<sup>474</sup>

<sup>466</sup> Consolidated Act No. 1101 of 18 November 2005 on the Continental Shelf.

<sup>467</sup> Consolidated Act No. 925 of 28 September 2005 on the Protection of the Marine Environment.

<sup>468</sup> Danish Energy Agency (2011), 11.

<sup>469</sup> The criteria to decide whether an environmental impact assessment is necessary are mentioned in the Danish Energy Agency’s Executive Order No. 884 of 21 September 2000 on the Environmental Impact Assessment of Projects to Produce Hydrocarbons and Establish Pipelines in the Danish Sea Territory and Continental Shelf Area.

<sup>470</sup> <<http://www.ens.dk/en-US/OilAndGas/Environment/Sider/Forside.aspx>>, last accessed 29 November 2012.

<sup>471</sup> Ibid.

<sup>472</sup> Ibid.

<sup>473</sup> Section 35 of the Subsoil Act reads that:

“(1) A licensee shall be liable to pay damages for any loss, damage or injury caused by the activities carried on under the licence, even though such loss, damage or injury was caused accidentally.

(2) In the event that the injured party contributed to the loss, damage or injury, either intentionally or through negligence, the damages payable may be reduced or lapse.”

<sup>474</sup> Section 35(2) of the Subsoil Act provides: “In the event that the injured party contributed to the loss, damage or injury, either intentionally or through gross negligence, the damages payable may be reduced or lapse.”

#### *3.5.4.4. Relationship with regulation*

Several provisions in the Subsoil Act state that the necessary financial capacity is one of the conditions/criteria for a licence to be granted to the applicant.<sup>475</sup> Moreover, during the term of the licence, “the licensees shall at all times be able to substantiate that they are financially sound”.<sup>476</sup> Therefore, the financial capacity is not only a requirement for obtaining a licence, but also during the whole operation period of the licence. However, there is no provision in the Subsoil Act concerning what is the specific amount of financial resources to be considered “necessary” or sufficient for the granting of a licence. Neither is there any provision on how the financial capacity is secured during the whole period of the licence.

According to Section 35 of the Subsoil Act, a licensee shall be liable for damages or injuries caused by his offshore activities under the licence, even when it is caused accidentally. Therefore, the compliance with regulation does not exempt the licensee from assuming liability for compensation. In case of noncompliance with the provisions in the Subsoil Act, the licence may be revoked by the Minister for Climate and Energy.<sup>477</sup>

#### *3.5.4.5. Causation*

It is assumed that the licensee’s strict liability also includes persons who usually are not regarded as third parties, e.g. the licensee’s employees and contracting parties.<sup>478</sup>

#### *3.5.4.6. Attribution of liability*

Section 35 of the Subsoil Act apparently channels the liability to the licensee. In addition, the model licence provides in Section 31 that “if the licence is granted to several parties jointly, they shall be jointly and severally liable for damages claimed pursuant to section 35 of the Subsoil Act for the satisfaction of any obligations to the State under the Licence”.

#### *3.5.4.7. Damages – remedies*

The liability for damages includes personal injury as well as property damage.<sup>479</sup>

#### *3.5.4.8. Amount of compensation*

Section 38 of the model licence provides that the licensee “shall indemnify the State against all claims whatsoever which may be made by any third party against the State as a consequence of the Licensee’s activities”. Therefore, the liability of the licensee should cover the actual amount arisen from “all claims” and should thus be unlimited.

However, when it comes to a mobile offshore installation, the liability of the shipowner under the Merchant Shipping Act shall apply. This is provided in Section 69 of the Offshore Safety Act on “civil law rules for offshore installations”. It reads that: “By applying the rules in Part 9 of the Merchant Shipping Act on mobile offshore installations during exploration and extraction activities, the shipowner shall be liable when the liability is limited, regardless of

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<sup>475</sup> Sections 5, 12 and 18b.

<sup>476</sup> Section 6(6) of the Subsoil Act.

<sup>477</sup> Section 30 of the Subsoil Act.

<sup>478</sup> Danish Energy Agency (2011), 12.

<sup>479</sup> Ibid.

the size of the installation by up to 50 million special drawing rights (SDR). For injury to a person this amount is increased by 30 million SDRs.”

#### *3.5.4.9. Applicability in time*

No provision was found in the Danish laws that would provide expedite compensation to the victims.

#### *3.5.4.10. Compensation mechanisms*

Section 28a of the Subsoil Act provides that “When licences or approvals are granted pursuant to subsection (3)(ii) or subsection (4), the Minister for Climate and Energy shall lay down terms and conditions regarding appropriate compensatory measures. The expenses for such compensatory measures shall be covered by the project applicant. The Minister shall notify the European Commission of the compensatory measures.”<sup>480</sup>

Section 29 (2) contains a provision stating that “[a] licence granted under the provisions of this Act shall not be available to the recourse of creditors.”

It is provided in section 30 subsection (1) of the model licence that the “licensee’s liability for damages under the Subsoil Act shall be covered by insurance”.<sup>481</sup> As for the amount of insurance, the model licence provides that: “The insurance shall provide reasonable coverage, in light of the risks involved in the operation of the business and the premiums to be paid.”<sup>482</sup> Moreover, the DEA “may require additional insurance to be taken out” in case the DEA does not consider the insurance coverage to be sufficiently extensive.<sup>483</sup> At the end of each calendar year, the DEA shall be informed of the insurance then in force and of the principal terms thereof.<sup>484</sup>

The licensee’s insurance shall cover the following issues:

- injury to the licensee’s own employees;
- injury to any third party (including damage to property of a third party);
- pollution damages caused by the activities.<sup>485</sup>

The coverage for damages shall include all insurances which the licensee is obliged to take out under the Danish law, i.e. work injury, motor vehicles, aircrafts and insurance of ships’ oil pollution liability. In addition to the coverage for damages shall include insurance otherwise required in accordance with section 30 of the model licence in order to cover the general third party liability.

In addition to the insurance requirement under Section 30 of the model licence, Section 32 of the model licence also contains requirement on the (parent company) guarantee.<sup>486</sup> The

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<sup>480</sup> Section 28a (6) of the Subsoil Act.

<sup>481</sup> Section 30(1) of the (model) Licence for Exploration for and Production of Hydrocarbons.

<sup>482</sup> Section 30(2) of the (model) Licence for Exploration for and Production of Hydrocarbons.

<sup>483</sup> Section 30(3) of the (model) Licence for Exploration for and Production of Hydrocarbons.

<sup>484</sup> Ibid.

<sup>485</sup> Danish Energy Agency (2011), p. 12.

<sup>486</sup> Section 32 of the (model) Licence for Exploration for and Production of Hydrocarbons reads: “In order to ensure performance by the Licensee of all its obligations under this Licence, the Licensee shall, within a period of 30 days from the granting hereof, provide security, possibly in the form of a parent company guaranty, in an amount and of a nature that is acceptable to the Danish Energy Authority. Upon 30 days’ notice, the Danish Energy Authority may subsequently require that such security be changed or supplemented.”

function of the parent company guarantee is yet to be verified with the national regulatory authority. It may be a guarantee to cover the operation as stated in the licence. The crucial question remains whether such a parent company guarantee can also be used to cover risks of incidents during operation.

#### *3.5.4.11. Jurisdictional issues*

The model licence specifies that the licence shall be subject to the laws of Denmark in force, i.e. the Subsoil Act, executive orders, decrees and the obligations in force arising from Denmark's membership of the EU.<sup>487</sup> Any dispute arising in connection with the licence or with the licensee's performance of activities under the licence shall be resolved pursuant to the laws in force in Denmark and by the Danish courts.

#### *3.5.4.12. Criminal liability*

Part 10 of the Act on the Use of the Danish Subsoil contains some general provisions on criminal liability.

“38.-(1) Any party

(i) carrying on the activities referred to in sections 1(2) and 17 without a licence issued by the Minister for Climate and Energy,  
(ii) transgressing the provisions of section 26(1) or failing to submit the samples and other information required according to section 34, iii) disregarding enforcement notices issued in accordance with this Act or regulations laid down in pursuance of this Act, shall be punishable by a fine or imprisonment for a term of up to four months.

(2) Any regulations issued in pursuance of this Act may include penalty provisions imposing a fine or imprisonment for a term of up to four months for any transgression of the provisions laid down in such regulations.

(3) Companies, etc. (legal persons) may be held criminally liable in accordance with the provisions laid down in Part 5 of the Danish Criminal Code.”

Part IX of the Petroleum Safety Act (titled “Penalties”) specifies who can be held criminally liable for what type of acts, and what the sanctions are:

“70. The licensee, owner of offshore installations under section 2(1)(i)(c), operating company, contractor, employer, company manager and offshore installation manager who do not take care to

i) identify and assess the risks pursuant to section 5(1), (3) and (4), section 8(4), section 10(1), section 11(2), section 33(1) and (3), section 34(1), sections 35-36 or section 53,  
ii) supervise pursuant to section 6(1), section 7 second sentence, section 8(2) second sentence, section 10(2), section 19(3) or section 20(3), or  
iii) give instructions or training pursuant to section 7 first sentence, section 8(2) first sentence, section 9, first sentence, or section 10(3), second sentence, shall be fined or punished with imprisonment for up to one year.

(2) The supervisor or employees who do not assist in identifying and assessing the health and safety risks pursuant to section 12 or 13 shall be fined or punished with imprisonment for up to one year.

(3) Anyone who

i) infringes section 5(2) and (5), section 8(1), (3) and (5), section 10(3) first sentence, and (5), section 11(1), (3) and (4), section 12(1) second sentence, and (2) and (3), section 13(1) and (2), section 16, section 18(1)-(5), section 19(1) and (2), section 20(1) and (2),

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<sup>487</sup> Section 39 of the (model) Licence for Exploration for and Production of Hydrocarbons.

sections 23-25, sections 27-31, section 33(2), section 45(4), section 46(1) and (3), section 47 or section 50(1),

ii) has work carried out contrary to section 50(3), or section 51(1)-(3), is in charge of or supervises such work or

iii) does not comply with orders pursuant to section 45(3), or section 64.

shall be fined or punished with imprisonment for up to one year.

(4) The maximum imprisonment is two years if the infringement has been made intentionally or by gross negligence.

(5) In connection with meting out the penalty pursuant to subsection (3)(i), it shall, to the extent that the employer and the operating company have fulfilled their obligations pursuant to chapter 2 and 4, be regarded as aggravating circumstances for employees, if these intentionally or by gross negligence infringe legislation requirements on

i) the use of personal protective equipment,

ii) the use of extraction facilities,

iii) the use of protection equipment or safety precautions,

iv) the use of justifiable working methods or

v) crane and forklift certificates.

(6) In connection with meting out the penalty pursuant to subsections (1)-(4)—outside the cases mentioned in subsection (5)—the following shall be regarded as aggravating circumstances:

i) that the infringement has resulted in injury to life and health or caused danger of this,

ii) that an order pursuant to section 64 has been previously made for the same thing or similar conditions, or

iii) that in connection with the infringement a financial advantage has been obtained or intended to be obtained for the person himself or others. (7) It shall be regarded as a special aggravating circumstances if, for persons under the age of 18, there has been injury to life and health or if danger of this has been evoked, cf. subsection (6)(i).

(8) If no profits are seized, which have been obtained by infringement, the meting out of the fine, including additional fine, shall take into special consideration the size of a financial advantage obtained or intended to be obtained.

(9) The limitation period for criminal liability is five years for infringement of section 18(1)-(5) and rules issued pursuant to section 18(6).

(10) Unless a higher penalty is applicable pursuant to other legislation, any person shall be fined who violates the provisions in Regulation (EC) No 336/2006 of the European Parliament and of the Council of 15 February 2006 on the Implementation of the International Safety Management Code within the Community and repealing Council Regulation (EC) No 3051/95.

**71.** The individual employer shall be punishable by a fine, even though the infringement cannot be considered intentional or grossly negligent, cf. however subsection (3), if the employer

i) does not take care to identify and assess risks pursuant to section 10(1) or section 35,

ii) does not take care to supervise pursuant to section 10(2),

iii) has work carried out contrary to section 50(3) or section 51(1), or

iv) does not comply with orders made pursuant to section 45(3) or section 64.

(2) A condition for the individual employer being punishable by a fine pursuant to subsection (1) above is that one or more persons attached to the company or the company as such can be blamed for the infringement. No imprisonment shall be determined in lieu of a fine.

(3) To the extent that the employer has fulfilled his obligations pursuant to sections 10 and 35, the employer cannot be punishable by a fine if employees infringe legislation requirements on

i) the use of personal protective equipment,

ii) the use of extraction facilities,

iii) the use of protection equipment or safety precautions,

iv) the use of justifiable working methods or

v) crane and forklift certificates.

**72.** In rules laid down pursuant to this Act, a penalty can be fixed in the form of a fine for

infringement of the rules and for lack of non-compliance of orders or prohibitions pursuant to the rules. Infringement of rules that put regulations into force, which are not written in Danish, cf. section 44, shall not be punishable. Furthermore, it can be determined that the individual employer, who infringes provisions, orders or prohibitions as stated, shall be punishable by a fine, even though he cannot be blamed for the infringement as intentional or grossly negligent. Punishment by fine is conditional on the infringement being blamed one or more persons attached to the company or the company as such. No imprisonment shall be determined in lieu of a fine

(2) Punishment by fine pursuant to subsection (1), second sentence, and section 71, cannot be imposed on company managers, cf. section 10(6).

**73.** Criminal liability may be imposed on limited liability companies, etc. (legal persons) pursuant to the rules set out in Part V of the Danish Criminal Code. Section 71(3) is similarly applicable.”

### 3.5.5. US

#### 3.5.5.1. *National interest in offshore activities*

The US is the world’s largest oil consuming country.<sup>488</sup> To secure the national supply of oil, in addition to import, domestic oil production also plays an important role. The offshore activities account for almost 30% of total US oil production in recent years and for about one quarter of total US natural gas production over the past two decades.<sup>489</sup> Most offshore oil and gas activities in the US take place in the Gulf of Mexico, which accounts for about 23% of US crude oil production and 7% of natural gas. Over 40% of US petroleum refining capacity is located along the Gulf of Mexico coast, as well as almost 30% of natural gas processing plant capacity.<sup>490</sup>

#### 3.5.5.2. *Legal framework*

The US legal regime on offshore oil and activities has developed over decades in response to a variety of concerns and disputes raised by competing interests.<sup>491</sup> Moreover, due to the so-called non-preemption of state laws, these exist in the US in addition to the federal laws, also state laws in respective states on the issue of offshore activities.

Several federal laws and legislation may be relevant:

- Submerged Lands Act 1953 (SLA): it for the first time established the Federal Government’s title to and ownership of submerged lands located on a majority of the continental margin. It defined the states’ jurisdiction of 3 nautical miles.<sup>492</sup>
- Outer Continental Shelf Lands Act (OCSLA) of 1953:<sup>493</sup> it defined the outer continental shelf, separate from geologic definitions, as any submerged land outside

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<sup>488</sup> <<http://www.eia.gov/countries/index.cfm?view=consumption>>, last accessed 20 January 2013. The oil consumption of the US alone is more than the total of all the EU member states.

<sup>489</sup> Energy Information Administration (EIA) 2005, p. 3. Available at the website of the US: <[http://www.eia.gov/pub/oil\\_gas/natural\\_gas/feature\\_articles/2005/offshore/offshore.pdf](http://www.eia.gov/pub/oil_gas/natural_gas/feature_articles/2005/offshore/offshore.pdf)>, last accessed 22 January 2013.

<sup>490</sup> US Energy Information Administration, Gulf of Mexico Fact Sheet, <[http://www.eia.gov/special/gulf\\_of\\_mexico/index.cfm](http://www.eia.gov/special/gulf_of_mexico/index.cfm)>. Last accessed 22 January 2013.

<sup>491</sup> Energy Information Administration (EIA) 2005, p. 1. Available at: <[http://www.eia.gov/pub/oil\\_gas/natural\\_gas/feature\\_articles/2005/offshore/offshore.pdf](http://www.eia.gov/pub/oil_gas/natural_gas/feature_articles/2005/offshore/offshore.pdf)>, last accessed 22 January 2013.

<sup>492</sup> *Ibid.*, p. 5.

<sup>493</sup> 43 U.S.C. 1333 *et seq.*

state jurisdiction and reaffirmed Federal jurisdiction over these waters and all resources they contain. Moreover, the OCSLA outlined federal responsibilities for managing and maintaining offshore lands subject to environmental constraints and safety concerns. It authorizes the Department of the Interior (DOI) to lease the defined areas for development and to formulate regulations pertaining thereto as necessary. In doing so, the DOI must ensure that the US government receives fair market value for acreage made available for leasing, and it must enact regulations that guarantee resource conservation, environmental protection, and operational safety for anyone involved in the activities. The OCSLA has been amended six times between 1978 and 1998 to account for changing issues. It remains the cornerstone of offshore legislation today.<sup>494</sup> It also authorizes regulation of workplace safety on the outer continental shelf by the Coast Guard.

Some important provisions in the OCSLA may be worth mentioning. First Section 1332<sup>495</sup> provides that:

“(1) the subsoil and seabed of the outer Continental Shelf appertain to the United States and are subject to its jurisdiction, control, and power of disposition as provided in this subchapter;

(2) this subchapter shall be construed in such a manner that the character of the waters above the outer Continental Shelf as high seas and the right to navigation and fishing therein shall not be affected;

(3) the outer Continental Shelf is a vital national resource reserve held by the Federal Government for the public, which should be made available for expeditious and orderly development, subject to environmental safeguards, in a manner which is consistent with the maintenance of competition and other national needs;

(4) since exploration, development, and production of the minerals of the outer Continental Shelf will have significant impacts on coastal and non-coastal areas of the coastal States, and on other affected States, and, in recognition of the national interest in the effective management of the marine, coastal, and human environments –

(A) such States and their affected local governments may require assistance in protecting their coastal zones and other affected areas from any temporary or permanent adverse effects of such impacts;

(B) the distribution of a portion of the receipts from the leasing of mineral resources of the outer Continental Shelf adjacent to State lands, as provided under section 1337 (g) of this title, will provide affected coastal States and localities with funds which may be used for the mitigation of adverse economic and environmental effects related to the development of such resources; and

(C) such States, and through such States, affected local governments, are entitled to an opportunity to participate, to the extent consistent with the national interest, in the policy and planning decisions made by the Federal Government relating to exploration for, and development and production of, minerals of the outer Continental Shelf...”

- Section 1333 of the OCSLA provides that with respect to disability or death of an employee resulting from offshore activities, compensation shall be payable under the provisions of the Longshore and Harbor Workers’ Compensation Act.<sup>496</sup>
- Federal Oil and Gas Royalty Management Act 1982.
- National Environmental Policy Act of 1969: it requires the federal government to consider the environmental impacts of any proposed actions as well as reasonable alternatives to those actions.<sup>497</sup>

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<sup>494</sup> Energy Information Administration (EIA) (2005), p. 5-6.

<sup>495</sup> This section is titled “Congressional declaration of policy”.

<sup>496</sup> 33 U.S.C. 901 *et seq.*

<sup>497</sup> Energy Information Administration (EIA) (2005), 9.

- Clean Air Act 1970: proposed and existing natural gas and oil facilities must prepare, as part of their development plans and reporting procedures, detailed emissions data to prove compliance with this act.<sup>498</sup>
- Coastal Zone Management Act of 1972: it stresses the need to preserve, protect, develop, and restore or enhance the resources of US coastal zones.<sup>499</sup>
- Endangered Species Act of 1973: it protects and promotes the conservation of all species listed as endangered by restricting federal actions that are likely to harm, harass, or pursue them.<sup>500</sup>
- Clean Water Act of 1977 (CWA): it is the primary law governing the discharge of pollutants into all US surface waters. Under the CWA, the Environmental Protection Agency (EPA) requires that a National Pollutant Discharge Elimination System (NPDES) permit shall be obtained before any pollutant is released. The CWA holds certain industries, including oil and gas activities, to strict standards regarding direct pollution discharges into waterways. These standards are outlined in the NPDES permits and may be based on the age of a facility. The permits are issued on a five year basis.<sup>501</sup>
- Oil Pollution Act 1990: it has provisions on the civil liability and compensation for offshore related incidents. OPA provides that “each responsible party for a vessel or a facility from which oil is discharged, or which poses the substantial threat of a discharge of oil, into or upon navigable waters or adjoining shorelines or the exclusive economic zone is liable for the removal costs and damages... that result from such incident”.<sup>502</sup> A facility is defined under OPA as “any structure, group of structures, equipment, or device (other than a vessel) which is used for one or more of the following purposes: exploring for, drilling for, producing, storing, handling, transferring, processing, or transporting oil. This term includes any motor vehicle, rolling stock, or pipeline used for one or more of these purposes.”<sup>503</sup> Therefore, the offshore facilities as discussed in our research are covered under the OPA.
- Energy Policy Act of 2005: it requires a comprehensive inventory and analysis of the estimated oil and gas resources on the outer continental shelf, establish a new coastal impact assistance program, clarifies the exclusive jurisdiction of the Federal Energy and Regulatory Commission (FERC) under the Natural Gas Act, and it provides increased incentives for natural gas and oil development in offshore areas in order to maintain or stimulate production.<sup>504</sup>
- Code of Federal Regulations (CFR): in these regulations, there are detailed rules on natural resource damage assessment,<sup>505</sup> the financial responsibility for offshore facilities,<sup>506</sup> and specific provisions on the Oil Spill Liability Trust Fund.<sup>507</sup> In addition, there are also regulations authorizing the use of the outer continental shelf.<sup>508</sup>

The structure of the regulatory institutions has changed since 1 October 2011. The original authority Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE)<sup>509</sup>

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<sup>498</sup> Ibid.

<sup>499</sup> Energy Information Administration (EIA) (2005), 10.

<sup>500</sup> Ibid.

<sup>501</sup> Ibid.

<sup>502</sup> 33 U.S.C. 2702 (a).

<sup>503</sup> 33 U.S.C. 2701 (9).

<sup>504</sup> Ibid., p. 16-17.

<sup>505</sup> 15 C.F.R. 990: Title 15 Commerce and Foreign Trade, Part 990 Natural Resource Damage Assessments.

<sup>506</sup> 30 C.F.R. 553: Title 30 Mineral Resources, Part 553 Oil Spill Financial Responsibility for Offshore Facilities.

<sup>507</sup> These are provided in 33 CFR 133 (Title 33 Navigation and Navigable Waters, Part 133 Oil Spill Liability Trust Fund; State Access) and 33 CFR 136 9Title 33 Navigation and Navigable Waters, Part 136 Oil Spill Liability Trust Fund; Claims Procedures; Designation of Source; And Advertisement).

<sup>508</sup> 30 C.F.R. 550: Title 30 Mineral Resources, Part 550 Oil and Gas and Sulphur Operations in the Outer Continental Shelf.

<sup>509</sup> The Minerals Management Service (MMS) had been the authority till 2010, but it was renamed BOEMRE in June 2010.



is now replaced by two federal institutions: the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE). BOEM is responsible for managing the development of US offshore resources in an environmentally and economically responsible manner. Its functions include: offshore leasing, resource evaluation, review and administration of oil and gas exploration and development plans, renewable energy development, environmental studies and National Environmental Policy Act analysis.<sup>510</sup> BSEE is responsible for the oversight and enforcement of safety and environmental regulations. Its functions include among other things: development and enforcement of safety and environmental regulations; issuing permits for offshore exploration, development and production; inspections (The OCSLA authorises and requires the BSEE to provide for both an annual scheduled inspection and a periodic unscheduled (unannounced) inspection of all oil and gas operations on the US continental shelf. The annual inspection examines all safety equipment designed to prevent blowouts, fires, spills or other major accidents. The BSEE inspectors perform these inspections using a national checklist, called the potential incident of noncompliance list. This list is a compilation of compliance elements derived from all regulated safety and environmental requirements.);<sup>511</sup> offshore regulatory programs and oil spill response.<sup>512</sup> Specifically, the separation of BOEM and BSEE is to separate the resource management from safety oversight, whereby to allow permitting engineers and inspectors greater independence, more budgetary autonomy and clearer senior leadership focus.<sup>513</sup>

In addition to these government institutions, we should mention that there is also an industry organization in the US: the American Petroleum Institute. It has established more than 500 industry standards covering all aspects of exploration and production, including safety, environmental and security issues.

### 3.5.5.3. *Basis of liability*

The OPA imposes strict liability on the so-called “responsible party” for offshore activities. It provides that the responsible party for an offshore facility from which oil is discharged or which poses the substantial threat of a discharge of oil shall be held strictly liable for the removal costs and damages.<sup>514</sup> The “responsible party” for an offshore facility is defined to be “the lessee or permittee of the area in which the facility is located or the holder of a right of use and easement granted under applicable State law or the Outer Continental Shelf Lands Act (43 U.S.C. 1301-1356) for the area in which the facility is located (if the holder is a different person than the lessee or permittee), except a Federal agency, State, municipality, commission, or political subdivision of a State, or any interstate body, which as owner transfers possession and right to use the property to another person by lease, assignment, or permit.”<sup>515</sup> Basically, the one who is permitted to explore the area and thus benefits from the facility is the responsible party.

When it comes to the liable party for mobile offshore drilling units, such a facility is treated as tank vessel as provided in Section 2704 (b) (1) of OPA.<sup>516</sup> Therefore, the responsible party

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<sup>510</sup> <<http://www.boem.gov/About-BOEM/Reforms/Reforms.aspx>>, last accessed 22 January 2013.

<sup>511</sup> Offshore Oil and Gas Resources Sector Security Inquiry, Office of the Inspector of Transport Security, Department of Infrastructure and transport, Australian Government, June 2012, p. 31-32.

<sup>512</sup> <<http://www.bsee.gov/About-BSEE/BSEE-History/index.aspx>>, last accessed 22 January 2013.

<sup>513</sup> <<http://www.boem.gov/About-BOEM/Reorganization/Reorganization.aspx>>, last accessed 23 January 2013.

<sup>514</sup> 33 U.S.C. §2702 (a).

<sup>515</sup> 33 U.S.C. § 2701(32) (C).

<sup>516</sup> Section 2704 (b) (1) of OPA provides that: “For purposes of determining the responsible party an applying this chapter and except as provided in paragraph (2), a mobile offshore drilling unit which is being used as an offshore facility is deemed to be a tank vessel with respect to the discharge, or the substantial threat of a discharge, of oil on or above the surface of the water.”

for mobile offshore drilling units shall be the person “owning, operating, or demise chartering” the mobile offshore drilling units. The liability rule remains strict liability.

#### 3.5.5.4. *Relationship with regulation*

According to the OPA provision on “elements of liability”, the fact of oil discharge to sea or substantial threat of discharge of oil, may trigger the strict liability of a responsible party for offshore facilities.<sup>517</sup> Compliance with regulations does not lead to exemption of liability of the responsible party. Moreover, if the responsible party wants to use certain legal defence (i.e. act or omission of a third party)<sup>518</sup> or to benefit from the limitation of liability,<sup>519</sup> he has to comply with relevant federal regulations on safety, construction and operation. The violation of regulations will lead to the loss of legal defence and right of limitation.

#### 3.5.5.5. *Causation*

Section 2702 of the OPA provides that a responsible party is liable for removal costs and damages when the facility discharges oil or poses the substantial threat of a discharge of oil. Therefore, the actual discharge of oil is not necessary for a responsible party to be held liable, “the substantial threat of a discharge of oil” is sufficient cause.

Moreover, Section 2703 of OPA contains provisions on defences to liability. It provides that:

“A responsible party is not liable for removal costs or damages under section 2702 of this title if the responsible party establishes, by a preponderance of the evidence, that the discharge or substantial threat of a discharge of oil and the resulting damages or removal costs were caused solely by –

- (1) an act of God;
- (2) an act of war;
- (3) an act or omission of a third party, other than an employee or agent of the responsible party or a third party whose act or omission occurs in connection with any contractual relationship with the responsible party (except where the sole contractual arrangements arises in connection with carriage by a common carrier by rail), if the responsible party establishes, by a preponderance of the evidence, that the responsible party –
  - (A) exercised due care with respect to the oil concerned, taking into consideration the characteristics of the oil and in light of all relevant facts and circumstances; and
  - (B) took precautions against foreseeable acts or omissions of any such third party and the foreseeable consequences of those acts or omissions; or
- (4) any combination of paragraphs (1), (2), and (3).”

Basically, the defences available to the responsible party are act of God, act of war and third party’s omission. These can be used as defences only when they are the sole cause of discharge of oil. The burden of proof lies on the responsible party. The comparative negligence is also a defence available to the responsible party.<sup>520</sup> In particular, when the responsible party wants to use third party’s omission as a defence, he has to prove that he has exercised due care and has taken foreseeable precautions. Moreover, this section further provides that the responsible party may avail of these defences under the condition that he has fulfilled his obligation to report the incident to the authority, to provide all reasonable cooperation and assistance requested by the authority and to comply with an order issued by

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<sup>517</sup> 33 U.S.C. §2702 (a).

<sup>518</sup> 33 U.S.C. §2703 (a) (3).

<sup>519</sup> 33 U.S.C. §2704 (c) (1).

<sup>520</sup> Section 2703 (b) of OPA.

the authority.<sup>521</sup> Therefore, these defences are conditional and require the proof by responsible parties.

#### 3.5.5.6. *Attribution of liability*

Joint and several liability applies when multiple responsible parties. This means that each responsible party is liable for the entire amount of removal cost and damages resulting from a spill.

#### 3.5.5.7. *Damages – remedies*

The damages covered under OPA include two headings, “removal costs” and “damages”. The “damages” include:

- natural resources;
- real or personal property damage;
- subsistence use;
- revenues;
- profits and earning capacity; and
- public services.<sup>522</sup>

Under the OPA, removal is defined as containment and removal of oil or a hazardous substance from water and shorelines or the taking of other actions to minimize or mitigate damage.<sup>523</sup> This definition shows that removal is the first step taken after oil pollution to clean up. Broadly speaking, removal cost is also one part of natural resource damage. But the US treats removal costs differently from other damages.

OPA covers liability for natural resource damage, which is considered by some scholars an important innovation that addresses a global need, restoration of damaged ecological services and acknowledgement that natural resources have significant real economic value that needs to be included in the calculus of damages.<sup>524</sup>

However, how to determine the scope and quantify the damage has long been a problem perplexing people when compensating the damage to the environment. The OPA gives a definition to the term “natural resource damage”, which includes:

- “(A) the costs of restoring, rehabilitating, replacing, or acquiring the equivalent of, the damage natural resources;
- (B) the diminution in value of those natural resources pending restoration; plus
- (C) the reasonable cost of assessing those damages.”<sup>525</sup>

This definition is quite broad. Restoration is used as the primary method to evaluate the loss of natural resources and the diminution of services.<sup>526</sup> Not only restoration costs, other alternatives and interim losses pending the restoration are also compensable. To quantify the damage, the OPA authorizes federal, state authorities and Indian tribes as trustees of natural

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<sup>521</sup> Section 2703 (c) of OPA.

<sup>522</sup> Section 2702 of OPA.

<sup>523</sup> 33 U.S.C. §2701 (30).

<sup>524</sup> Boyd (2006), 138.

<sup>525</sup> 33 U.S.C. §2706(d)(1).

<sup>526</sup> Lee, Bridgen and Environment International Ltd. (2002), 16.

resources to assess the damage. It also requires the National Oceanic and Atmospheric Administration (NOAA) to promulgate regulations for the assessment of natural resources damage.<sup>527</sup> The assessment made according to these regulations has the force and effect of a rebuttable presumption.<sup>528</sup> The final rules concerning natural resources damage assessment were promulgated in 1996 by the NOAA.<sup>529</sup> Under this regulation, a concrete procedure and available assessment methods are prescribed. Under the NOAA assessment rule, “the costs of restoring, rehabilitating, replacing, or acquiring the equivalent of, the damage natural resources” is defined as “primary restoration”.<sup>530</sup> To compensate for interim losses, the NOAA rule also adopts a restoration-based approach: compensatory restoration should be taken to compensate for the lost natural resources and service during primary restoration.<sup>531</sup> When determining compensatory restoration, trustees should use a resource-to-resource or service-to-service approach to compensate for the lost natural resources service or value.<sup>532</sup> If these approaches are not possible, trustees can use other evaluation techniques to estimate the dollar value of the lost services and select the scale of the restoration action that has a cost equivalent to the lost value.<sup>533</sup> A variety of valuation techniques is allowed to calculate the monetary value, including the disputed contingent valuation technique.<sup>534</sup>

According to the OPA and the assessment regulation, an assessment can either be made by the trustees and the trustees can claim against the responsible parties for the costs afterwards, or responsible parties can conduct the assessment themselves with the approval of the government. A most common approach would be a cooperative assessment involving both the trustees and responsible parties in the assessment procedures.<sup>535</sup> A cooperative approach can be desirable since it can promote a fast restoration and avoid costly and time-consuming litigation. An early involvement of the responsible parties and even insurers can also make the risks more predictable for the insurers and can thus enhance the insurability of natural resources damage. Though it has been subject to many challenges since its promulgation, the NOAA assessment regulation provides a practicable guidance in tackling the debatable and difficult task of natural resources damage assessment.<sup>536</sup>

#### 3.5.5.8. *Amount of compensation*

The liability of the responsible party for an offshore facility is capped at “all removal costs plus \$75 million”.<sup>537</sup> In comparison, the liability of a responsible party for onshore facilities and deepwater ports under OPA is limited to the total amount of \$350 million.<sup>538</sup> The

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<sup>527</sup> 33 U.S.C. § 2706 (e) (1).

<sup>528</sup> 33 U.S.C. § 2706 (e) (2).

<sup>529</sup> 60 Fed. Reg. 39804.

<sup>530</sup> 15 C.F.R. § 990.30.

<sup>531</sup> 15 C.F.R. § 990.30.

<sup>532</sup> 15 C.F.R. § 990.53 (d)(2). “Resource-to-resource restoration actions are designed to restore the damaged natural resource to an equivalent quantity of the same or comparable resource.” “A service-to-service restoration action is one designed to restore lost services to an equivalent quantity.” See Letourneau and Welmaker (2000), p. 188.

<sup>533</sup> 15 C.F.R. § 990.53 (d)(3)(ii).

<sup>534</sup> Letourneau and Welmaker (2000), 188. A contingent valuation method is a method to value natural resources by doing surveys and asking people what monetary value they would like to place on certain resources. It is not based on actual market transactions but is hypothetical by assuming people will respond to the surveys as in an actual transaction. See Cross (1989), 315-319.

<sup>535</sup> Allen (2011), 1039.

<sup>536</sup> For a more detailed analysis of the NOAA assessment regulation, see Letourneau and Welmaker (2000), 148; Anderson (1997), 418; Seevers (1996), 1513.

<sup>537</sup> 33 U.S.C. § 2704(a) (3). As far as mobile offshore drilling units are concerned, as mentioned above, for “purposes of determining the responsible party”, they shall be treated as “a tank vessel”. However, when it comes to the liability limit for such a facility, it remains subject to the same amount of liability as an offshore facility. See Section 2704 (b) (2) of OPA.

<sup>538</sup> 33 U.S.C. § 2704(a) (4).

responsible party will lose his right to cap his liability if the incident was “proximately” caused by gross negligence, wilful misconduct, or violation of some relevant regulations.<sup>539</sup>

After the Deepwater Horizon incident, proposals were made to increase the liability limit or to remove it as a whole.<sup>540</sup> However, so far there is no change in legislation in this respect. For the amount of damage beyond the liability limit of the responsible parties, the claimant may seek coverage from the OSLTF up to the limit of \$ 1 billion per incident. If there is still damage uncompensated, the affected party may then redress through state laws. Due to the so-called non-preemption of state laws, each state has its own legislation which may provide extra compensation in addition to those under the federal law, inter alia, OPA.

### 3.5.5.9. *Applicability in time*

In the US, the claims procedure for damage caused by offshore incidents goes as follows: “all claims for removal costs or damages shall be presented first to the responsible party or guarantor of the source designated under section 2714 (a) of this title.”<sup>541</sup> The designation of source shall be done by the president, after receiving information of an incident. If the designated source is an offshore facility, the president shall “immediately” notify the responsible party and the guarantor of that designation.<sup>542</sup> Being informed of such a designation, the responsible party has 5 days to inform the president of his denial of the designation (hence, denial of responsibility). If not, an advertisement shall begin no later than 15 days after the date of the designation, and the advertisement shall continue for a period of no less than 30 days. The function of such an advertisement is to state that “a claimant may present a claim for interim, short-term damages representing less than the full amount of damages to which the claimant ultimately may be entitled and that payment of such a claim shall not preclude recovery for damages not reflected in the paid or settled partial claim.”<sup>543</sup> OPA specifies these days’ limit for parties to take action, and allows compensation for interim damages. This may be useful in contributing to a rapid compensation mechanism.

If the responsible party denies the claims or does not settle with the claimant within 90 days, claim can submit the claims to the National Pollution Funds Center (which administers the Oil Spill Liability Trust Fund in the US, as will be discussed in the section below) or file an action in court against the responsible party.<sup>544</sup> The 90 days time limit may also be useful since it can avoid that the victims were left in financial difficulty whereas the responsible party paying nothing by delaying the whole process. However in practice and typically, claims for compensation are presented after removal is complete.<sup>545</sup> In the event of a serious oil spill incident, such as the Deepwater Horizon, cleanup measures and removal operations may take months. Therefore, the victims may still need to wait a while before they can file a claim to the OSLTF or an action in court.

In addition, OPA includes detailed provisions on the “Period of limitation”:<sup>546</sup>

#### “(1) Damages

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<sup>539</sup> 33 U.S.C. §2704 (c) (1).

<sup>540</sup> See e.g. H.R. 3534, the Consolidated Land, Energy, and Aquatic Resources Act, passed by the House of Representatives on 30 July 2010. It proposed to eliminate the liability limit for offshore facilities.

<sup>541</sup> 33 U.S.C. § 2713. State removal costs claims are exception in the sense that they may be presented directly to the NPFC without first presenting them to the responsible party.

<sup>542</sup> 33 U.S.C. § 2714 (a).

<sup>543</sup> 33 U.S.C. § 2714 (b).

<sup>544</sup> Oil Spill Liability Trust Fund (OSLTF) Funding for Oil Spills, January 2006, prepared by National Pollution Funds Center, Doc. NPFC PUB 16465.2, p. 7.

<sup>545</sup> Ibid.

<sup>546</sup> 33 U.S.C. § 2717 (f).

Except as provided in paragraphs (3) and (4), an action for damages under this chapter shall be barred unless the action is brought within 3 years after – the date on which the loss and the connection of the loss with the discharge in question are reasonably discoverable with the exercise of due care, or in the case of natural resource damages under section 2702 (b)(2)(A) of this title, the date of completion of the natural resources damage assessment under section 2706(c) of this title.

(2) Removal costs

An action for recovery of removal costs referred to in section 2702(b)(1) of this title must be commenced within 3 years after completion of the removal action. In any such action described in this subsection, the court shall enter a declaratory judgment on liability for removal costs or damages that will be binding on any subsequent action or actions to recover further removal costs or damages. Except as otherwise provided in this paragraph, an action may be commenced under this subchapter for recovery of removal costs at any time after such costs have been incurred.

(3) Contribution

No action for contribution for any removal costs or damages may be commenced more than 3 years after – the date of judgment in any action under this chapter for recovery of such costs or damages, or the date of entry of a judicially approved settlement with respect to such costs or damages.

(4) Subrogation

No action based on rights subrogated pursuant to this chapter by reason of payment of a claim may be commenced under this chapter more than 3 years after the date of payment of such claim.

(5) Commencement

The time limitations contained herein shall not begin to run –

(A) against a minor until the earlier of the date when such minor reaches 18 years of age or the date on which a legal representative is duly appointed for such minor, or

(B) against an incompetent person until the earlier of the date on which such incompetent's incompetency ends or the date on which a legal representative is duly appointed for such incompetent.”

Claimants have the right to submit a number of smaller claims rather than waiting to submit a single, comprehensive claim after all known damages have been analysed and tabulated.<sup>547</sup> This may facilitate the claims settlement procedure in the interest of the victim for speedy compensation.

It may also be interesting to note that under the Oil Spill Liability Trust Fund (which will be discussed below), an Emergency Fund is always available with an annual apportionment of \$50 million for each fiscal year. The use of the Emergency Fund is to ensure that finances are always available to federal responses to oil spill (not for victim compensation).

### 3.5.5.10. *Compensation mechanisms*

#### 3.5.5.10.1. Financial security

Section 1016 of OPA provides that oil and gas exploration and production leases issued by the authority must establish and maintain OSFR.

BOEM has regulations concerning financial responsibility for offshore facilities.<sup>548</sup> The Code of Federal Regulations in Section 553 contains detailed provisions on the amount of financial responsibility and various methods for demonstrating the financial responsibility. This will be

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<sup>547</sup> Ibid., p. 9.

<sup>548</sup> 30 C.F.R. 553.

discussed in further detail below (in the section on compensation mechanisms). However, it does not identify at exactly what stage of the leasing and permitting process the authority would apply these regulations to check the financial responsibility of the responsible party. Although lacking specific provision, some related articles may be worth special attention.

Section 1334 (b) of OCSLA reads as follows: “Compliance with regulations as conditions for issuance, continuation, assignment, or other transfer of leases: The issuance and continuation in effect of any lease, or of any assignment or other transfer of any lease, under the provisions of this subchapter shall be conditioned upon compliance with regulations issued under this subchapter.” However, regulations on financial responsibility as in 30 CFR 553 are established under the requirements of the OPA, not of the OCSLA. Hence, it cannot justify that proving financial responsibility is a condition for issuance of leases.

Section 1337 contains further details on “leases, easements, and rights-of-way on the outer Continental Shelf”. It requires that after an oil and gas lease is granted, “the lessee, at its option, shall deliver to the Secretary upon issuance of the lease either

- (i) a cash deposit for the full amount of the exploration work commitment, or
- (ii) a performance bond in form and substance and with a surety satisfactory to the Secretary, in the principal amount of such exploration work commitment assuring the Secretary that such commitment shall be faithfully discharged in accordance with this section, regulations, and the lease; and for purposes of this subparagraph, the principal amount of such cash deposit or bond may, in accordance with regulations, be periodically reduced upon proof, satisfactory to the Secretary, that a port of the exploration work commitment has been satisfied”.<sup>549</sup>

However, such a “cash deposit” or “performance bond” is meant to cover the amount of exploration work commitment, and not for the removal costs and damages caused by oil spill in relation to the offshore activities.

“Except as otherwise provided in this subchapter, prior to commencing exploration pursuant to any oil and gas lease issued or maintained under this subchapter, the holder thereof shall submit an exploration plan to the Secretary for approval.” (Section 1340 (c) (1))

“The Secretary may, by regulation, require any lessee operating under an approved exploration plan to obtain a permit prior to drilling any well in accordance with such plan.” (Section 1340 (d) “Drilling permit”)

Before receiving drilling permits, applicants must prove they have sufficient oil spill containment equipment to respond to a worst case scenario spill.

The responsible party for an offshore facility is required to establish and maintain evidence of financial responsibility when the facility “is used for exploring for, drilling for, producing, or transporting oil from facilities engaged in oil exploration, drilling, or production”<sup>550</sup> and when the facility “has a worst-case oil spill discharge potential of more than 1,000 barrels of oil.”<sup>551</sup> (In contrast, OPA does not have an analogous requirement for onshore facilities.<sup>552</sup>) This financial responsibility is to ensure that responsible parties can provide funding for oil spill responses and compensation to affected parties.

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<sup>549</sup> Section 1337 (a) (7) (A).

<sup>550</sup> 33 U.S.C. § 2716 (c) (1) (ii).

<sup>551</sup> It can be a lesser amount if the President determines that the risks posed by such facility justify it. See 33 U.S.C. § 2716 (c) (1) (iii).

<sup>552</sup> Ramseur 2011, p. 6.

OPA provides that the financial responsibility for offshore facilities is \$35 million (for an offshore facility located seaward of the state's territorial sea) and \$10 million (for an offshore facility located landward).<sup>553</sup> This amount can be set higher when necessary and justified, but it should not exceed \$150 million.<sup>554</sup> Thus, the amounts of financial responsibility for offshore facilities are not related to the liability limits, i.e. \$75 million plus removal costs. Therefore, one can well imagine a situation that the amount between the compulsory financial evidence and the liability limit is not financially secured.

The regulations implementing the OPA financial responsibility requirement further provide that the amount of financial responsibility shall be decided on a worst-case scenario oil spill discharge volume.<sup>555</sup>

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<sup>553</sup> 33 U.S.C. § 2716 (c) (1) (B).

<sup>554</sup> 33 U.S.C. § 2716 (c) (1) (C). The President may determine for a higher amount when it is justified by the relative operational, environmental, human health, and other risks posed by the quantity and quality of oil.

<sup>555</sup> 30 C.F.R. § 253.13.



Table 5: Financial responsibility for offshore facilities located partially or wholly on the outer continental shelf

Worst case oil spill discharge volume (barrel)	Applicable amount of financial responsibility (million \$)
1,000<volume≤35,000	35
35,000<volume≤70,000	70
70,000<volume≤105,000	105
Volume >105,000	150

Table 6: Financial responsibility for offshore facilities not located in the outer continental shelf

Worst case oil spill discharge volume (barrel)	Applicable amount of financial responsibility (million \$)
1,000<volume≤10,000	10
10,000<volume≤35,000	35
35,000<volume≤70,000	70
70,000<volume≤105,000	105

As to the methods of financial responsibility, OPA provides that it can be in the form of evidence of insurance, surety bond, guarantee, letter of credit, qualification as a self insurer, or other evidence of financial responsibility.<sup>556</sup> CFR contains further details in Section 553.

First, concerning self-insurance, the party has to annually pass either a net worth test or an unencumbered net asset test.<sup>557</sup> The financial test procedures for the net worth test are provided in 30 CFR 553.25:

- “(a) Divide the total amount of the stockholders’/owners’ equity listed on the balance sheet by ten.
- (b) Divide the net amount of the identifiable U.S. assets by the net amount of the identifiable total assets.
- (c) Multiply the net amount of plant, property, and equipment shown on the balance sheet by the number calculated under paragraph (b) of this section and divide the resultant product by ten.
- (d) The smaller of the numbers calculated under paragraphs (a) or (c) of this section is the maximum allowable amount you may use to demonstrate OSFR under this method.”

The financial test procedures for unencumbered assets are provided in 30 CFR 553.28:

- “(a) Divide the total amount of the stockholders’/owners’ equity listed on the balance sheet by 4.
- (b) Divide the value of the unencumbered U.S. assets by 2.
- (c) The smaller number calculated under paragraphs (a) or (b) of this section is the maximum allowable amount you may use to demonstrate OSFR under this method.”

Second, as for evidence of insurance, 30 CFR 553.29 provides that “you may use only insurance certificates issued by insurers that have achieved a “Secure” rating for claims paying ability in their latest review by A. M. Best’s Insurance Reports, Standard & Poor’s Insurance Rating Services, or other equivalent rating made by a rating service acceptable to BOEM.”

<sup>556</sup> Section 2716 (e).

<sup>557</sup> 30 C.F.R. § 553.21 (a).

Third, as for indemnity, 30 CFR 553.30 states that the indemnity as evidence must be “issued by only one indemnitor to satisfy all or part” of the responsible party’s obligation to demonstrate financial responsibility. Moreover, the indemnitor must be the party’s corporate parent or affiliate.

Fourth, when using a surety bond as financial evidence, each bonding company that issues a surety bond must comply with certain requirements: the company must

- “(1) Be licensed to do business in the State in which the surety bond is executed;
- (2) Be certified by the U.S. Treasury Department as an acceptable surety for Federal obligations and listed in the current Treasury Circular No. 570;
- (3) Provide the surety bond on Form BOEM-1020; and
- (4) Be in compliance with applicable statutes regulating surety company participation in insurance-type risks.”<sup>558</sup>

Other alternative methods may include “pooling, letters of credit, pledges of treasury notes, or other comparable methods”.<sup>559</sup>

#### 3.5.5.10.2. Compensation fund

There existed in the US since 1986 an Oil Spill Liability Trust Fund (OSLTF), but there was no legislation to authorize the use of this OSLTF until the occurrence of Exxon Valdez incident in 1989 and the enactment of OPA in 1990.<sup>560</sup> The OSLTF is available to pay for the removal costs incurred by federal or state governments; the costs for the government in assessing natural resource damages, developing, and implementing restoration plans; uncompensated removal costs and uncompensated damages; and administrative costs related to the oil spill.<sup>561</sup>

OSLTF has two components, the Emergency Fund and the Principal Fund. The Emergency Fund has an annual apportionment of \$50 million for each fiscal year. In 2003, the Coast Guard was given authority to advance up to \$100 million from the OSLTF Principal Fund to supplement Emergency Fund shortfalls.<sup>562</sup> The goal of the Emergency Fund is to ensure that funds are available for Federal response when needed.<sup>563</sup>

There are several financial sources for the Principal Fund of OSLTF:

The first and largest source of financing is a 5-cent-per-barrel tax on crude oil imported to or produced in the US.<sup>564</sup> The collection of this tax stops when the OSLTF has reached a certain amount and it recommences when it drops below that amount. Thus, this tax has been suspended and reinstated several times to maintain the required fund balance.<sup>565</sup> Most recently in the Emergency Economic Stabilization Act of 2008 (P.L.110-343), this tax was increased

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<sup>558</sup> 30 C.F.R. § 553.31.

<sup>559</sup> 30 C.F.R. § 553.32.

<sup>560</sup> Prior to the enactment of OPA, there have been debates on the compensation mechanisms and on the hurdles faced by private parties when recovering damages resulting from an oil spill. To address this and some other concerns (including e.g. the immediate accessible funds for federal agencies to conduct oil spill response activities), Congress established the OSLTF. See e.g. US Congress Committee on Merchant Marine and Fisheries, Report accompanying H.R. 1465, Oil Pollution Prevention, Removal, Liability, and Compensation Act of 1989, 1989, House of Representatives Report 101-242, Part 2, 101<sup>st</sup> Congress, first session, p. 35.

<sup>561</sup> 33 U.S.C. § 2712 (a).

<sup>562</sup> Oil Spill Liability Trust Fund (OSLTF) Funding for Oil Spills, January 2006, prepared by National Pollution Funds Center, Doc. NPFCPUB 16465.2, p. 5.

<sup>563</sup> *Ibid.*, p. 5.

<sup>564</sup> The tax is addressed at Section 4611 of the Internal Revenue Code. See 26 U.S.C. §4611.

<sup>565</sup> The 5-cent-per-barrel tax expired at the end of 1994, the Energy Policy Act of 2005 has reinstated the tax with effect in April 2006.

to 8 cents through the period 2009-2016. In 2017, the rate will increase to 9 cents. The tax is scheduled to terminate at the end of 2017 (section 405 of P.L. 110-343), and the fund balance is projected to reach \$3.5 billion by 2016.<sup>566</sup>

The OSLTF sets a payout limit of \$1 billion or the balance of the OSLTF, whichever is less, for any one incident. The Energy Policy Act of 2005 raised the \$1 billion limit of the Fund to \$2.7 billion.<sup>567</sup> (Q: the \$2.7 billion is only the limit on the level of funding, and it does not change the \$1 billion per incident cap.) When the Deepwater Horizon incident occurred in 2010, the balance of the OSLTF was approximately \$ 1.7 billion at the end of the fiscal year 2010.<sup>568</sup>

The tax applies to crude oil received at a US refinery and to petroleum products brought into the US for consumption, use, or warehousing. The tax also applies to any domestic crude oil used in or exported from the US. The tax on crude oil received at a US refinery is paid by the refinery operator or, in the case of imported petroleum products, by “the person entering the product for consumption use or warehousing”. The tax on other crude oil is paid by “the person using or exporting the crude oil”.<sup>569</sup>

A second major source of funding comes from the transfers from the previously existing pollution funds, including the revolving fund under the Clean Water Act, the Deepwater Port Liability Fund, the Trans-Alaska Pipeline Liability Fund, and the Offshore Oil Pollution Compensation Fund. Total transfers into the OSLTF since 1990 have exceeded \$ 550 million. No additional funds remain to be transferred to the OSLTF.<sup>570</sup>

The third (and recurring) source of funding comes from interest on the Fund principal from US Treasury investments. The Department of Treasury serves as the investment manager for OSLTF.<sup>571</sup>

The fourth source of funding is recoveries of costs and damages from responsible parties and guarantors. The general policy of OPA is the polluter pays principle. Hence, although OPA has established a mechanism to facilitate the clean-up and response to oil spills and to encourage the expedite actions of related parties, those responsible for oil spill incidents are liable for the costs and damages. The National Pollution Fund Center (NPFC, the competent authority established to administer the OSLTF) has a billing and collection program to recover costs expended by the OSLTF. In recent years, the NPFC has been able to collect between \$7 and \$14 million per year of the removal costs and damages it pays from the OSLTF; however, due to difficulties associated with cost recovery, the NPFC has only collected 26.5% of the removal and claims expenditures incurred during the period between

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<sup>566</sup> In a report from the Senate Committee on Finance, Senate Report 110-228 accompanied S.2345 (110th Congress).

<sup>567</sup> Section 1361 of Public Law 109-58, 119 Stat. 1058-1059. It amends Section 4611 9f) relating to the financing rate of the OSLTF and reads as follows:

“(1) IN GENERAL. – Except as provided in paragraphs (2) and (3), the Oil Spill Liability Trust Fund financing rate under subsection (c) shall apply on and after April 1, 2006, or if later the date which is 30 days after the last day of any calendar quarter for which the Secretary estimates that , as of the close of that quarter, the unobligated balance in the Oil Spill Liability Trust Fund is less than \$2,000,000,000.

(2) FUND BALANCE. – The Oil Spill Liability Trust Fund financing rate shall not apply during a calendar quarter if the Secretary estimates that, as of the close of the preceding calendar quarter, the unobligated balance in the Oil Spill Liability Trust Fund Exceeds \$2,700,000,000.

(3) TERMINATION. – The Oil Spill Liability Trust Fund financing rate shall not apply after December 31, 2014.”

<sup>568</sup> Office of Management and Budget, Budget of the U.S. Government for Fiscal Year 2012, Appendix, p. 529-530.

<sup>569</sup> 26 U.S.C. § 4611, Internal Revenue Code.

<sup>570</sup> <[http://www.uscg.mil/ccs/npfc/About\\_NPFC/osltf.asp](http://www.uscg.mil/ccs/npfc/About_NPFC/osltf.asp)>, last accessed 25 January 2013.

<sup>571</sup> Ibid.

1995 and 2004.<sup>572</sup> The major barrier to recovery, according to the US Coast Guard, is the difficulty in identifying the source of the spill or the responsible party of an oil spill.<sup>573</sup> Moreover, costs expended in excess of a responsible party's liability limit are generally unrecoverable.

The fifth source is penalties. Responsible parties may incur fines and civil penalties under OPA as well as under other related federal legislation concerning water pollution control, which will be deposited in the OSLTF. Penalty deposits are generally between \$4 million and \$7 million per year.<sup>574</sup>

#### *3.5.5.11. Jurisdictional issues*

The Submerged Lands Act 1953 gives states jurisdiction over any natural resources within three nautical miles of the coastline except Texas and the west coast of Florida where the jurisdiction of the states extends to nine nautical miles.<sup>575</sup> The Outer Continental Shelf Act authorizes the federal government the jurisdiction over mineral resources on and under the seabed beyond the state waters which is normally 3 nautical miles from the low tide mark. Exceptions are Texas and the west coast of Florida whose state territory extends to 9 nautical miles. Louisiana adopts Admiralty Nautical Mile, whereas other states use the International Nautical Mile.

#### *3.5.5.12. Criminal liability*

When it comes to criminal liability for offshore activities, CWA contains relevant provisions.

When a person negligently or knowingly discharge oil into the US Waters or upon adjoining shorelines without a permit, or in violation of permit conditions, his act shall be punished through a fine and/or imprisonment:

- negligent violation is subject to imprisonment of one year and/or a fine of \$2,500 to 25,000 per day (subsequent conviction is subject to imprisonment of two years and/or a fine of \$50,000 per day);
- knowing violation is subject to imprisonment of three years and/or a fine of \$5,000 to 50,000 per day (subsequent conviction is subject to imprisonment of six years and/or a fine of \$100,000 per day).<sup>576</sup>

In addition, failure to report discharge of oil to the federal agency also constitutes a crime and is subject to imprisonment up to 5 years and/or a fine.<sup>577</sup>

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<sup>572</sup> During the period between 1995 and 2004, the Fund has expended \$492.3 million for removal and claims, and only \$130.6 million has been recovered. See Report on Implementation of the Oil Pollution Act of 1990, 2005, p. 7.

<sup>573</sup> See the website of the US Coast Guard: <[www.uscg.mil/ccs/npfc/About\\_NPFC/opa\\_faqs.asp](http://www.uscg.mil/ccs/npfc/About_NPFC/opa_faqs.asp)>, last accessed August 2010.

<sup>574</sup> See the website of the US Coast Guard: <[www.uscg.mil/ccs/npfc/About\\_NPFC/osltf.asp](http://www.uscg.mil/ccs/npfc/About_NPFC/osltf.asp)>, last accessed 25 January 2013.

<sup>575</sup> Energy Information Administration (EIA) (2005), 4.

<sup>576</sup> 33 USC 1319, and 40 CFR 110, 116 & 117.

<sup>577</sup> 33 USC 1321 (b) (5), 40 CFR 110, 116 & 117. The amount of fine is provided in 18 USC 3571.

### 3.5.6. Australia

#### 3.5.6.1. National interest in offshore activities

Australia is the world's ninth largest energy producer, accounting for around 2.4 % of world energy production.<sup>578</sup> Oil and gas accounts for 17% of Australia's total energy production in 2008-09.<sup>579</sup> According to the official figure from the Australian Government, 95% of Australia's petroleum production comes from offshore sedimentary basins.<sup>580</sup> In the year 2009, Australia produced 559,000 barrels per day of crude oil representing 0.6% of world's crude oil production, and 42.3 billion cubic meters of natural gas representing 1.4% of the world's natural gas production, thus ranking as the world's 18th largest natural gas producer.<sup>581</sup>

Since 1965, around 3000 wells have been drilled in Australian offshore waters, with around 390 of these located within the coastal waters of the states and the Northern Territories. About half of the wells are classified as exploration wells. Since the mid-1990s, there has been an average of around 110 wells drilled offshore per year. Currently, there are approximately 410 active petroleum titles in offshore Commonwealth

waters, which include 220 exploration permits, 39 retention leases, 80 production licences, 63 pipeline licences and one infrastructure licence.<sup>582</sup>

As at 10 July 2010, there are 12 offshore drilling rigs in operation in Australian offshore waters.<sup>583</sup> The wells are currently drilled in water depths ranging from 30 metres to 1,400 metres. As at 31 March 2010, 2902 offshore wells have been drilled in Australian offshore waters since offshore drilling commenced in offshore Bass Strait over 40 years ago.<sup>584</sup>

The Australian Petroleum Production and Exploration Associations submitted to the Montara Commission of Inquiry a list of well blowouts that occurred in offshore Australia since 1965.

Table 7: Well blowouts that occurred in offshore Australia since 1965

Date of incident	Name of facility	Place of incident
18 February 1965	Barracouta No.1	Bass Strait
24 August 1966	Marlin B-1	Bass Strait
2 December 1968	Marlin A7	Bass Strait
6 August 1969	Petrel No.1	Timor Sea
19 may 1971	Marlin A4	Bass Strait
17 December 1984	Flounder A1	Bass Strait
21 August 2009	Montara H1	Timor Sea

<sup>578</sup> Offshore Oil and Gas Resources Sector Security Inquiry, prepared by the Office of the Inspector of Transport Security (Department of Infrastructure and Transport, Australian Government), June 2012, p. 20.

<sup>579</sup> Ibid.

<sup>580</sup> <[http://www.ret.gov.au/Department/Documents/MIR/FS\\_1\\_AUSTRALIA'S-OFFSHORE-PETROLEUM-INDUSTRY.pdf](http://www.ret.gov.au/Department/Documents/MIR/FS_1_AUSTRALIA'S-OFFSHORE-PETROLEUM-INDUSTRY.pdf)>, last accessed 15 January 2013.

<sup>581</sup> Ibid. Approximately half of the natural gas production was exported as LNG, which makes Australia the world's 4<sup>th</sup> largest LNG exporter.

<sup>582</sup> Information from the website of the Government of South Australia, Department for Manufacturing, Innovation, Trade, Resources and Energy (DMITRE), at: <[http://www.pir.sa.gov.au/petroleum/prospectivity/-basin\\_and\\_province\\_information/prospectivity\\_bight/grant\\_of\\_petroleum\\_exploration\\_permits\\_to\\_bp\\_exploration\\_alpha\\_ltd\\_faq](http://www.pir.sa.gov.au/petroleum/prospectivity/-basin_and_province_information/prospectivity_bight/grant_of_petroleum_exploration_permits_to_bp_exploration_alpha_ltd_faq)>, last accessed 15 January 2013.

<sup>583</sup> <<http://www.appea.com.au/news-a-publications/news/2010/703-montara-a-gulf-of-mexico-information.html>>, Source: Pex , Who's Drilling.

<sup>584</sup> Source: APPEA, GA.

The Incident Analysis Team (IAT) noted that “of these seven incidents only the Montara Wellhead Platform incident involved a significant oil release as the others were gas wells, except Flounder A1 which was a shallow gas release from an oil well during drilling operations.”<sup>585</sup>

The legal regime in Australia has gone through intense scrutiny since the Montara incident.<sup>586</sup> The inquiries that followed the incident have highlighted shortcomings in operational practice and how the industry is regulated, and legislative changes were recommended in order to improve safety.<sup>587</sup> In particular, the Montara Commission of Inquiry found that in order for the regime “to embody the ‘polluter pays’ principle, regulatory authorities needed to be satisfied that companies had adequate insurance to meet their obligations and ‘no fault’ penalties needed to be in place for pollutions”.<sup>588</sup> The Commission recommended that the obligation of companies involved in an incident to meet the full costs of monitoring and remediation should be made a condition of approval of proposals under the OPGSSA 2006 and that suitable arrangements (insurance or otherwise) should be in place to ensure companies have this capacity.<sup>589</sup>

On 25 May 2011, the Minister for Resources and Energy introduced five bills into Parliament that modify the OPGSSA 2006 and related laws.<sup>590</sup>

### 3.5.6.2. *Legal framework*

Similar to the US, there is no uniform regime applying to offshore activities across all state jurisdictions in Australia. There has always been debate between the Commonwealth and state on the jurisdiction over offshore issues.<sup>591</sup>

The main law that is applicable is Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGSS) (referred to as Offshore Petroleum Act 2006). This Act applies from 3nm limit from the baselines out to the limits of the exclusive economic zone and the declared outer continental shelf areas, subject to exceptions. State and Northern Territory laws apply in coastal waters (the first 3 nm from the baselines).

In addition to the Offshore Petroleum Act, several other laws and regulations may be of relevance:

- Petroleum (Submerged Lands) (Management of Well Operations) Regulation 2004;
- Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009 (Safety Regulations);
- Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011: part 5;
- Offshore Petroleum and Greenhouse Gas Storage Legislation Amendment (Miscellaneous Measures) Act 2010;
- Environment Protection and Biodiversity Conservation Act 1999: It is the national environmental law. “It establishes a national approach to the protection and conservation of Australia’s environment, and sets out a regulatory framework to

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<sup>585</sup> Australian Maritime Safety Authority, Response to the Montara Wellhead Platform Incident, Report of the Incident Analysis Team, March 2010, March 2010, p18.

<sup>586</sup> Bosma (2012), 98.

<sup>587</sup> Ibid.

<sup>588</sup> Ibid., 99.

<sup>589</sup> Montara Commission of Inquiry, Report of the Montara Commission of Inquiry, 2010, p. 370-373.

<sup>590</sup> Bosma (2012), 99.

<sup>591</sup> Daintith (2006).

protect those aspects of the environment considered to be matters of national environmental significance, which includes the Commonwealth marine area.”<sup>592</sup>

After the incident of Montara of 2009, many regulatory changes took place including the merge of various regulatory authorities into one. Prior to the Montara incident, the Australian Commonwealth Government jointly administered the regulatory regime and supervised offshore activities with the State and Northern Territory governments through a Joint Authority/Designated Authority arrangement. At the advice of the Montara Commission, a single national regulator is established for all offshore activities beyond three nautical miles from the territorial sea baseline, the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).<sup>593</sup>

The principal authority to carry out cleanup operations is the Australian Maritime Safety Authority.<sup>594</sup>

Important provisions concerning civil liability for offshore activities are mainly included in Chapter 6 of the Offshore Petroleum Act 2006, although it is titled “administration”. “Schedule 3 of the Offshore Petroleum Act 2006 imposes duties relating to health and safety on a number of parties. The operator of the facility bears the principal duty in the regime. This duty is for the operator to take all reasonably practicable steps to ensure the facility and its activities are safe and without risk to health.”<sup>595</sup>

Section 576B (1) provides that “If a significant offshore petroleum incident has occurred in a title area that has caused, or that might cause, an escape of petroleum, NOPSEMA may, in accordance with this section, give a direction by written notice to the registered holder of the title.”<sup>596</sup> It further provides in Section 576B(2) that:

“The direction may require the registered holder of the title to do any (or all) of the following within a reasonable period stated in the direction:

(a) to take any action stated in the direction for the purpose of any (or all) of the following:

- (i) preventing the escape of petroleum;
- (ii) eliminating the escape of petroleum;
- (iii) mitigating the effects of the escape of petroleum;
- (iv) managing the effects of the escape of petroleum;
- (v) remediating the effects of the escape of petroleum;

(b) to take any other action stated in the direction in relation to the escape of petroleum and its effects;

(c) not to take an action stated in the direction in relation to the escape of petroleum and its effects.”

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<sup>592</sup> Australia’s Offshore Petroleum Regulatory Framework, prepared by Australian Government, Department of Resources, Energy and Tourism.

<sup>593</sup> Final Government Response to the Report of the Montara Commission of Inquiry, Australian Government, 2011, p. 2.

<sup>594</sup> Australian Maritime Safety Authority Act 1990 (Cth), s6(1)(a).

<sup>595</sup> Offshore OHS Legislative Framework Information Paper, NOPSEMA.

<sup>596</sup> Section 576 A has provisions on the definition of “a significant offshore petroleum incident”. It reads: “a significant offshore petroleum incident is a significant incident or occurrence that relates to any or all of the following operations in an offshore area:

- petroleum exploration operations;
- petroleum recovery operations;
- operations relating to the processing or storage of petroleum;
- operations relating to the preparation of petroleum for transport;
- operations connected with the construction or operation of a pipeline;
- operations relating to the decommissioning or removal of structures, equipment or other items of property that have been brought into an offshore area for or in connection with any of the operations mentioned in paragraph (a), (b), (c), (d) or (e).”

The direction may require the registered titleholder to take an action or not to take an action, and the direction may prohibit the doing of an action unconditionally or subject to conditions.<sup>597</sup> The required action (or not to take an action) can be anywhere in the offshore area, whether within or outside the title area.<sup>598</sup> The remedial directions may include removal of property, plugging or closing off of wells, conservation and protection of natural resources and making good of damage to seabed and subsoil.<sup>599</sup>

### 3.5.6.3. *Basis of liability*

The Offshore Petroleum Act 2006 contains no specific provision on the civil liability arising from offshore activities. However, it has some provisions which might be relevant for deciding on liability for offshore activities in Chapter 6 titled “Administration”.

First, as to the liable party for offshore incidents under the Australian regime, Section 569 (1) provides that the titleholder shall prevent the escape of petroleum, water, any mixture of water or drilling fluid. An offence against such liability is an offence of strict liability.<sup>600</sup> The titleholder is, as mentioned in Section 569 (1), “the registered holder of a petroleum exploration permit, petroleum retention lease or petroleum production licence”, “the registered holder of an infrastructure licence”, “the registered holder of a pipeline licence”, the registered holder of a petroleum special prospecting authority or petroleum access authority”.<sup>601</sup> Therefore, the registered titleholder of a permit, lease and licence has the obligation to prevent the occurrence of oil spill, but it seems unclear whether the civil liability for offshore incidents shall be imposed on this titleholder as well.

Nevertheless, Section 571 on insurance (which will be discussed further below) imposes the liability to take out insurance on the registered holder of permits, leases and licences. Hence, the Australian legal regime may lack certain clarity in the sense that the obligation to take out insurance is with the titleholder, whereas the party liable for offshore incidents is not clear.

In addition, in Part 6.2 “Directions relating to petroleum”, there are also some relevant provisions that may shed light on this issue. It provides that in case of “significant offshore petroleum incidents”, the authorities may give directions to the registered titleholder of a permit/lease/licence to take action for the purpose of preventing/eliminating the escape of petroleum, mitigating/managing/remediating the effects of the escape of petroleum.<sup>602</sup> Hence, the registered titleholder is subject to the directions from the authority to remove the discharged oil and mitigate the damage caused by the discharge of oil. When the authority gives direction to the titleholder to pay for compensation, the titleholder shall be held liable. In the event of a breach of a direction, the party subject to the direction has to indemnify the NOPSEMA or responsible minister for its costs and expenses incurred in executing the direction.<sup>603</sup> Therefore, it is the registered titleholder that has to indemnify the authorities for their costs incurred. However, there is no specific provision concerning the compensation for

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<sup>597</sup> Section 576 B (3) and (4).

<sup>598</sup> Section 576 B (5).

<sup>599</sup> Sections 585, 586 and 586 A of the Offshore Petroleum Act 2006.

<sup>600</sup> Section 569 (6A) of the Offshore Petroleum Act 2006. An offence is defined in Section 569 (6). It reads: “A person commits an offence if:

- the person is subject to a requirement under subsection (1); and
- the person engages in conduct; and
- the person’s conduct breaches the requirement.”

<sup>601</sup> Section 569 (1) of the Offshore Petroleum Act 2006.

<sup>602</sup> Section 576 B of the Offshore Petroleum Act 2006.

<sup>603</sup> Sections 577 (3) and 577 A(2).



private victims. Moreover, all these provisions relate to “significant offshore petroleum incidents”. If there are pure threats of pollution, or near-miss situations, the law remains silent.

Second, as to the question whether the liability rule is strict or negligence, the provision in Section 569 (1) states that an offence against the legal requirement is subject to strict liability. However, such a liability is based on the breach of the legal obligation to prevent oil discharge. Such a liability established on the basis of a breach of legal duty is not strict liability in the traditional sense. Moreover, the legal defence for the liable party is that he can prove he “took all reasonable steps to comply with” his obligations in Section 569 (1). Hence, this is not a traditional strict liability rule, since the breach of duty is essential for establishing the titleholder’s liability.

A note in the Offshore Petroleum Act 2006 refers to the Criminal Code for the explanation of strict liability.<sup>604</sup> However, the concept of strict liability under criminal law may be different than the civil law concept. Therefore, the principle of liability for offshore incidents under the Australian Offshore Petroleum Act 2006 is not a clear-cut strict liability, but based on the breach of legal requirements.

#### **3.5.6.4. Relationship with regulation**

Section 569 of the Offshore Petroleum Act 2006 provides that the titleholder shall “carry out all petroleum exploration operations ... in a proper and workmanlike manner and in accordance with good oilfield practice”; he shall “control the flow, and prevent the waste or escape ... of petroleum or water”, and “prevent the escape ... of any mixture of water or drilling fluid with petroleum or any other matter”.

The Offshore Petroleum Act 2006 provides that a person is considered to commit an offence if his conduct breaches the regulatory requirements.<sup>605</sup> Therefore, the compliance with regulations may be used by the titleholder as a defence against assuming liability.

#### **3.5.6.5. Causation**

A person is considered to commit an offence if he is subject to certain legal requirements, when he engages in conduct, and his conduct breached the requirement.<sup>606</sup> Therefore, the cause of the liability is violation of legal requirements.

#### **3.5.6.6. Attribution of liability**

In case of multiple titleholders, Section 775D provides that where the Offshore Petroleum Act 2006 imposes an obligation on a titleholder and there are multiple titleholders in relation to a single title, the obligation is imposed on each of them, however the obligation may be discharged by any one of them. Therefore, they are jointly and severally liable in relation to their title-related legal obligations under the Offshore Petroleum Act 2006, but once one of the titleholders has discharged the legal obligation, the remaining titleholders are discharged from that duty.<sup>607</sup>

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<sup>604</sup> Section 569 (6A) of the Offshore Petroleum Act 2006.

<sup>605</sup> Section 569 (6) of the Offshore Petroleum Act 2006.

<sup>606</sup> Section 569 (6) and 576 (D).

<sup>607</sup> Commonwealth Department of Resources, Energy and Tourism, Multiple Titleholders: Service of Documents, Taking Voluntary Actions and Discharging Legal Obligations Guideline (A Guideline in relation to the Offshore Petroleum and Greenhouse Gas Storage Act 2006), effective 1 January 2012,

### 3.5.6.7. Damages – remedies

As mentioned above, a national authority (NOPSEMA or the responsible minister) may take action if the registered titleholder breaches their direction.<sup>608</sup> Costs or expenses incurred by the authority in relation to a direction are “a debt due to the Commonwealth by the person subject to the direction” and are “recoverable in a court of competent jurisdiction”.<sup>609</sup> Therefore, the costs incurred by the public authority are compensable under the Offshore Petroleum Act 2006. However, there may be private parties who also suffer from an offshore incident. There is no provision on the compensation for private claims.

### 3.5.6.8. Amount of compensation

There is no statutory provision to impose a financial cap on the compensation. Therefore, the liability shall be unlimited.

### 3.5.6.9. Compensation mechanisms

All petroleum titleholders offshore Australia are required to hold appropriate levels of insurance prior to the commencement of any seismic, drilling or other exploration operations. This insurance must be sufficient to cover the cost of any potential remediation.<sup>610</sup>

Pursuant to Section 571 of the Offshore Petroleum Act 2006, the “registered holder” of a petroleum exploration permit, petroleum retention lease, petroleum production licence, infrastructure licence, pipeline licence “must maintain, as directed by the responsible Commonwealth Minister from time to time, insurance against”:

- expenses; or
- liabilities; or
- specified things arising in connection with or as a result of the carrying out of work or the doing of any other thing under the permit, lease or licence;

“including insurance against expenses of complying with directions relating to the clean-up or other remediation of the effects of the escape of petroleum”.<sup>611</sup>

Subsection 2 of the same article provides that: “The conditions of a petroleum special prospecting authority or a petroleum access authority may include a condition that the registered holder maintain, as directed by the responsible Commonwealth Minister from time to time, insurance ...”.

Therefore, the requirement of insurance is compulsory and is imposed on “registered holder” of petroleum permits, leases and licences.

As to the amount of financial security, the Australian Maritime Safety Authority (AMSA) stated in a report following the Montara incident that:

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<sup>608</sup> Sections 577 and 577 A.

<sup>609</sup> Sections 577 (3) and 577 A(2).

<sup>610</sup> Information from the website of the Government of South Australia, DMITRE, at: <[http://www.pir.sa.gov.au/petroleum/prospectivity/basin\\_and\\_province\\_information/prospectivity\\_bight/grant\\_of\\_petroleum\\_exploration\\_permits\\_to\\_bp\\_exploration\\_alpha\\_ltd\\_faq](http://www.pir.sa.gov.au/petroleum/prospectivity/basin_and_province_information/prospectivity_bight/grant_of_petroleum_exploration_permits_to_bp_exploration_alpha_ltd_faq)>, last accessed 15 January 2013.

<sup>611</sup> Section 571 (1) of the Offshore Petroleum Act.

“Generally insurance amounts of between \$100 and \$300 million (US) dollars are considered to be standard practice in the offshore petroleum industry (not including third party claims). The amount of coverage for specific activities is set by the operator in consultation with the insurer and its underwriter, and is based on an expert assessment of all potential liabilities.”<sup>612</sup>

“Currently the level of insurance is determined by the operator and its insurer to directly reflect the potential liability associated with the type and extent of the activities undertaken on the title at that time. While higher risk activities such well drilling, production and the decommissioning of a facility require substantial insurance, activities such as geophysical surveying are considered lower risk, unless they are undertaken in environmentally sensitive areas. The Designated Authority and/or the Joint Authority may challenge the set insurance amounts if it believes the insurance does not meet the stakeholder expectations or is considered too low based on industry best practice. The IAT [Incident Analysis Team] has been advised that some Designated Authority’s may not internally possess the necessary expertise to fully assess or challenge the insurance amounts set by the insurer.”<sup>613</sup>

#### *3.5.6.10. Jurisdictional issues*

In Australia, a state or territory’s jurisdiction over its coastal waters is defined in the Coastal Waters (State Powers) Act 1980 and the Coastal Waters (Northern Territory Powers) Act 1980, which extends three nautical miles from its baseline.<sup>614</sup>

Offshore petroleum activities beyond the designated state and territory coastal waters (three nautical miles baseline to 200 nautical miles of Australia’s EEZ) are governed by the laws of the Commonwealth, mainly the Offshore Petroleum Act 2006 and related regulations. The State and Northern Territory governments have exclusive responsibility for petroleum activities in island and coastal waters within three nautical miles of the coastline.<sup>615</sup>

#### *3.5.6.11. Criminal liability*

There are provisions on criminal liability in the Offshore Petroleum Act 2006. It provides in Section 569 that the registered holder of a petroleum permit, lease or licence commits an offence, if he engages in conduct and breaches the requirement to “control the flow, and prevent the waste or escape, in the permit area, lease area or licence area, of petroleum or water”. Such an offence is considered “an offence of strict liability” as provided in the Criminal Code of Australia and subject to a fine of 100 penalty unit, which corresponds to AU\$11,000 or US\$9,564. Therefore, some have reached a conclusion that the Australian law appears to focus on minor events given the low penalty.<sup>616</sup>

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<sup>612</sup> Australian Maritime Safety Authority, Response to the Montara Wellhead Platform Incident – Report of the Incident Analysis Team, (AMSA Montara Report), March 2010, p.15. Available at: <[http://www.amsa.gov.au/marine\\_environment\\_protection/national\\_plan/incident\\_and\\_exercise\\_reports/document/s/montara\\_iat\\_report.pdf](http://www.amsa.gov.au/marine_environment_protection/national_plan/incident_and_exercise_reports/document/s/montara_iat_report.pdf)>, last accessed 2 May 2013.

<sup>613</sup> Ibid.

<sup>614</sup> Offshore Oil and Gas Resources Sector Security Inquiry, prepared by the Office of the Inspector of Transport Security (Department of Infrastructure and Transport, Australian Government), June 2012, p. 25.

<sup>615</sup> Australia’s Offshore Petroleum Regulatory Framework, prepared by Australian Government, Department of Resources, Energy and Tourism.

<sup>616</sup> Buchanan (2010), 3-4. (Buchanan, K., Australia Oil Spill Liability and Regulatory Regime, Law Library of Congress, available at: <<http://www.loc.gov/law/help/oil-spill-australia-2010-004332.pdf>>, last accessed 2 May 2013.

In addition, a strict liability criminal offence also applies for failing to comply with an approved environment plan under the relevant regulations.<sup>617</sup> Another situation may also constitute an offence when failing to comply with a safety case.<sup>618</sup> Again, these offences seem to be aimed at smaller scale events, with penalties at AU\$8,800 or US\$7,653.<sup>619</sup>

### 3.5.7. Canada

#### 3.5.7.1. *National interest in offshore activities*

Canada has a large amount of oil and gas resources in sedimentary basins beneath the ocean's floor offshore. The offshore oil and gas industry has started exploration and development activities in Canada since 1964.<sup>620</sup> The offshore oil and gas activities make great contribution to the nation's economy.<sup>621</sup>

#### 3.5.7.2. *Legal framework*

The main legislation concerning offshore activities includes:

- Canada Oil and Gas Operations Act: this Act governs liability “in respect of the exploration and drilling for and the production, conservation, processing and transportation of oil and gas” in the areas under the federal jurisdiction of Canada;<sup>622</sup>
- Oil and Gas Drilling and Production Regulations;
- Oil and Gas Certificate of Fitness Regulations;
- Oil and Gas Installation Regulations;
- Oil and Gas Diving Regulations;
- Oil and Gas Geophysical Operations Regulations;
- Oil and Gas Spills and Debris Liability Regulations (Regulations respecting Limits of Liability for Spills, Authorized Discharges and Debris Emanating or Originating from Work or Activity related to the Exploration for or Production of Oil and Gas): these regulations contain specific amounts of liability limits for the liable parties.

In Canada, the authority to regulate offshore drilling lies primarily with the National Energy Board (NEB). The NEB administers the pertinent acts and regulations for oil and gas exploration and production activities.<sup>623</sup>

#### 3.5.7.3. *Basis of liability*

“Where any discharge, emission or escape of oil or gas that is authorized by regulation, or any spill, occurs in any area to which this Act applies”, the Canada Oil and Gas Operations Act provides for strict liability on the “the person who is required to obtain an authorization”, “without proof of fault or negligence”.<sup>624</sup>

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<sup>617</sup> Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009, Regulation 7.

<sup>618</sup> Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009, Regulation 2.45.

<sup>619</sup> Buchanan (2010), 4.

<sup>620</sup> <<http://www.nrcan.gc.ca/energy/sources/offshore-oil-gas/1361>>, last accessed 21 February 2013.

<sup>621</sup> Canada's Evolving Offshore Oil and Gas Industry, Canadian Centre for Energy Information, 2004. Available at: <<http://www.centreforenergy.com/Shopping/uploads/111.pdf>>, last accessed 21 February 2013.

<sup>622</sup> Section 3 of the Canada Oil and Gas Operations Act. The areas under the Canadian federal jurisdiction consist of the Northwest Territories, Nunavut and Sable Island, and submarine areas not within a province, in Canada's internal waters, territorial sea and continental shelf. See Section 3 of the Canada Oil and Gas Operations Act.

<sup>623</sup> Dagg, Holroyd, Lemphers, Lucas and Thibault (2011), 23.

<sup>624</sup> Section 26 (1) of the Canada Oil and Gas Operations Act.

#### 3.5.7.4. *Attribution of liability*

The Canada Oil and Gas Operations Act provides that

“all persons to whose fault or negligence the spill or the authorized discharge, emission or escape of oil or gas is attributable or who are by law responsible for others to whose fault or negligence or the authorized discharge, emission or escape of oil or gas is attributable are jointly and severally liable, to the extent determined according to the degree of the fault or negligence proved against them, for all actual loss or damage incurred by any person as a result of the spill or the authorized discharge, emission or escape of oil or gas.”<sup>625</sup>

Therefore, in case of multiple tortfeasors, it is clear under the Canadian law that joint and several liability shall be imposed.

#### 3.5.7.5. *Damages – remedies*

The Canada Oil and Gas Operations Act provides that the liable party, being “the person who is required to obtain an authorization” is liable for:

“(i) all actual loss or damage incurred by any person as a result of the spill or the authorized discharge, emission or escape of oil or gas, and  
(ii) the costs and expenses reasonably incurred by Her Majesty in right of Canada or any other person in taking any action or measure in relation to the spill or the authorized discharge, emission or escape of oil or gas”.<sup>626</sup>

#### 3.5.7.6. *Amount of compensation*

The Canada Oil and Gas Operations Act provides that the person liable under this Act is liable up to any prescribed limit of liability.<sup>627</sup> The Oil and Gas Spills and Debris Liability Regulations are thus adopted to spell out the specific amount of limitation. The liability limits vary based on geographic area:

- (a) land or submarine area adjacent to Arctic waters south of the 60th parallel of north latitude<sup>628</sup> – 40 million dollars;
- (b) submarine area north of the 60th parallel of north latitude and to which (a) does not apply – 40 million dollars;
- (c) any area of the Yukon Territory or Northwest Territories covered by or located a distance of 200 meters or less from any body of inland water and to which (a) does not apply – 25 million dollars;
- (d) any area within the Yukon Territory or Northwest Territories to which neither (a) nor (c) applies – 10 million dollars;
- (e) any other area to which the Act applies for which no other limit is prescribed by these Regulations – 30 million dollars.<sup>629</sup>

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<sup>625</sup> Section 26 (1) (b) of Canada Oil and Gas Operations Act.

<sup>626</sup> Section 26 (1) (a) of Canada Oil and Gas Operations Act.

<sup>627</sup> Ibid.

<sup>628</sup> As defined in the Arctic Waters Pollution Prevention Act.

<sup>629</sup> Section 3 of the Oil and Gas Spills and Debris Liability Regulations.

### 3.5.7.7. *Applicability in time*

The Canada Oil and Gas Operations Act provides that

“[a]ll claims under this section may be sued for and recovered in any court of competent jurisdiction in Canada and shall rank firstly in favour of persons incurring actual loss or damage, without preference, and secondly to meet any costs and expenses described in subsection (1) or (2).”<sup>630</sup>

Under such a provision, the persons who incur actual loss or damage shall be ranked first to receive compensation. This may be in the interest of the victims for timely compensation. However, the time limit under the Canada Oil and Gas Operations Act to bring a lawsuit is three years from the day when the loss or damage occurred, and maximum 6 years from the day the spill or discharge occurred.<sup>631</sup> Therefore, the victims may still need to wait years before they can receive compensation.

According to Section 72.1 of the Canada Oil and Gas Operations Act, the act “applies to every interest or right in oil or gas acquired or vested before the coming into force of this section.” Hence, it seems this Act has retrospective effect.

### 3.5.7.8. *Compensation mechanisms*

The Canada Oil and Gas Operations Act provides that “an applicant for an authorization” for oil and gas activities shall provide proof of financial responsibility.<sup>632</sup> The financial responsibility can be “in the form of a letter of credit, a guarantee or indemnity bond or in any other form satisfactory to the National Energy Board, in an amount satisfactory to the Board.”<sup>633</sup> It further adds that the “holder of an authorization shall ensure that the proof of financial responsibility remains in force for the duration of the work or activity in respect of which the authorization is issued.”<sup>634</sup> Therefore, it is clear under the Canadian regime that financial responsibility is a compulsory requirement for the applicant to be granted an authorization, and it remains a continuing obligation during the whole period of work under authorization.

### 3.5.7.9. *Jurisdictional issues*

The Canada Oil and Gas Operations Act “applies in respect of the exploration and drilling for and the production, conservation, processing and transportation of oil and gas in

- (a) the Northwest Territories, Nunavut and Sable Islands, and
- (b) submarine areas, not within a province, in the internal waters of Canada, the territorial sea of Canada or the continental shelf of Canada”.<sup>635</sup>

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<sup>630</sup> Section 26 (3) of the Canada Oil and Gas Operations Act.

<sup>631</sup> Section 26 (5) of the Canada Oil and Gas Operations Act.

<sup>632</sup> Section 27 (1) of the Canada Oil and Gas Operations Act.

<sup>633</sup> Ibid.

<sup>634</sup> Section 27 (1.1) of the Canada Oil and Gas Operations Act.

<sup>635</sup> Section 4 of the Canada Oil and Gas Operations Act.

### 3.5.8. Cyprus

#### 3.5.8.1. *National interest in offshore activities*

The oil and gas exploration in Cyprus dates back to 1938 when the Iraq Petroleum Company started geological surveys followed by exploration activities onshore after 10 years of survey. The offshore activities started only in 1970 when Delta Exploration Inc. made the first seismic surveys in shallow water up to 200 meters depth.<sup>636</sup> The first licensing round for offshore activities was announced on 15 February 2007, and the second licensing round was announced on 11 February 2012 for 12 offshore hydrocarbon blocks.

#### 3.5.8.2. *Legal framework*

The Hydrocarbons (Prospection, Exploration and Exploitation) Law of 2007<sup>637</sup> (referred to as the Hydrocarbons Law), is to transpose EC Directive 94/22/EC into domestic law. The Hydrocarbons (Prospection, Exploration and Exploitation) Regulations of 2007 and 2009<sup>638</sup> (referred to as the Hydrocarbons Regulations)

In addition, the offshore activities are also subject to generally applicable laws and regulations on health and safety and on the protection of the environment.

The Hydrocarbons Law and the Hydrocarbon Regulations set out the criteria for the assessment of licence applications for prospecting, exploration and exploitation of hydrocarbons in Cyprus, including its territorial waters, contiguous zones and exclusive economic zones.

Like in many jurisdictions, the Hydrocarbons Law states that the hydrocarbons found in Cyprus whether in the territorial waters, the continental shelf or the exclusive economic zone belong to the state.<sup>639</sup>

The Hydrocarbons Regulations have in Article 15 some provisions on the protection of the environment. It requires the holder of an authorization to “ensure that hydrocarbons operations are conducted in an environmentally acceptable and safe manner, consistent with the environmental legislation in force for the time being and the good international industry practice, and shall exercise effective control for that purpose.”<sup>640</sup> If the holder of an authorization “omits to comply with” his duty to protect the environment as required in Article 15 of the Hydrocarbons Regulations and environmental pollution is caused, he “shall take all reasonable and necessary measures to remedy or eliminate such pollution.”<sup>641</sup>

Article 6 of the Hydrocarbons Regulations 2007 and 2009 provides that in the application for an authorization for prospection, the following information, among others, must be specified: the financial structure of the applicant company and its parent company, the financing of the exploration and development activities and the how the performance of the applicant’s obligations shall be guaranteed, and the applicant’s previous experience in hydrocarbon exploration and development.<sup>642</sup>

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<sup>636</sup> Michael Ioannides, at: <<http://blog.llpolawfirm.com/2012/02/history-and-framework-of-oil-and-gas.html#!/2012/02/history-and-framework-of-oil-and-gas.html>>, last accessed 18 December 2012.

<sup>637</sup> Law No. 4 (I)/2007.

<sup>638</sup> No. 51/2007 and No. 113/2009.

<sup>639</sup> Article 3 of the Hydrocarbons Law.

<sup>640</sup> Article 15 (1) of the Hydrocarbons Regulations.

<sup>641</sup> Article 15 (3) of the Hydrocarbons Regulations.

<sup>642</sup> Article 6 of the Hydrocarbons Regulations 2007 and 2009.

It is however somewhat confusing that the Regulations refer to the Cyprian law implementing the CLC which is designed for ship source pollution and not for the offshore activities.<sup>643</sup>

### 3.5.9. Italy

#### 3.5.9.1. *National interest in offshore activities*

Italy is the 49th oil producer worldwide, and its production accounts to 0.1% of total oil production. In 2012 Italy produced 5.376.628.540 kg of Natural gas.<sup>644</sup>

#### 3.5.9.2. *Legal framework*

- The Legge 11 gennaio 1957 n. 6<sup>645</sup> is meant to regulate the research of hydrocarbons in the areas not governed by other provisions.
- The Decreto Legislativo 25 novembre 1996, “Attuazione della direttiva 94/22/CEE relativa alle condizioni di rilascio e di esercizio delle autorizzazioni alla prospezione, ricerca e coltivazione di idrocarburi”, is the transposition into Italian law of the EC directive 94/22/CEE. It is particularly important, because it has opened the energy market to the market, and the Italian hydrocarbons agency (ENI) lost its monopoly.
- With the Legge 9 gennaio 1991, n. 9,<sup>646</sup> the whole framework on Italian energy industry has been regulated.
- The Decreto Legislativo 23 maggio 2000, n. 164<sup>647</sup> has implemented the EC directive 98/30/CE into Italian law.
- The Decreto Legislativo 3 aprile 2006, n. 152,<sup>648</sup> is the main article of Italian law regarding, in its part 6, the imposition of sanctions for polluting and endangering the environment (the transposition of the ELD).
- The Decreto Legislativo 7 luglio 2011, n. 121<sup>649</sup> is the transposition into Italian law of the EC directive 2008/99/EC, on the protection of the environment through criminal law.
- Art. 38 of the legge 7 agosto 2012 n. 134<sup>650</sup> has simplified the bureaucratic procedure required in order to have a permit of research of hydrocarbons granted.

It is important to keep in mind that national law regulates only the offshore activities, while the land activities are under regional law.

#### 3.5.9.3. *Liability regime concerning offshore activities*

Decreto Legislativo 3 aprile 2006, n. 152 includes some important provisions concerning the liability for offshore activities.

First, as far as principle of liability is concerned, Article 311(2) states that whoever damages the environment, committing an offence or an omission – violating a law, a regulation, an

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<sup>643</sup> Article 15 (2) of the Hydrocarbons Regulations.

<sup>644</sup> <<http://unmig.sviluppoeconomico.gov.it/unmig/produzione/produzione.pdf>>.

<sup>645</sup> <<http://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:legge:1957-01-11;6>>.

<sup>646</sup> <<http://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:legge:1991-01-09;9>>.

<sup>647</sup> <<http://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:decreto.legislativo:2000;164>>.

<sup>648</sup> <<http://www.camera.it/parlam/leggi/deleghe/06152dl.htm>>.

<sup>649</sup> <<http://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:decreto.legislativo:2011-07-07;121!vig=>>>.

<sup>650</sup> <<http://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:legge:2012;134>>.



administrative measure – with negligence, incompetence, recklessness, or violating technical norms, is obliged to restore the situation antecedent to the damage or, if that is not possible, to compensate for the damage created. With this article a strict liability system is introduced: it is not necessary to have fault, in order to be punished. This principle is, however, derived from the EC directive 35/2004.

Second, when it comes to the issue of compensable damage, there are only provisions in Decreto Legislativo 3 aprile 2006, n. 152 with respect to environmental damages as follows:

- Article 308(1): the operator is the one bearing the expenses arising from the State's actions undergone in order to protect and to restore the environment.
- Article 308(3): the State decides not to recover the expenses undergone in the case in which the expense is major than the recoverable sum, and in the case in which the operator cannot be identified.
- Article 308(4): the operator does not have to bear the expenses in the cases in which:
  - a. the damage arose from the action of a third party, even if proper security measures were applied.
  - b. the damage arose from the compliance with an order of a public authority. In this case, the Ministry of Environment acts in order for the operator to recover the expenses undergone.
- Article 308(5): the operator will not have to bear the costs if he's able to demonstrate that he has no fault and that the damage has been caused by:
  - a. an action allowed by a public authority
  - b. an action which – according to the scientific and technical knowledge at the time of the damage – was not believed to be likely to cause damage to the environment.
- Article 311(1): the Ministry of Environment acts – even in a criminal proceeding – in order to have specific performance (the restoration of the situation existing before the pollution), or – if not possible – to have damages paid by the wrongdoer.

It should be noted that there is nothing directly with respect to liability for traditional damage/personal injuries. These liabilities are covered elsewhere, presumably in the Decreto Legislativo 9 aprile 2008, n. 81, where security and liability issues on work are regulated. This mentions inter alia that an employer has the duty of drafting a document in which he evaluates the risks linked to the activities performed by his staff. In the same document he's supposed to list preventive security measures and to draft a programme aiming at improving the security level in the times coming.

The employer has to employ the measures listed in order to eliminate the risks and must adequately inform the workers and train them in order for them to be able to act in situations of risk. He will be punished with a detention of three to six months, or will be charged with a fine of 2.500 to 6.400 € according to Article 55(1), if he does not do what is provided in the previous lines. The employer moreover has a general duty to check on the effective implementation of preventive measures by workers.

Third, as far as the amount of compensation is concerned, Decreto Legislativo 3 aprile 2006, n. 152 has the following provisions:

- Article 311(3): damages are calculated by the Ministry of Environment based on the criteria established in the attachments n. 3 and 4 to this law.
- Article 314(3): when it is not possible for the 'polluter' to restore the previous situation, the damages must be at least three times the value of the administrative sanction or of the criminal sanction. In case of detention, the damage will be calculated attributing the value of €400 to each day of detention.

Fourth, with respect to jurisdictional issues, Decreto Legislativo 3 aprile 2006, n. 152 provides in Article 311(1) that the sole right of initiative against ‘polluters’ is reserved to the Ministry of Environment, both for civil and criminal proceedings.

### 3.5.10. France

Currently France does not have any oil or gas platforms. However, with new oil discoveries in the Mediterranean, France recognizes the opportunities in the future. The French Conseil Économique, Social et Environnemental (CESE) (Economic, social and environmental Council) published in March 2012 a proposal for a new and better regulation of offshore facilities<sup>651</sup>.

Currently, offshore facilities would fall under the Code Minier (which has become outdated), la loi de 1968 sur le plateau continental and la loi de 1976 sur la ZEE (Exclusive Economic zone). This is complemented by *décrets* with respect to the mining code, works on the continental shelf and the Exclusive Economic zone and permits for prospection of the surface below the sea on the continental shelf.

Although the Code Minier has been updated at several occasions, the Code is not able to deal with the new developments with respect to offshore oil and gas activities and hence the Code should be revised once more. In the report of March 2012, the CESE provides several recommendations in order to ameliorate the current legislative framework in France.

### 3.5.11. The Netherlands

#### 3.5.11.1. General information with respect to oil and gas exploration in the Netherlands

The Netherlands has a clearly organized regime for accidental oil spills at the North Sea. The supervisory agency which oversees all aspects of offshore drilling is the State Supervision of Mines (SSM). The activities of the SSM cover both oil spill prevention and response. On the one hand, the SSM regulates safety on offshore installations and on the other hand it reviews the emergency response plans of oil companies. Government involvement in oil spill response is shaped by the Netherlands Coastguard and Rijkswaterstaat Noordzee (RWS NZ). The Netherlands Oil and Gas Exploration and Production Association (NOGEP) represents the oil and operator companies on the Dutch continental Shelf.<sup>652</sup>

The single most important piece of legislation in the Netherlands is the Mining Act and its accompanying Decree and Regulation. The Dutch oil exploitation sector is relatively modest in size. The Dutch part of the Northsea predominantly harbours natural gas.<sup>653</sup>

#### 3.5.11.2. Basis of liability

Liability is covered in the Water Act by enshrining the polluter - pays principle (Art. 6.8 Waterwet, 2009).<sup>654</sup> Furthermore, the Environmental Management Act stipulates that the person whose activity has caused the damage is liable for the costs of the restoration

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<sup>651</sup> Conseil Économique, Social et Environnemental, J. Beall et A. Feretti (rapporteurs), ‘De la gestion préventive des risques environnementaux: la sécurité des plateformes pétrolières en mer, March 2012, p. 18.

<sup>652</sup> Janssen (2012), 156-157.

<sup>653</sup> Janssen (2012), 156-157.

<sup>654</sup> Wet van 29 januari 2009, houdende regels met betrekking tot het beheer en gebruik van watersystemen (Waterwet/Water Act)

(Environmental Management Act, Title 17.2, Art. 17.16 §1). A test of reasonableness is added for the liable operator if in exceptional circumstances a full cost burden would lead to unreasonable situations (Title 17.2, Art. 17.16 §4).<sup>655</sup>

### 3.5.11.3. Relationship with regulation

The following legislative acts contain provisions with respect to offshore Oil and Gas exploitation:

- Mining Act, Decree and Regulation
- Water Act and Decree
- North Sea Installations Act
- Working Conditions Act, Decree and Regulation
- Working Times Act and Decree
- Environmental Management Act & Environmental Assessment Decree
- Integral Management Plan North Sea (IBN) 2015
- North Sea Accident Control Act
- Incident Control Plan North Sea (IBP NZ)
- Capacity Memorandum 2006-2010

The most important safety and environmental issues related to oil drilling are addressed through the Mining Act (Mijnbouwwet 2002<sup>656</sup>) and its accompanying Decree and Regulation. These set out some more detailed provisions.

The Mining Act, Decree and Regulation establish inter alia the procedure for licensing, measures for ensuring the safety on oil drilling installations and requirements for oil spill response (plans).

The Working Conditions Act (Arbeidsomstandighedenwet 1999<sup>657</sup>), and its Decree and Regulation complement this by requiring operators to have a health and safety management system. There are additional safety and emergency response requirements as well, with the safety of workers as central aim.

Government response to oil spills is primarily based on the North Sea Accident Control Act and the Water Act. These acts designate RWS NZ as being responsible for ensuring the environmental quality of the North Sea.

To live up to this responsibility the Incident Control Plan North Sea provides guidance for the coordination of incident response and a checklist for involved organizations of what tasks they are supposed to perform.

Liability is covered in the Water Act by enshrining the polluter-pays principle (Waterwet 2009), which is further developed in the Environmental Management Act (Title 17.2). Moreover through the Environmental Management Act and the Environmental Assessment Decree the procedures for environmental assessment are determined (Wet Milieubeheer 1979; Besluit milieueffectrapportage 1994).<sup>658</sup>

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<sup>655</sup> Wet van 13 juni 1979, houdende regelen met betrekking tot een aantal algemene onderwerpen op het gebied van de milieuhygiëne (*Wet Milieubeheer/Environmental Management Act*).

<sup>656</sup> Wet van 31 oktober 2002, houdende regels met betrekking tot het onderzoek naar en het winnen van delfstoffen en met betrekking tot met de mijnbouw verwante activiteiten (*Mijnbouwwet/Mining Act*)

<sup>657</sup> Wet van 18 maart 1999, houdende bepalingen ter verbetering van de arbeidsomstandigheden (*Arbeidsomstandighedenwet 1998/Working Conditions Act*)

<sup>658</sup> Janssen (2012), 157.

#### 3.5.11.4. *Causation*

From the wording of Article 17.16§1, Title 17.2, Environmental Management Act (the person who is responsible for the damage shall bear the costs of it, unless he can prove that the damage was caused by a third person, despite the precaution he took, or is the consequence of a governmental order), it appears that a causal link is supposed between the activity of the operator and the damage caused.

#### 3.5.11.5. *Attribution of liability*

Joint and several liability applies.<sup>659</sup>

#### 3.5.11.6. *Damages and remedies*

The Mining Act requires license holders to take all reasonable measures to prevent adverse environmental effects (Chapter 4, Art. 33, Mining Act, 2002). Moreover, the Mining Decree stipulates that any discharge must be stopped and that for that purpose an emergency response plan must be in place (Mijnbouwbesluit 2002). The Water Act gives RWS NZ the responsibility to take measures to deal with the pollution (Waterwet 2009). Furthermore, The Incident Control Plan North Sea (IBP NZ) sets out how the response to an oil spill will be structured, which parties will be involved and how they should cooperate.

The Capacity Memorandum 2006-2010 describes per area (North Sea, Wadden Sea and the Eastern and Western Schelde) the major risks and the ecological and economical values that should be protected. Based on this information, it will be determined what clean-up measures should be taken.

Rijkswaterstaat also has been involved in the response to the Sea Empress (UK, 1996), Erika (France, 1999) and Prestige (Spain, 2002) oil spills. These experiences and a near-miss in the Westerschelde in 2003 provided the input for the current oil spill response strategies in the Netherlands.

The oil spill strategy in the Netherlands is very detailed. The IBP NZ describes all activities that need to be undertaken from the moment an oil spill is detected up to the actual clean-up operations. After notification of an oil spill, the Netherlands Coastguard will initiate a verification flight to assess the situation. Once it is determined that the spill is combatable RWS NZ will take care of all operational matters. A number of procedures will be followed. These include search and rescue, determination of what would be the most effective clean-up strategy (through the advice of a special Rijkswaterstaat Commission), Bonn Agreement procedures and a decision has to be taken whether or not chemical dispersant should be used.<sup>660</sup>

Yet, as appears from the above, the oil spill response in the Netherlands is primarily focused on government action. As Janssen indicates, there might be a problem with the interoperability of the Dutch oil spill response strategy and that of the individual oil companies. In fact, the companies consider it to be the task of the RWS NZ to clean up any

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<sup>659</sup> Goldsmith and Lockhart-Mummery (2013), 156.

<sup>660</sup> Janssen (2012), 154.

oil spills, whereas effective response requires immediate action of the oil companies after the spill, as the first moments after a spill are the most important.<sup>661</sup>

It must be remarked though that the government may recover the costs of the clean-up (Environmental Management Act, Art. 17.6). Yet, Janssen indicates that there might be a potential problem with defining the responsible parties. Blame can be tossed around making it potentially difficult to recover the costs<sup>662</sup>.

#### *3.5.11.7. Amount of compensation*

There is no cap on damages to be paid in the event of an oil spill.<sup>663</sup> The polluter pays principle is enshrined in Dutch legislation. However, as mentioned above, a test of reasonableness is added for the liable operator if in exceptional circumstances a full cost burden would lead to unreasonable situations (Art. 17.6 §4 Environmental Management Act). Moreover, the operator can be exempted to pay for the full costs of the restoration if his activity was allowed for in a permit and when the operator fully complied with it (Art. 17.6 Environmental Management Act).

Furthermore, there are no recent oil spills in the Netherlands, that could give an indication of the amount of compensation to be paid.

#### *3.5.11.8. Applicability in time*

The provisions with respect to environmental damage in the Environmental Management Act do not apply to damage caused before 30 April 2007 (transposition of the Environmental Liability Directive) (Art. 17.8, Environmental Management Act). Furthermore, costs may be recovered from the liable operator up to 5 years after the restorative measures were taken or after the responsible operator has been identified (Art. 17.17 Environmental Management Act).

#### *3.5.11.9. Compensation mechanism*

The Environmental Management Act provides that the person who caused the damage has to bear all the costs of the restoration, unless the government decides that the polluter does not have to bear all costs (e.g. in case he can prove that he complied with a permit). The Netherlands do not foresee obligatory financial guarantees for environmental damage though.

Yet, the financial status of oil companies applying for a license on the Dutch offshore is taken along in the decision-making process. In Art. 46 (Chapter 4, Mining Act), it is stipulated moreover that a financial security can be required for certain types of damage (e.g. the movement of the soil caused by excavation) but there are no explicit provisions for offshore oil activities.<sup>664</sup>

The Mining Act also establishes a Guarantee Fund for damage caused by mining activities. This fund might repay the costs in case of insolvency of the operator (Chapter 9, Art. 134-141 Mining Act).

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<sup>661</sup> Janssen (2012), 158.

<sup>662</sup> Janssen (2012), 139.

<sup>663</sup> Janssen (2012), 139.

<sup>664</sup> Janssen (2012), 139.

The Nogepe foresees a Mutual Indemnity Agreement (MIA) which companies might sign. The objective of the MIA for the oil and gas industry is the creation of clarity on the subject of responsibility. So is overlapping insurance cover for identical risks for personnel, hardware and other investments avoided. It is not unusual in the oil and gas industry that different contractors may have to work on the same installations. The MIA avoids each company having to individually insure its risks against third parties. Each company only has to insure itself against any damage it could endure.<sup>665</sup>

#### 3.5.11.10. Jurisdictional issues

Dutch law will apply to oil spills that happen on the Dutch continental shelf.

#### 3.5.12. Brazil

Brazil is the world's ninth largest energy consuming country. Its energy consumption has increased by almost a third in the last decade due to the rapid economic growth. On the other hand, the total energy production in Brazil has also increased, in particular, oil and ethanol.<sup>666</sup> Brazil has a large amount of proven oil reserves, the second-largest in South America after Venezuela. The offshore Campos and Santos Basins, located off the country's southeast coast, hold the vast majority of Brazil's proven reserves.<sup>667</sup>

The regulatory authorities are:

1. Petrobrás.  
In Brazil, petroleum, natural gas and other fluid hydrocarbons belong to the federal government.<sup>668</sup> The government retains the monopoly to the exploration and production of petroleum through its state company, Petrobrás.
2. National Agency of Petroleum (Agência Nacional de Petróleo, Gás Natural e Biocombustíveis - ANP)
3. National Council of the Environment
4. Brazilian Institute of the Environment and Renewable Natural Resources

Law No.9966 of 28 April 2000 provides for the prevention, control and monitoring of pollution caused by the release of oil and other harmful or dangerous substances in waters under national jurisdiction.<sup>669</sup>

Law No.6938 of 31 August 1981 contains a provision on the civil liability for offshore incidents.<sup>670</sup> It provides in Article 14 that a violator is obliged to compensate or repair the damage to the environment and third parties affected by his activities. Therefore the civil liability for offshore incidents under the Brazilian law can be characterized as a strict liability regime. There is no provision on the limitation on compensation.

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<sup>665</sup> <<http://www.nogepe.nl/en/Home/MIAwederzijdsevrijwaring.aspx>>, last assessed 2 May 2013.

<sup>666</sup> <<http://www.eia.gov/cabs/brazil/Full.html>>.

<sup>667</sup> Ibid.

<sup>668</sup> Law No. 9478 of 6 August 1997, original version at <[http://www.planalto.gov.br/ccivil\\_03/leis/19478.htm](http://www.planalto.gov.br/ccivil_03/leis/19478.htm)>; an English translation can be found at <[http://www.anp.gov.br/brasil-rounds/round1/Docs/LDOC01\\_en.pdf](http://www.anp.gov.br/brasil-rounds/round1/Docs/LDOC01_en.pdf)>, last accessed 6 May 2013.

<sup>669</sup> <[http://www.mosburgoil-gas.com/html/assis\\_1\\_15\\_99\\_5a.html](http://www.mosburgoil-gas.com/html/assis_1_15_99_5a.html)>, last accessed 6 May 2013.

<sup>670</sup> <[http://www.planalto.gov.br/ccivil\\_03/leis/16938compilada.htm](http://www.planalto.gov.br/ccivil_03/leis/16938compilada.htm)>, last accessed 6 May 2013.

As to the criminal liability, Article 15 of Law No.6938 provides that the violator who exposes danger to human, animal, or plant safety, or makes more serious an existing hazardous situation, may be subject to one to three years in prison and a fine. The sanction can be doubled if as a result of the violation, irreversible damage to the fauna, flora, or the environment or serious bodily injury is caused.<sup>671</sup> A competent authority may also incur the same criminal liability when it does not enforce the measures to prevent the commission of the conduct described in Article 15 of Law 6938.<sup>672</sup>

In addition, Law No.9605 of 12 February 1998 defines the crimes against the environment and sanctions for such crimes. The sanctions for environmental crimes can be in the form of incarceration for a period of time and the payment of a fine, or a fine only.<sup>673</sup>

As to the administrative liability, Decree No.6514 enacted on 22 July 2008 has established that the conduct that is considered an infraction against the environment and the pertinent administrative sanctions imposed for such conduct.<sup>674</sup>

### **3.5.13. Comparative analysis**

#### *3.5.13.1. Best practice?*

In most countries with a strong offshore petroleum interest, there is at least a national legal regime on civil liability, although it may consist of various pieces of legislation, some less developed than others. In some countries, such as the UK, the civil liability for offshore activities consists of different layers from the industry arrangement OPOL to statutory liability; and in the US, the liability for offshore incidents may arise from federal laws and state laws. In other countries, the liability derives from rather easily identifiable primary and secondary legislation. Nevertheless, given that the offshore oil and gas activities involve many complications (technology development, various stakeholders involved, various contracts and subcontracts), and that the damages of an offshore incident may result in personal injury/fatalities, property damage, and/or environmental damage, it is at least difficult and perhaps virtually impossible for any jurisdiction to cover all of these aspects in one single piece of legislation. Using the checklist we developed, we try to identify the legal parameters of each national regime (of the selected countries).

It is, however, clear from the overview we provided that, differently than with the case of marine pollution resulting from vessels (where most countries have implemented the international conventions<sup>675</sup>) there is relatively little regulation as far as liability for damage resulting from offshore installations is concerned. As the table below shows, in most Member States there is at best a brief mention of a liability of the operator based e.g. on a Petroleum Act and a provision on financial responsibility, but a detailed regulation of liability for damage resulting from offshore related activities is in fact only present in the US and to some extent in the UK which relies on OPOL. However, given the large differences between the legal systems that were discussed it is not possible to make a sweeping statement claiming that e.g. one particular legal system would constitute a “best practice”.

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<sup>671</sup> Article 15 (1)(I)(a) and (b).

<sup>672</sup> Soares, E., Brazil Oil Spill Liability and Regulatory Regime, available at: <<http://www.loc.gov/law/help/oil-spill-brazil-2010-004332.pdf>>, last accessed 2 May 2013.

<sup>673</sup> Ibid.

<sup>674</sup> Decree No. 6514 revoked Decree No. 3179 of 21 September 1999, which specified administrative sanctions applicable to conduct considered to be an infraction to the environment.

<sup>675</sup> Which will be discussed in more detail below in 4.6.

We will provide a brief overview of some of the legal systems (including only those for which we could obtain most relevant information) and then provide a few comments comparing the particular elements that we used for the description of the countries.

Given the fact that there are only few legal systems where liability resulting from offshore related activities is explicitly addressed it is not possible to draw strong normative conclusions based on this comparative analysis. Moreover, doing so would require a normative framework addressing how an optimal liability regime should be shaped in order to have a benchmark. Providing such a normative framework is too early at this stage, but can be provided later using an economic framework in Chapter 7.<sup>676</sup>

### 3.5.13.2. Comparison of legislation

Table 8: Comparison of legislation

	UK	Norway	Denmark	US	Australia	Canada
Legislation	No specialized legislation; rely on OPOL	Liability on Petroleum Activities Act	Subsoil Act regulates liab.	OCSLA + OPA 1990.	Offshore Petroleum Act – vague.	Oil and Gas Operations Act.
Basis liability	SL <sup>677</sup> exception: war/force majeure	SL, excl.: force majeure	SL	SL	Escape of oil = SL offence	SL
Relation with regulation	Compliance with REG. Not excl, liab.	Liability is strict; not based on breach of REG	Compliance no exception	Compl. not excl. liab. + breach of REG leads to loss of rights to limit liab.	Only offence if breach of REG + no liab. if all reasonable steps to comply taken.	-

<sup>676</sup> More particularly in section 7.2.

<sup>677</sup> SL is an abbreviation for Strict Liability.



	UK	Norway	Denmark	US	Australia	Canada
Causation	Proof on victim	Burden on claimant + in causal uncertainty: J&S	-	-	-	-
Attribution	J&S <sup>678</sup> under OPOL for insolvency	Channelling to licensee or operator. Joint venture: J&S toward third parties	Channelling to licensee. If several parties: J&S	Liab. on responsible party and lessee. If more: J&S	Liab. on title holder + J&S	Licensee is liab. + J&S.
Damages	Pollution damage (if direct) + remedial measures. OPOL not personal injury.	Also: losses to fishermen	All.	Removal costs + damages	Costs of public auth	Actual loss + costs of public auth.
Cap	OPOL \$ 250 mio.	No cap.	Only for MOD's	75 mio. + removal costs. Loss of cap if gross negligence or viol of REG + no preemption of state law.	No cap.	Cap.

<sup>678</sup> J&S stands for Joint & Several Liability.

	UK	Norway	Denmark	US	Australia	Canada
Compensation mechanism	OPOL membership mandatory	Rapid claims settlement for fishermen. Mandatory security for production licence, not exploration licence + detailed regulation of what insurance should cover	Financial capacity condition for licence.	Fin. Security max. 150 mio. + details and different methods can be used. Fund (OSLTF): 1 bio. financed via tax.	Mandatory insurance condition for licence	Proof of financial responsibility required.
Criminal liability	Imprisonment + fine	Imprisonment + fine	Imprisonment + fine	Imprisonment + fine	Imprisonment + fine	Imprisonment + fine

### 3.5.13.3. Comparative comments

This table allows to make a few generalizations on the liability regimes in the legal systems that we discussed, taking into account the checklist that we used for our analysis.

First, the basis of liability: The basis of liability is in general strict and the liability is imposed on the holder of licence/permit/lease or the operator.

Second, the relationship with regulation: In most countries, there are regulations aiming at safety standards for offshore operations and aiming at the prevention of incidents during offshore oil and gas activities. However, the compliance with regulations in most countries we have studied does not constitute a defence to exempt the responsible party from assuming liability. Only the Australian law is not clear on that point, as it includes a vague provision which could lead to the situation that compliance with regulation may be used as a legal defence.

Third, as to causation, it is mostly the occurrence of an incident that triggers the liability. Most statutes we examined are silent on the causation issue.

Fourth, attribution of liability: in case of multiple tortfeasors, most jurisdictions follow a joint and several liability. In some jurisdictions, there is no specific provision concerning this issue.

Fifth, as to the amount of compensation, in most countries examined here, there is no upper limit on the amount to be compensated by the responsible party. Hence in theory the liability will be unlimited. The US and Canadian regimes are the only ones with financial caps. However, in the US the liability is limited only in the federal law OPA, which leaves open the possibility of state laws to impose additional liability. OPA does not preempt state law. Moreover, such a financial cap concerns only the damages, the removal costs remain uncapped. Although the liability is in theory unlimited in most legal regimes, it is important to realize that without the security of a financial guarantee the unlimited liability cannot provide adequate compensation.

Sixth, applicability in time (rapid claims settlement): The strict liability with a financial guarantee can be considered as a mechanism in the interest of rapid claims settlement, since it

avoids the need for victims to prove negligence as the primary test of liability which can be rather difficult and time consuming.<sup>679</sup> This is adopted in all of the liability regimes we examined. However, looking at the specific compensation mechanisms in each national law, it is difficult to find useful instruments in addition to the strict liability and compulsory financial guarantee to provide rapid compensation to the pollution victims. In this respect, it might be necessary to look at other high risk industries, i.e. vessel-source pollution and the nuclear industry, to see how the rapid claims management is arranged there.

Seventh, as to the compensation mechanisms, there is always some requirement on the financial capacity of the applicant. In some countries, e.g. in the UK, the financial capability proved by OPOL is a precondition for the granting of a licence. The amount of such a financial guarantee is in most jurisdictions (with the exception of the US) not specified in the regulations, but assessed on a case by case basis by the national authority responsible for issuing licences. The US system provides for detailed requirements on the financial guarantee a responsible party has to take out. This is based on the so-called worst case scenario. The forms of financial guarantee can be different.

In addition to the financial guarantee, in the US regime, there exists a compensation fund contributed by the oil industry, the OSLTF, which provides compensation up to \$1 billion per incident.

Eighth, jurisdictional issues: Offshore activities often take place in the continental shelf where the jurisdiction is granted to the coastal state through UNCLOS. However, in some federal systems like the US and Australia, there is a distinction between states' jurisdiction and the jurisdiction of the federal laws. In general, the state's jurisdiction is up to a certain distance beyond the baseline, and the federal law covers beyond the state's jurisdiction. As far as offshore activities are concerned, the development nowadays goes further beyond the baseline and deeper in sea. Hence, it mostly falls within the federal laws' jurisdiction.

### **3.6. Another high risk sector: the nuclear**

A most interesting sector to which compensation for marine pollution damage is often compared is nuclear liability. Like damage resulting from offshore installations damage caused by a nuclear accident can potentially also be quite large. Hence, the international liability conventions have a few features that are worth studying. For example there is a limitation (so-called financial cap) on the liability and the liability is channelled to the licensee of the nuclear power plant. Moreover, in a second and third layer, compensation is provided by government as a result of which doctrine holds that the nuclear industry is (at least partially) subsidized. The regime is, however, quite different in the US under the so-called Price Anderson Act since no legal channelling applies and since there is no state intervention. Hence, the international and US regime are certainly worth a further analysis. In the remainder of this section we will first address the international compensation system for nuclear damage (3.6.1); after that, we will present the compensation system for nuclear damage in the US (3.6.2) and finally provide a brief critical comparative analysis (3.6.3).

It should be mentioned that of course other regimes of nuclear liability could be subject to analysis as well such as e.g. the regime in Japan, which is now obviously fully in the picture after the Fukushima incident<sup>680</sup> or the upcoming nuclear liability regime in China.<sup>681</sup> It would, however, lead us too far to discuss those other regimes in detail as well. In that respect we refer to discussions in the literature.

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<sup>679</sup> King (2010), 6.

<sup>680</sup> For a detailed analysis of that regime see Faure and Liu (2012a) and Faure and Liu (2012b).

<sup>681</sup> See on that regime Liu and Faure (2013).

Moreover, another undoubtedly interesting regime of yet another high risk sector is the liability regime for vessel-based marine pollution. That can of course be an interesting point of comparison for a potential offshore liability regime. The civil liability and fund conventions will, however, be discussed below in chapter 4, when discussing existing pooling mechanisms. In that respect it should also be mentioned that when discussing the nuclear liability regimes at this stage, we only focus on the contents of the liability regime and not on the pooling mechanisms. The pooling mechanisms for nuclear liability will be discussed in further detail in chapter 4 as well.<sup>682</sup>

### **3.6.1. International compensation system for nuclear damage**

#### *3.6.1.1. Origin of the international regime*

At the beginning of the development of the nuclear industry, the Western-European market had to rely on American suppliers and technology. The American nuclear industry, however, was unwilling to bearing liability for possible nuclear accidents in Europe.<sup>683</sup> Therefore, a “hold-harmless” clause was introduced in the first bilateral agreements between the US and the Europe, which required the European nuclear operators to indemnify the American suppliers for all claims resulting from their activities.<sup>684</sup> Even with those “hold-harmless” clauses, the American industry was still unsure whether it could provide sufficient protection and the US “Atomic Industrial Forum” conducted a compressive study on the possibility of European victims claiming against American suppliers in case of a nuclear incident. Two reports were published later by the Atomic Industrial Forum: the “Preliminary Report on Financial Protection against Atomic Hazards” (“the Preliminary Report”)<sup>685</sup> and the “International Problems of Financial Protection against Nuclear Risk” (“the Harvard Report”).<sup>686</sup> Those two reports developed some principles for nuclear liability, which have been later incorporated into the international conventions.

The Preliminary Report identified four parties who can be affected by nuclear risks: the nuclear industry, private insurers, the government and the victims of a potential nuclear accident. In this report, the liability of the nuclear industry is linked with insurance capacity; for the part of damage that cannot be compensated by insurance, the government needs to provide additional compensation to protect the victims. The Preliminary Report introduced a system of unlimited government intervention: any damage in excess of the limitation of liable parties’ liability should be covered by the government in terms of indemnity.<sup>687</sup>

The channeling of liability to nuclear operators was advised in the Harvard Report. According to the Harvard Report, the suppliers and contractors were exempted from liability for the following reasons: the suppliers are afraid of being held liable instead of or jointly with the operators and then being burdened by the lengthy trials; suppliers will lose control after the delivery of goods and services, and operators are more capable of obtaining insurance.<sup>688</sup>

Those two reports proposed several principles for nuclear liability, which have later been adopted in a few national legislations and international conventions.

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<sup>682</sup> More particularly in section 4.7. below.

<sup>683</sup> See Vanden Borre (2007), 261, 262.

<sup>684</sup> Vanden Borre (2010), 180.

<sup>685</sup> Prepared by the experts of Columbia University and published in March 1956.

<sup>686</sup> Prepared by Harvard Law Schools and published in 1959.

<sup>687</sup> Preliminary, 30.

<sup>688</sup> See Vanden Borre (2007), 265-266.

### 3.6.1.2. *First generation nuclear liability conventions*

#### 3.6.1.2.1. NEA and IAEA-conventions

Two compensation regimes for nuclear damage were established in the 1960s under the auspices of the NEA (Nuclear Energy Agency) and the IAEA (International Atomic Energy Agency). Since the Paris Convention and the Brussels Convention are established under the auspices of the OECD/NEA, they are regionally confined to Western Europe, Slovenia and Turkey. The Vienna Convention, under the aegis of the IAEA is world-wide in scope. A few principles proposed in the Preliminary Report and in the Harvard Report were accepted under those two conventions. Before the description of those principles, this section first clarifies what constitutes “nuclear damage” under those conventions, or in the other words, which categories of damage the nuclear industry is liable for according to the conventions.

According to the Paris Convention, the nuclear operator is liable for “damage to or loss of life of any person” and “damage to or loss of any property other than” onsite damage or property used in connection with the installations.<sup>689</sup> The Convention does not explain the two headings of damage further. What should be considered as damage to persons or damage to property is left to the discretion of competent court in accordance with the applicable national law.<sup>690</sup> Those two headings are also recognized as “nuclear damage” under the Vienna Convention. In addition to those two headings, “nuclear damage” under the Vienna Convention also includes “any other loss or damage so arising or resulting if and to the extent that the law of the competent court so provides”.<sup>691</sup> Therefore, more discretion is given to the competent court.

As for the geographical scope, the Paris Convention does not apply to “nuclear incidents occurring in the territory of non-Contracting States or to damage suffered in such territory unless otherwise provided by the legislation of the Contracting Party in whose territory the nuclear installation of the operator liable is situated”.<sup>692</sup> The geographical scope of the Vienna Convention is less clear. Some argue that since the convention itself is silent on its geographical scope, the Vienna Convention on the Law of Treaties will apply. The convention applies to damage occurring in the territory of a State Party, on board aircraft registers in that state and on ships flying its flag.<sup>693</sup> While others deduce from the article about the competent court<sup>694</sup> that the geographical scope depends on the competent court and thus damage resulting from non-Vienna states could be covered by Vienna Convention.<sup>695</sup> The geographical scope has been broadened by the Joint Protocol.

#### 3.6.1.2.2. Strict Liability

In Western Europe, there is a long-established tradition of a presumption of liability for hazards resulting from a dangerous activity. The nuclear industry covered under the Paris Convention is obviously qualified as a dangerous activity and there is a serious difficulty in proving negligence of the nuclear operators. Therefore, a system of absolute liability is established under the Paris Convention.<sup>696</sup> According to the Paris Convention, the operator is liable for damage caused by a nuclear incident in a nuclear installation or involving nuclear substances coming from such installations.<sup>697</sup> To prove the fault of nuclear operators is no

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<sup>689</sup> Article III (a), the Paris Convention.

<sup>690</sup> The expose des motifs of the Paris Convention, point 39.

<sup>691</sup> Article I (k), the Vienna Convention.

<sup>692</sup> Article II, the Paris Convention.

<sup>693</sup> Vanda Lamm (2006).

<sup>694</sup> Article VIII, the Vienna Convention.

<sup>695</sup> Blanchard (2000), 233, 236.

<sup>696</sup> The expose des motifs of the Paris Convention, point 14.

<sup>697</sup> Article III (a), the Paris Convention.

longer necessary to establish liability. Liability established under the Paris Convention is quite stringent since many classical exonerations, such as force majeure, Acts of Gods or intervening acts of third persons under general tort law are no longer applicable.<sup>698</sup> The available exonerations are an act of armed conflict hostilities, civil war, and insurrection. The operator is not liable for damage caused via a grave natural disaster of an exceptional character unless the legislation of the Contracting Party in whose territory his nuclear installation is situated provides to the contrary.<sup>699</sup> Similar stipulations about absolute liability and exonerations can also be found under the Vienna Convention.<sup>700</sup> However, under the Vienna Convention, there is an additional possibility for operators to be relieved of his liability: the competent court can, according to the applicable law, relieve the operator wholly or partly from his obligation if the operator can prove that damage resulted from gross negligence or an act or the omission of the victims.<sup>701</sup>

#### 3.6.1.2.3. Channelling of Liability

Under the Paris Convention, liability is channelled to the operators. In addition to the operators, no one else is liable for the damage caused by a nuclear incident.<sup>702</sup> The “operator” is defined as “the person designated or recognized by the competent public authority as the operator of that installation”.<sup>703</sup> These provisions can hold other parties engaged in nuclear activities liable since the Paris Convention is the only legal basis for a claim against a nuclear operator in case of the identified incidents.<sup>704</sup> This concentration of liability is based on two reasons: to avoid the complicated legal procedures to identify the liable parties and to allow a concentration of insurance capacity.<sup>705</sup> Under the Paris Convention, the operators in principle do not have a right of recourse against the other parties. This is because it is argued that allowing recourse will make it necessary for suppliers to seek insurance coverage and will lead to costly duplication of insurance.<sup>706</sup> However, recourse is possible if the damage results from an act or omission done with intent to cause damage or if and to the extent provided by contract.<sup>707</sup> The Vienna Convention also has similar provisions.<sup>708</sup>

#### 3.6.1.2.4. Limited Liability

Under both the Paris Convention and the Vienna Convention, the operator’s liability is limited both in amount and in time. The Paris Convention sets the maximum liability of the operator at 15 million SDRs, but allows the Contracting Party to establish by legislation a greater or lesser amount considering the capacity of insurance and financial security. The Contracting Party can also require a lower amount according to the nature of the installation. The lower amount should be no less than 5 million SDRs.<sup>709</sup> The Paris Convention introduces a cap on liability, taking into account the difficulties of operators to seek financial security.<sup>710</sup> The flexible expression allows the Contracting Parties to set the limit higher than that set in the Paris Convention. For example, in Sweden, the limit on liability is set at 300 million

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<sup>698</sup> The exposé des motifs of the Paris Convention, point 48.

<sup>699</sup> Article IX, the Paris Convention.

<sup>700</sup> Article I (1) (k), IV (1), (3), the Vienna Convention.

<sup>701</sup> Article IV (2), the Vienna Convention.

<sup>702</sup> Article VI (a), (b), the Paris Convention.

<sup>703</sup> Article I (a) (vi), the Paris Convention.

<sup>704</sup> Article VI (c)(ii), the Paris Convention

<sup>705</sup> The exposé des motifs of the Paris Convention, point 15.

<sup>706</sup> The exposé des motifs of the Paris Convention, point 18.

<sup>707</sup> Article VI (f), the Paris Convention.

<sup>708</sup> Article II (5), X, the Vienna Convention.

<sup>709</sup> Article VII (b), the Paris Convention.

<sup>710</sup> The exposé des motifs of the Paris Convention, point 43.

SDRs according to the Nuclear Liability Act (SFS 1968:45).<sup>711</sup> Germany even adopted a system with unlimited liability.<sup>712</sup> Under the Vienna Convention, the cap of liability should be no less than US \$ 5 million.<sup>713</sup> The statute of limitations under both the Paris Convention and the Vienna Convention is set at ten years from the date of the nuclear accident. They both allow the extension of the extinction periods by Contracting Parties if the operator is covered by insurance or other financial security.<sup>714</sup>

#### 3.6.1.2.5. Financial Security

To seek financial security coverage for the operator's liability is important for international regimes of nuclear liability. Both conventions require the operator to have and maintain insurance or other financial security up to the cap of its liability.<sup>715</sup> Insurance is the most popularly used instrument for an operator to cover its liability. In fact, the cap on liability is usually set as the maximum available amount from the insurance market. Since insurance is available per installation for a fixed period rather than in respect of a single incident, the potential resources available for compensation may be reduced after the first incident. Under these conditions, the Contracting Parties may need to intervene.<sup>716</sup> It is for the Contracting Parties to decide the nature, form and extent of the compensation according to applicable national law.<sup>717</sup>

#### 3.6.1.2.6. Exclusive Jurisdiction

Both the Paris Convention and the Vienna Convention have an "exclusive jurisdiction" clause: the jurisdiction lies only with the courts of the Contracting Party within whose territory the nuclear incident occurred. If the nuclear accident happens outside the Contracting Parties' territory or the place cannot be determined, the jurisdiction lies with the courts of the Installation State of the liable operator.<sup>718</sup> Since nuclear damage may have a transboundary effect, the exclusive jurisdiction can ensure that the cap of liability is not exceeded and that a fair distribution of compensation takes place, if the claims lead to insoluble problems.<sup>719</sup>

#### 3.6.1.2.7. Public Funding

The liability limits established under the Paris Convention and the Vienna Convention are quite low compared to the potential catastrophic damage that a nuclear incident can cause. The liability is limited to promote the development of the peaceful use of nuclear liability. To provide the potential victims better protection, the Brussels Complementary Convention was established under the auspices of the NEA in 1963. Under the Brussels Complementary Convention, two additional layers of compensation are added in terms of public funds. Therefore, the total amount of money available for compensation is increased to 300 million SDR, and a third layer compensation system is established: firstly, the operator is liable up to an amount of at least 5 million SDRs via its financial security; between this amount and 175

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<sup>711</sup> OECD: Nuclear Legislation in OECD Countries, Regulatory and Institutional Framework for Nuclear Activities: Sweden, 13, available at: <<http://www.oecd-nea.org/law/legislation/sweden.pdf>>.

<sup>712</sup> Gesetz über die friedliche Verwendung der Kernenergie und den Schutz gegen ihre Gefahren (Atomgesetz - AtG) vom 23. Dezember 1959, Neufassung vom 15. Juli 1985, letzte Änderung vom 31. Juli 2011 (Act on the peaceful utilisation of nuclear energy and the protection against its hazards (Atomic Energy Act) of 23 December 1959, as amended and promulgated on 15 July 1985, last amendment of 31 July 2011), § 31.

<sup>713</sup> Article V, the Vienna Convention.

<sup>714</sup> Article VIII, the Paris Convention; Article VI (1), the Vienna Convention.

<sup>715</sup> Article X, the Paris Convention; Article VII, the Vienna Convention.

<sup>716</sup> The exposé des motifs of the Paris Convention, point 49.

<sup>717</sup> Article XI, the Paris Convention; Article VIII, the Vienna Convention.

<sup>718</sup> Article VIII, the Paris Convention; Article XI, the Vienna Convention.

<sup>719</sup> The exposé des motifs of the Paris Convention, point 54.

million SDR, the Installation State needs to make public funds available; for the amount between 175 and 300 million SDR, compensation is made out of public funds by all Contracting Parties according to a specific formula.<sup>720</sup> The Installation State can escape its obligation under the second layer by setting the liability limit at no less than 175 million SDRs. In that case the whole amount up to 175 million SDR needs to be made available by liable operators.

### 3.6.1.3. *Second generation nuclear liability conventions*

#### 3.6.1.3.1. General Issues

The nuclear accident in Chernobyl in 1986 triggered people to think about the insufficiency of the existing nuclear liability conventions in terms of the ability to protect the victims. The Chernobyl accident led to serious damage to human health, property and the environment with a broad transboundary impact. However, at that moment, the Soviet Union had no national legislation on nuclear liability. Nor was it a member of any international nuclear liability regimes. Even if the Soviet Union had joined the Vienna Convention, serious problems still prevented an effective compensation: the authorities in the Soviet Union questioned the necessity of the preventive measures;<sup>721</sup> the cap on liability under the Vienna Convention was dwarfed by the serious damage it caused; western European countries joined another regime which is independent of the Vienna Convention.

The lack of the acceptance of the international regimes and the insufficient resources available in case of a nuclear damage triggered the effort to revise the conventions. Another five conventions have been passed after the Chernobyl accident. The first effort was made to link the geographical scope of the existing regimes. In 1988, the Joint Protocol was adopted, under which, the operator of a nuclear installation situated in the territory of a party to one convention shall be liable for the nuclear damage suffered in the territory of a party to either the Paris Convention or the Vienna Convention.<sup>722</sup> It was believed that the Joint Protocol would give incentives for the Central and Eastern Europe countries to join the Vienna Convention and would broaden the application of the two regimes. However, only 12 out of 18 countries in these areas which have joined the Vienna Convention became a member of the Joint Protocol. Globally, of the 52 States Party to the Paris and Vienna Conventions, only 27 Parties have joined the Joint Protocol.

In addition to the geographic links, some substantive changes were also adopted in the following years. Under the auspices of the IAEA regimes, two nuclear conventions were open for signature in 1997: the Protocol to the Vienna Convention and a stand-alone convention—the CSC. The CSC was made to open to more countries: it maintains the essential principles established under the Paris Convention, and tries to establish two tiers of public funds in case of nuclear damage. It is open to any state, if it is a party to either the Paris Convention or the Vienna Convention, or if it has national legislation containing the same principles. An effort was also made to revise the NEA conventions. In 2004, the Protocol to the Paris Convention and the Protocol to the Brussels Supplementary Convention were open for signature.

#### 3.6.1.3.2. Broadened scope of damage

Under the regimes of both NEA and IAEA, a few important changes have been made, especially the broadened scope of nuclear damage and the increased amount of the limitation of liability and public funds. Under the Protocol to the Paris Convention, in addition to

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<sup>720</sup> Article III (a)(b), the Brussels Complementary Convention.

<sup>721</sup> See Vanden Borre (2010).

<sup>722</sup> Article II, the Joint Protocol.



personal injury and property damage, four new titles have been added to the concept of “nuclear damage”: the economic loss arising from personal injury and property damage; the costs of measures of reinstatement of the impaired environment; the loss of income deriving from a direct economic interest in any use or enjoyment of the environment, and the costs of preventive measures.<sup>723</sup> Similar provisions can also be found in the Protocol to the Vienna Convention. The difference is that under the latter, the definition of nuclear damage is open: it admits any other economic loss which is permitted by the general civil liability law in the competent court.<sup>724</sup>

Since the health impact of nuclear radiation may not manifest itself after decades, the revised conventions also extend the statute of limitation for claims for personal injury and death. Those kinds of claims need to be brought within 30 years from the date of the accident.<sup>725</sup> In addition, the available defences for the operators are further limited: the natural disasters are no longer an applicable defence.<sup>726</sup> The Protocols are also designed to be attractive by broadening the applicable geographical scope. The Protocol to the Vienna Convention applies to nuclear damage wherever suffered, with a permitted exclusion if a non-contract party has nuclear installations but does not offer reciprocal benefits.<sup>727</sup> The Protocol to the Paris Convention also covers damage suffered in some non-Contracting Parties which satisfy some specific requirements.<sup>728</sup>

#### 3.6.1.3.3. Increased Limits and Public Funds

Another important change made under the NEA and IAEA regimes is the increased liability limitation and public funds. Under the Paris Convention, a three-tier compensation system was established in 1960. The Protocol to the Paris Convention increases the limit for nuclear operators to be no less than 700 million euro. The Contracting party can reduce the liability to be no less than 70 million euro for an incident originating from an nuclear installation, or to be no less than 80 million euro for the carriage of nuclear substances according to the reduced risks.<sup>729</sup> The Convention even allows the adoption of unlimited liability by the Contracting Parties, as long as the financial security required is no less than the amount mentioned above.<sup>730</sup> In addition to the liability of operators, the Protocol to the Brussels Complementary Convention provides another two tiers of compensation. From the maximum amount of operators’ liability set by the Protocol to the Paris Convention up to 1200 million euro, the Installation State needs to pay in terms of public funds. Public funds need to be made available by all Contracting Parties according to a set formula of compensation between the amounts of 1200 million euro and 1500 million euro.<sup>731</sup> Thus the available resources for compensation in case of a nuclear accident are increased significantly: from 300 million SDRs (approximately 327 million euro) to 1500 million euro.

The compensation capacity also increased under the IAEA regime. The Protocol to the Vienna Convention increases the liability limitation to no less than 300 million SDRs, or no less than 150 million SDRs, provided the Installation State will make public funds available to cover the amount between the set the limitation to 300 million SDRs.<sup>732</sup> Thus the revision

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<sup>723</sup> Article I (vii), the Protocol to the Paris Convention.

<sup>724</sup> Article I (k), the Protocol to the Vienna Convention.

<sup>725</sup> Article VIII (a)(i), the Protocol to the Paris Convention; Article VI (1)(a)(i), the Protocol to the Vienna Convention.

<sup>726</sup> Article IX, the Protocol to the Paris Convention; Article IV (3), the Protocol to the Vienna Convention.

<sup>727</sup> Article I A, the Protocol to the Vienna Convention.

<sup>728</sup> Article II (a), the Protocol to the Paris Convention.

<sup>729</sup> Article VII (a) (b), the Protocol to the Paris Convention.

<sup>730</sup> Article X (b), the Protocol to the Paris Convention.

<sup>731</sup> Article III (b), the Protocol to the Brussels Complementary Convention.

<sup>732</sup> Article V (1), the Protocol to the Vienna Convention.

has introduced a second layer of compensation. Though the amount is also significantly increased, it is modest compared to the possible significant damage and it is just set at the same level as the original Paris Convention and the Brussels Supplementary Convention. The CSC Convention also provides two tiers of compensation: a first 300 million SDRs is paid by public funds from the Installation State and another 300 million SDRs from the collective funds from the Contracting Parties.<sup>733</sup>

#### 3.6.1.3.4. Labyrinth of conventions

The different coverage caps before and after the 2004 amendments to the conventions provide the following result as far as the total amount of compensation is concerned:

Table 9: The different coverage caps before and after the Conventions 2004 amendments (in million €)

	Paris (1960) and Brussels Conventions (1963) (French example)	Modification Protocol of the Paris and Brussels Conventions (2004)
Operator's liability cap	91	700
State's intervention	140	500
Contracting Parties coverage	150	300
<b>TOTAL</b>	<b>381</b>	<b>1500</b>

These new conventions and protocols are designed to overcome the deficiencies of the first generation of nuclear liability conventions. However, the revisions have made eight international conventions available for nuclear liability, which lead to the so called “labyrinth of international conventions” dealing with nuclear liability issues.<sup>734</sup> Moreover, among the five new conventions, only two have come into force: the Joint Protocol entered into force in 1992 and the Protocol to the Vienna Convention came into force in 2003. Until now, only 5 countries have ratified the protocol to the Vienna Convention: Argentina, Belarus, Latvia, Morocco and Romania, and none of them have a significant nuclear generating capacity.<sup>735</sup> There are still many large nuclear generating countries which are not a member of any of those conventions, such as the US, Canada, Japan, China, Korea, Russia, South Africa and Switzerland.

There is no comprehensive study on why some countries are reluctant to join nuclear liability conventions, but a few hypotheses have been proposed. Firstly, some countries are geographically remote from the Contracting Parties to the international conventions. Thus they can benefit less from the available compensation in case of transboundary damage. This may be a concern for Australia, Japan and Canada. Another reason may be that unlimited liability has been adopted in the domestic legislation in Switzerland, Austria and Japan. However, the Protocols to the Paris and Vienna Conventions have allowed the participation of the states with unlimited liability. Some countries may hesitate because a discriminatory treatment between domestic and foreign victims is not allowed under the conventions and they may be reluctant to pay foreign victims out of public funds.<sup>736</sup>

<sup>733</sup> Article III 1, IV 1, the CSC Convention.

<sup>734</sup> For the patchy and complicated approach under international nuclear liability conventions, see Currie (2008).

<sup>735</sup> Of these five countries, only Argentina and Romania have nuclear capacity. The net nuclear power generating capacity of Argentina is 935 MWe and that of Romania is 1300 MWe in 2009. See Schwartz (2009).

<sup>736</sup> Ibid.

### 3.6.2. The compensation system for nuclear damage in the US

The Price-Anderson Act (PAA) and Nuclear Regulatory Commission (NRC) Regulations require the licensees of nuclear installations to seek financial protection for both the potential public liability caused from the installations and for property damage of the installations.<sup>737</sup> The compensation instruments used in the US can provide compensation for nuclear incidents of a catastrophic nature.

#### 3.6.2.1. *Liability for nuclear damage*

##### 3.6.2.1.1. Public Law Liability

Both regulation and liability rules can be used to prevent nuclear damage. After World War II, the US established the Atomic Energy Commission (AEC) to foster and control the peacetime development of atomic industry. The AEC was abolished by the Energy Reorganization Act of 1974,<sup>738</sup> which assigned its functions to the Energy Research and Development Administration and the Nuclear Regulatory Commission (NRC). The latter is the agency in the U.S. to regulate the nuclear industry: it oversees reactor safety, reactor licensing and renewal, radioactive material safety and spent fuel management. Besides, there is also a self-regulation institution, the Institute of Nuclear Power Operations (INPO) that monitors and controls nuclear risks. A detailed examination of how the nuclear industry is regulated in the U.S. is out of scope here. This section then introduces briefly the liability rules for nuclear damage in the US.

The nuclear sector may create damage during the operation of nuclear facilities, during the decommissioning and after the decommissioning of the facilities. The nuclear waste, if not disposed properly, can also lead to severe damage. Besides, cautious decommissioning and monitoring after the decommissioning period is also necessary to prevent nuclear damage.

Liability rules for nuclear damage during the operation of nuclear facilities are mainly prescribed in the Price Anderson Act and in the Nuclear Regulatory Commission Regulations. When the congress passed the Atomic Energy Act in 1954, it decided to allow private participation in nuclear power development. The thinking toward peaceful uses of nuclear energy brought with it the new problem of assigning liability caused by the industry. Without adequate insurance or financial coverage, utilities are reluctant to accept the risks.<sup>739</sup> The Price-Anderson Act was passed in 1957 to provide for a system of financial responsibility. As mentioned in the Act, it has a dual-purpose: “to protect the public and to encourage the development of the atomic energy industry”.<sup>740</sup> The dual purpose can be seen in the provisions about limitation of liability and financial protection provided by the government.

A sole and exclusive federal cause of action for any property damage or personal injury from radiation exposure, the Public Liability Action (PLA) is established in the 1988 Amendment Act.<sup>741</sup> The term “Public liability action” is defined broadly to contain “any suit asserting public liability”. The Price-Anderson Act also defines the related concepts “public liability”

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<sup>737</sup> The Price-Anderson Act was originally adopted in 1957: Act to Amend the Atomic Energy Act of 1954, Pub. L. No. 85-256, 71 Stat. 576 (1957). It was recently revised by the Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 779 (2005). The NRC also adopted many regulations about the nuclear industry. The parts relevant to financial protection and compensation are compiled under Title 10, Part 140 of Code of Federal Regulations. 10 C.F.R. § 140.1-140.109.

<sup>738</sup> Energy Reorganization Act of 1974, Pub. L. No. 92-438, 42 U.S.C. § 5801.

<sup>739</sup> GAO report EMD-80-80 (1980), Analysis of the Price-Anderson Act, 3.

<sup>740</sup> Publ. L. No. 85-256, 68 Stat. 921.

<sup>741</sup> Jose and Garza (2007).

and “nuclear incident” broadly.<sup>742</sup> Through those broad definitions, Congress preempted all state causes of action. There are two types of PLA causes of action: the cause of action for personal injury and that for property damage.<sup>743</sup> Hence the Price Anderson Act does not mean to cover damage to the environment.<sup>744</sup>

### 3.6.2.1.2. Extraordinary Nuclear Occurrence

As far as substantive rules are concerned, they “shall be derived from the law of the State in which the nuclear incident involved occurs, unless such law is inconsistent with” the Price Anderson Act.<sup>745</sup> Thus usually, the state tort law applies with the exception that the act has different prescriptions. The Act provides one such exception: if the nuclear accident comprises an “extraordinary nuclear occurrence” (ENO), it requires the nuclear plant owner to waive certain defenses they might otherwise have under local tort law.<sup>746</sup> Hence, the operators are strict liable if damage arises from an extraordinary nuclear occurrence. Whether an accident comprises an ENO is determined by the NRC. To be qualified as an ENO, a nuclear incident needs to satisfy the following criteria: the discharge or dispersal constitutes a substantial amount of source, special nuclear or by-product material, or has caused substantial radiation levels offsite; and there have in fact been or will probably be substantial damages to persons offsite or property offsite.<sup>747</sup> The NRC regulations give detailed criteria in determining whether the above mentioned conditions come due.<sup>748</sup> The legislation restricts the waivers to ENOs for two reasons: to avoid “nuisance” suits and to protect the public from the consequences of catastrophic nuclear accidents.<sup>749</sup> However, the substantial criteria are very difficult to satisfy. Even the Three Mile Island accident was not classified as an ENO.<sup>750</sup> After the Three Mile Island accident, a petition has been proposed to the NRC which requires the revision of the criteria of an ENO.<sup>751</sup> The NRC also identified the difficulties in determining an ENO,<sup>752</sup> and published three proposed amendments to the criteria in 1985 and solicited public comment on these amendments.<sup>753</sup> Some scholars even advised to abolish the threshold of ENO to allow a better protection to victims.<sup>754</sup> However, after the procedure of public comments on the proposed amendments, the NRC decided that the current criteria for determining an ENO were adequate and were consistent with the intent of Congress, and should thus be sustained.<sup>755</sup> Under this situation, the majority of claims for nuclear damage may still not arise out of an ENO.<sup>756</sup> When an incident is not identified as an ENO, the claims are still subject to state tort laws. During the legislating the rules of waivers for an ENO, the Joint Committee on Atomic Energy has considered state law. It was expressed that by then, there was no assurance that all State courts would impose a rule of strict liability in the event of a nuclear incident.<sup>757</sup> At that moment, there were some jurisdictions which purported to reject the doctrine of strict liability and a sizable number of others where the law relative to

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<sup>742</sup> 42 U.S.C. § 2014 (q) (w).

<sup>743</sup> Jose and Garza (2007), 16.

<sup>744</sup> However, this does not mean the compensation instruments established under Price-Anderson Act have no relevance to environmental damage at all. The following discussion shows that case law has successfully explained the coverage clause of the insurance policy broadly to contain cleanup costs.

<sup>745</sup> 42 U.S.C. § 2014 (hh).

<sup>746</sup> 42 U.S.C. § 2210 (n).

<sup>747</sup> 10 C.F.R. § 140.81 (b)

<sup>748</sup> 10 C.F.R. § 140.84-140.85.

<sup>749</sup> Tousley (1981).

<sup>750</sup> Metropolitan Edison Co., 11N.R.C.519 (1980).

<sup>751</sup> 65 FR 61283-01, 2000 WL 1577628 (F.R.)

<sup>752</sup> NRC (1983), Report to Congress, The Price-Anderson Act - The Third Decade, E1-E5.

<sup>753</sup> 50FR 13978.

<sup>754</sup> Tousley (1981).

<sup>755</sup> 65 FR 61283-01, 2000 WL 1577628 (F.R.)

<sup>756</sup> Andrew Roman et al., Canada and International Nuclear Liability, <[http://www.millerthomson.com/assets/-files/article\\_attachments/Canada\\_and\\_International\\_Nuclear\\_Liability.PDF](http://www.millerthomson.com/assets/-files/article_attachments/Canada_and_International_Nuclear_Liability.PDF)>.

<sup>757</sup> Senate Report No. 89-1605, 89<sup>th</sup> Cong. 2<sup>nd</sup> sess.1966.

strict liability was unsettled.<sup>758</sup> The approach of minimal interfering with state law was kept in legislating on the waivers under an ENO. Thus many other issues are still subject to state tort law. Though the application of state tort law does not mean strict liability could not be used, there were at least, some cases where the negligence rule or fault-based approach is still followed.<sup>759</sup>

Another feature of liability rules for nuclear damage arising from ENOs is that other statutes of limitations are waived as long as a suit is instituted within three years from the date on which the claimant first knew or reasonably could have known of his injury or damage and the cause thereof.<sup>760</sup> The requirement of within twenty years of the nuclear accident was abolished by the 1988 Amendment Act.<sup>761</sup> As far as nuclear damage is concerned, the damage may not manifest itself decades after the accident. Thus the relaxation of the statute of limitations can provide better protection to victims.

### 3.6.2.1.3. No Channelling, but Limit

Unlike the situation under the international regime, there is no legal channeling of liability to nuclear operators. Instead, the Price-Anderson Act creates a system of economic channeling.<sup>762</sup> The victims can still claim from other parties besides operators. But the financial protection clause has shifted the burden of compensation mainly to operators. For damage caused by the qualified operators of nuclear power plants, the total available amount of compensation is \$ 12.2 billion since the most recent change.<sup>763</sup> This amount is far higher than the amount of financial protection needed from contractors and other licensees determined in the Price-Anderson Act.<sup>764</sup> Moreover, the Price-Anderson Act provides an “omnibus” coverage. It covers “anyone liable” for “public liability”. Thus victims may choose to claim from operators, the most identifiable and capable parties for their damages.

To encourage the development of the nuclear industry, the PAA exempts the licensees and contractors from unlimited liability. It adopts a limitation on aggregate public liability for a single nuclear incident. The amount of limitation is different among nuclear power plant owners with a capacity of 100,000 electrical kilowatts or more, contractors with the Department of Energy (DOE) and other licensees. This amount is closely linked to the amount of financial protection the PAA requires from those parties.<sup>765</sup> For a nuclear incident with damages in excess of the amount of aggregate public liability limitations, the Congress will “take whatever action is determined to be necessary (including approval of appropriate compensation plans and appropriation of funds) to provide full and prompt compensation to the public”<sup>766</sup>.

To prevent nuclear damage does not only require actors to take care during the operation of nuclear facilities, but also asks for cautious behavior during the decommissioning of nuclear facilities and disposal and monitoring of nuclear waste. The licensees of by-product material, production and utilization facilities as well as special nuclear material have the obligation to

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<sup>758</sup> Ibid.

<sup>759</sup> Though under those cases, the courts disagree on the extent to which state tort law should be used or whether the federal law can preempt state tort law, they require the establishment of fault or identification of the fault-based standard of care. E.g. *O'Connor v Commonwealth Edison Co.*, 13 F.3d 1090 (7 th Cir. 1994); re *TMI Gen. Pub. Utils. Corp.*, 67 F.3d 1103 (3d Cir. 1995); *Merilyn Cook et al v Rockwell International Corporation and the Dow Chemical Company*, 273 F. Supp. 2d 1175.

<sup>760</sup> 42 U.S.C. § 2210 (n).

<sup>761</sup> Pub.L. 100-408, §§ 10.

<sup>762</sup> *Vanden Borre* (2007), 300.

<sup>763</sup> 10 C.F.R. § 140.11.

<sup>764</sup> 10 C.F.R. § 140.11-12.

<sup>765</sup> 42 U.S.C. § 2210(e)(1).

<sup>766</sup> 42 U.S.C. § 2210(e)(2).

decommission their facilities for unrestricted use or for use under restricted conditions.<sup>767</sup> As far as nuclear fuel manufacturing facilities are concerned, since the federal government was responsible for the nuclear fuel production for several decades, the decontamination and decommissioning are done through the Uranium Enrichment Decontamination and Decommissioning Fund.<sup>768</sup> For the low-level radioactive waste, the States are responsible for the disposal.<sup>769</sup> The Federal Government is responsible for disposal of high-level radioactive waste and spent nuclear fuel underground in a deep geologic repository. A Nuclear Waste Fund is established to bear the costs of carrying out the disposal activities.<sup>770</sup>

### 3.6.2.2. *The requirement of financial protection*

Under the PAA, licensees and contractors are required to maintain certain levels of financial protection for the potential public liability. Besides those third party liabilities, the NRC regulation also requires power reactor licensees to provide financial assurance for their obligations, in the event of an accident, to stabilize and decontaminate the reactor and the reactor station site.<sup>771</sup> This section examines the financial requirements for third party damage and property damage respectively.

#### 3.6.2.2.1. Financial Requirement for Third Party Liability

Both nuclear reactor operators and contractors who conduct activities according to a contract with nuclear facilities may create risks of public liability. The PAA imposes different financial protection obligations to operators and contractors.

The PAA of 1957 required that the licensees of facilities having a rated capacity of 100,000 electrical kilowatts or more should provide financial protection up to the maximum amount available from private sources. The financial protection could be private insurance, private contractual indemnities, self-insurance, other proof of financial responsibility, or a combination of such measures.<sup>772</sup> The most popularly used protection is private insurance, which was provided by a stock company, the Nuclear Energy Liability Insurance Association (NELIA) and a mutual pool, Mutual Atomic Energy Reinsurance Pool (MAERP). Those pools combined to provide coverage for nuclear liability up to \$ 60 million.<sup>773</sup> Under the PAA of 1957, the government should agree to indemnify the licensees in case of an accident in excess of the required financial protection. The aggregated indemnity from each incident should not exceed \$ 500 million.<sup>774</sup> This is because in the 1950s, the nuclear industry was still in its infancy and government wanted to encourage the development of the nuclear industry by exonerating the operators from the burden brought by potential catastrophes.

An important step which shifted the burden from government to operators was made in 1975. By then, the Joint Committee on Atomic Energy argued that the nuclear industry should have been able to bear the financial burden after years of development.<sup>775</sup> Though the total amount of compensation was kept the same as that in 1957, a new tier of compensation, the retrospective premium, was introduced in place of the indemnity provided by the government.

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<sup>767</sup> 10 C.F.R. § 30.35, 50.75, 70.38.

<sup>768</sup> 42 U.S.C. § 2297.

<sup>769</sup> 42 U.S.C. § 2021c.

<sup>770</sup> 42 U.S.C. § 10222.

<sup>771</sup> 10 C.F.R. § 50.54(w)

<sup>772</sup> Act to Amend the Atomic Energy Act of 1954 (Price-Anderson), Pub. L. No. 85-256, 71 Stat. 576, 577 (1957).

<sup>773</sup> McClure (1968), 256.

<sup>774</sup> Act to Amend the Atomic Energy Act of 1954 (Price-Anderson), Pub. L. No. 85-256, 71 Stat. 576, 577 (1957).

<sup>775</sup> Report No. 94-648, House of Representatives (1975); Senate Report No. 454, 99<sup>th</sup> Congress, 1st Session (1975) 10.

All operators should pay the retrospective premiums in the case of an incident in excess of the primary liability coverage up to the amount of \$ 5 million.<sup>776</sup> The amount of primary financial protection and retrospective premiums has been increased over the years. Now the primary financial protection was set as \$ 375 million, and the retrospective premium for each operator from each incident should not exceed \$ 111.9 million since 2010.<sup>777</sup> Given the current number of operating reactors, the maximum compensation for a nuclear incident is up to \$ 12.2 billion.

Besides the power plant operators, the PAA and the NRC regulations also require other licensees and contractors with the DOE to provide financial protection. For example, the NRC requires the power plant operators at a lower thermal power level to provide a lower amount of financial protection from \$1 million to \$ 2.5 million according to their size. For the other licensees, the regulation provides a formula to calculate the necessary amount of protection, which would be in no event in excess of \$ 4.5 million or \$ 74 million. In addition, certain holders of construction permits and combined licenses, plutonium processing and fuel fabrication plants, and uranium enrichment facilities are also imposed an obligation to seek coverage of financial protection.<sup>778</sup> For an incident in excess of the required financial requirement, the licensees or other relevant persons can be indemnified by the NRC through the indemnification agreement with an amount up to \$ 500 million.<sup>779</sup> As far as the contractors are concerned, the Secretary of Energy shall enter into an indemnification agreement with them. Under this agreement, the Secretary may require the contractor to provide and maintain financial protection. For the damage in excess of this amount, the Secretary shall provide indemnification up to \$ 10 billion.<sup>780</sup> As a price of the indemnification agreement, the NRC or the Secretary can collect a fee from the licensees or contractors. The fee is set as \$ 30 per year per thousand kilowatts of thermal energy capacity, subject to deduction by the NRC or the Secretary.<sup>781</sup>

For nuclear damage in excess of the aggregated liability discussed above, the Congress shall take “what ever action is determined to be necessary” to provide full and prompt compensation.<sup>782</sup> The Secretary or the Commission shall make a survey of the causes and extent of damage, and submit a report to the Congress. The President shall submit an estimate of the aggregate dollar value of personal injuries and property damage, recommendations for additional sources of funds and compensation plans. The additional sources of funds include “possible revenue measures on the sector of the economy, or on any other class, to which such revenue measures might be applied”.<sup>783</sup>

#### 3.6.2.2.2. Financial Requirement for Property Damage

In addition to damage to third parties, nuclear incidents can also create serious onsite damages. The Three Mile Island accident shows that the onsite damage to the nuclear power plant can be more important than the third party liability. The NRC thus requires the operator to maintain a minimum coverage for onsite property damage and gives a priority to decontamination.<sup>784</sup> The operators are asked to seek a “coverage limit for each reactor station site of either \$1.06 billion or whatever amount of insurance is generally available from private sources”. If the estimated costs of stabilization and decontamination exceed \$ 100 million, the

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<sup>776</sup> Pub. L. No. 94 -197, 1975 HR 8631, 89 Stat 1111.

<sup>777</sup> 10 C.F.R. § 140.11 (4); 75 FR 16646, Apr. 2, 2010.

<sup>778</sup> 10 C.F.R. § 140.12-140.13b.

<sup>779</sup> 42 U.S.C. § 2210 (c).

<sup>780</sup> 42 U.S.C. § 2210 (d).

<sup>781</sup> 42 U.S.C. § 2210 (f).

<sup>782</sup> 42 U.S.C. § 2210 (e)(2).

<sup>783</sup> 42 U.S.C. § 2210 (i).

<sup>784</sup> Changes in Property Insurance Requirements of NRC Licensed Nuclear Power Plans, 49 Fed. Reg. 44645, 44649-50(Nov.8 1984).

proceeds must be payable first for stabilization of the reactor and next for decontamination of the reactor and the reactor station site.<sup>785</sup> Accordingly, this rule requires a first party insurance coverage for the property damage of the nuclear operators. The guarantee of funds for decontamination provides also protection to the potential victims and the environment.

### 3.6.2.3. *Compensation under the Convention on Supplementary Compensation*

In 2007, the Energy Independence and Security Act was passed.<sup>786</sup> It provides an instrument to implement the Convention on Supplementary Compensation for Nuclear Damage (CSC).<sup>787</sup> The U.S. deposited this instrument of ratification of the CSC at the Vienna headquarters of the International Atomic Energy Agency in 2008.

Under the Energy Independence and Security Act, the U.S. Treasury will pay into the fund provided for by the CSC. But the costs can then be reimbursed. For a non PAA incident, costs can be reimbursed from a retrospective premium scheme the suppliers have to set up: “each nuclear supplier shall participate in a retrospective risk pooling program...to cover the contingent cost resulting from a covered incident outside the United States that is not a Price-Anderson incident.”<sup>788</sup> The contribution made by each supplier into the retrospective risk pool will be fixed according to a risk informed assessment formula determined by the Secretary of Energy.<sup>789</sup> In other words, in determining the contribution of each nuclear supplier, the particular risk it contributes to will be taken into account.<sup>790</sup> For the PAA incident, funds already available under the PAA should be used.<sup>791</sup> In this case, in spite that the country has an obligation to make public funds available under the CSC, it does not mean that taxpayers have to pay for it. This burden is actually shifted to nuclear suppliers (non PAA incident) and operators (PAA incident). However, it is worth noting that the CSC has not come into force yet.

### 3.6.3. **Critical comparison**

We began by establishing the complicated legal history of the international nuclear compensation regimes (3.6.1) and compared this to the U.S. compensation regime (3.6.2) which, to some extent, has different features than the international regime. Early literature has already criticized the international regime from an economic perspective. The criticism was rather straightforward. The legal channelling of liability in the international conventions has the major disadvantage that many parties, other than the nuclear operator, who could equally influence the risk of a nuclear accident are not exposed to liability.<sup>792</sup> Also, the financial limit on the liability of the licensee of the nuclear plant remains too low, which, in combination with the large public funds made available in the international regime, leads to a substantial subsidization of nuclear energy, and thus to an insufficient cost internalization.<sup>793</sup>

Even though we have indicated that it is hard to make a final, positive judgment on the U.S. compensation regime given the fact that the real costs of a nuclear damage can still be higher

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<sup>785</sup> 10 C.F.R. § 50.54(w)(1),(4).

<sup>786</sup> Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 934.

<sup>787</sup> See on this CSC also *supra* 0.

<sup>788</sup> Id. 934(e).

<sup>789</sup> Energy Independence and Security Act of 2007, Pub. L. No. 110-140, § 934(e)(1), 121. Stat. 1492, 1744 (2007).

<sup>790</sup> Faure and Vanden Borre (2008), 273-274.

<sup>791</sup> Id. 934 (a)(J).

<sup>792</sup> See Trebilcock and Winter (1997).

<sup>793</sup> See, e.g., Faure and Fiore (2006).



than the compensation available, the U.S. regime seems in many respects to be more in line with the law and economics literature with respect to nuclear liability.

A first advantage of the U.S. regime is that it seems far more dynamic than the international regime. The Price-Anderson Act started in 1957 with a relatively low financial limit – \$60 million – on the liability of the operator, but a large amount of government intervention – \$500 million. But by 1975, the Price-Anderson Act already provided for a dynamic system whereby the relationship between private and public funding could change, taking into account *inter alia* developments in the insurance market. The fact the Price-Anderson Act organized insurers at the federal level and not at the state level as most U.S. insurance markets,<sup>794</sup> the U.S. nuclear insurance market could create substantially higher amounts of compensation. Today, the coverage of the nuclear risk in Europe still takes place via the nuclear insurance pools, which are organized at a national, member state level, and therefore, not surprisingly, have generated amounts of insurance coverage that are too low. The U.S. federal government has systematically removed itself from covering the nuclear risk such that by 1982 the \$560 million of required compensation was entirely financed by private funds.

It is striking that in the beginning, the international regime and the American nuclear compensation scheme were very similar, but today the differences between the two systems are quite spectacular. Today, in the U.S., the total amount of compensation available is \$12.2 billion, of which \$75 million is financed through the individual liability of the nuclear operator and the remainder through the collective responsibility of all operators financed through retrospective premiums. Today, the NEA regime requires a total amount of available compensation of 300 million SDRs (roughly €310.35 million; \$493.08 million). Once the Protocols to the Paris and Brussels Supplementary Conventions enter into force, the total amount of compensation available will be €1.5 billion (\$2.383 billion), of which €700 million (\$1.112 billion) will be financed by the nuclear operator and €800 million (\$1.271 billion) by public funds. Of course, the Contracting Parties have the freedom to charge the cost of their obligation to the nuclear operators and thus, indirectly contributing to more internalisation. But even if the Contracting Parties were to do so, thereby imposing a liability limit of €1.2 billion (\$1.907 billion), a part of the damage would still be paid by public funds. Unless all Contracting Parties opt for unlimited liability of the nuclear operator, no one will be liable for damage in excess of €1.5 billion (\$2.383 billion).

The conclusion, therefore, is rather straightforward. The economic goal of cost internalization can hardly be reached in the international regime for two main reasons. In the NEA regime, the individual liability of the nuclear operator seems at first blush high – €700 million (\$1.112 billion) compared to \$75 million in the U.S. Price-Anderson Act-but is only a small fraction of the potential costs of a nuclear accident, estimating the damage to be between \$10 billion and \$100 billion.<sup>795</sup> Second, the second layer of compensation in the international regime is entirely provided through public funds whereby no risk related financing takes place whatsoever. The second and third layer of public funds in the NEA regime and the second layer under CSC are a pure subsidy to the nuclear industry and contribute nothing to cost internalization. This criticism can be partially addressed if the Contracting Parties charge the operators for the costs of making public money available. However, these costs should be

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<sup>794</sup> 43 AM. JUR. 2D Insurance § 24 (2008) (“Insurance company regulation is matter which is traditionally left to states ...”).

<sup>795</sup> See United States General Accounting Office, Report To Congressional Committees, Nuclear Regulation: A Perspective On Liability Protection For Nuclear Accident 18 (1987), available at: <<http://archive.gao.gov/d28t5/133093.pdf>>; Dubin and Rothwell 1990, p. 73-79; Heyes and Liston-Heyes 1998, p. 122-124. This is also the case in the IAEA regime, where the revised liability amount is 300 million SDRs (\$493.083 million). See International Atomic Energy Agency, Status: Convention On Supplementary Compensation For Nuclear Damage 1 (May 21, 2008), available at: <[http://www.iaea.org/Publications/Documents/Conventions/supcomp\\_status.pdf](http://www.iaea.org/Publications/Documents/Conventions/supcomp_status.pdf)>.

market reflective and should take into account risk differentiation, as discussed. It is far from certain that any governmental institution is well equipped enough to assume this difficult task, let alone in a more efficient manner than an insurance company or mutual insurance scheme.

On the other hand, in the U.S. the second layer is not only considerably higher than in the international regime (\$12.2 billion compared to €800 million, \$1.271 billion, in the NEA regime), but it is also financed through the collectivity of the nuclear operators and hence contributes to a cost internalization. The situation is, moreover, only worse if one compares the Price-Anderson Act with the regime under the Vienna Convention where the amounts are even dramatically lower than in the NEA regime. An important feature of the U.S. regime is that, indeed, a system has been developed whereby the second layer of compensation does not merely consist of public funding, but is the collective responsibility of industry. The task of the government in this respect is limited to pre-financing the compensation to the victim and collecting the retrospective premiums from the operators. Moreover, in order to limit the risk exposure of the operators, the annual retrospective premiums are determined by law. However, in the end, it is the nuclear operators that contribute to finance the second layer of \$12.2 billion through these retrospective premiums.

The retrospective nature of the premium does create a potentially important insolvency risk. This can, to some extent, be mitigated through other controls on the solvency of operators and via the mutual monitoring inherent in financing the second layer through an industry run mutual, or, as ANI does, by asking guarantees of affiliated companies. A potential danger of relying on retrospective premiums is indeed the insolvency risk. The advantage is, however, that no *ex ante* assessment of probabilities is necessary and no capital needs to be immobilized *ex ante*.<sup>796</sup> A similar system has been worked out for financing the U.S. contribution to the CSC through risk dependant retrospective premiums to be paid by nuclear suppliers.

The last important difference between the U.S. and the international regime is that the U.S. regime has no legal channelling of liability to operators. The U.S. implementation of the CSC furthers this trend by explicitly involving nuclear suppliers in the financing of nuclear risk, as far as nuclear accidents outside the U.S. are concerned.<sup>797</sup> The international regime, on the contrary, inefficiently excludes liability of all others than the licensee who could have contributed to the risk.

The lesson seems, therefore, to be rather clear: the U.S. Price-Anderson Act and its recent amendments seem to have understood and incorporated the lessons from economic analysis. The various parties who contribute to nuclear risk are exposed to substantial amounts of liability which may provide incentives for prevention and cost internalization. Economic literature had already often suggested that the international regime should be changed to expose more fully those creating the nuclear risk to the costs of their activity. Within a regime where insurance is only provided through nationally operating insurance pools within member states, forcing nuclear suppliers to internalize costs remains difficult. The U.S. model demonstrates that if a compensation regime were to be organized as a collective responsibility of the nuclear industry, thereby excluding public funding, much higher amounts of compensation can be provided to victims, and a better internalization of the nuclear risk can be promoted.<sup>798</sup> This, however, presupposes cooperation between nuclear operators which currently fall under the international regime, and also assumes there are possibilities of a mutual monitoring which is essential in a system of collective responsibility, such as under

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<sup>796</sup> See Pelzer (2007), 48. A system of pooling with retrospective premiums can therefore also be more advantageous than the payment of insurance premiums which is basically considered "lost money".

<sup>797</sup> See Vanden Borre (2007), 27.

<sup>798</sup> Pelzer (1994) concluded that the Price-Anderson compensation system "perfectly complements the capacity of private insurance industry in a most cost-effective way" (43).

the Price-Anderson Act. Perhaps socio-economic or institutional impediments have thus far prevented the creation of a similar risk sharing agreement among nuclear operators in Europe. Pelzer noted that during the negotiations to revise the Vienna Convention, experts discussed the international pooling of operators' funds, but such suggestions did not find support and eventually failed. Pelzer argued that using private operators' money in one country to meet the obligations of operators in other countries was unfeasible because "[t]here is no universal risk community of operators."

### 3.7. Concluding observations

At different places the main conclusions resulting from the separate sections in this sector have already been provided. Hence, the overall concluding observations from this chapter can be relatively short, referring to the earlier conclusions and can be presented in the following bullet points:

- There is no international legal framework dealing with liability for offshore related incidents; the IMO will not take action in this respect.
- There are various regional arrangements related to offshore safety. Most of those contain general principles and do usually not contain provisions with respect to liability or compensation.<sup>799</sup>
- At EU level, the recent Directive 2013/30/EU on Safety of Offshore Oil and Gas Operations was adopted in June 2013. This Directive clearly states that Member States must ensure that the licensing authorities only grant a licence when there is sufficient evidence of financial security for the liability potentially deriving from the offshore oil and gas operations.<sup>800</sup>
- The specific countries that were examined usually do not have specific legislation aiming at damage resulting from offshore activities. If it is the case usually a strict liability rule applies. Many legal systems do have a requirement that financial security is proven as a precondition for granting a licence.
- The regime concerning liability for nuclear accidents in international conventions may not constitute an example for a potential future liability regime for offshore related accidents in the EU. The financial cap on liability, legal channeling of liability to the nuclear operator (thus excluding liability of others) and the compensation via public funds lead to insufficient cost internalization.
- Many of those negative features of the international regime are absent in the US Price-Anderson Act. Although there is a liability limit the amounts are substantially higher and the second layer will not be paid through public funds but it is a collective responsibility of industry, financed via retrospective premiums charged to the nuclear industry. The US Price-Anderson Act hence shows how high amounts of compensation can be generated without ex ante immobilization of capital and without public funding.<sup>801</sup>

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<sup>799</sup> See the summary *supra* in 3.3.6.

<sup>800</sup> See *supra* 3.4.2.6.

<sup>801</sup> See 3.6.3. The financing of the second layer in the US Price-Anderson Act via a retrospective pooling scheme will be discussed in the next chapter in section 4.7.1.



## 4. Pooling mechanisms for offshore liability

This chapter will focus on risk pooling mechanisms for damage compensation following an offshore accident. Various approaches will be taken to pooling. First the theoretical basis for pooling will be sketched as well as the difference with insurance (4.1). Next attention will be paid to the Offshore Pollution Liability Agreement (known as OPOL) which came into effect on 1 May 1975 and which is specifically focused on offshore pollution (4.2). Then attention will be paid to two pooling mechanisms for offshore related damage, OIL and OCIL (4.3). In addition, attention will also be paid to the Civil Liability Convention for vessel-source pollution as well as the related Fund Convention. A discussion of those mechanisms is important since it could be debated to what extent this should formally be considered as a pooling mechanism, since the fund convention has strong elements resembling pooling (4.4). Then, attention will be paid to the US Oil Pollution Act and to the Trust Fund created by the Oil Pollution Act in the US (4.5). Compensation for vessel-based pollution is largely realized via the Protection and Indemnity Clubs, which are equally based on risk-pooling and therefore deserve a discussion (4.6). Next, attention will be paid to risk pooling schemes in other high risk sectors. In that respect the focus will be especially on risk pooling in the nuclear sector (4.7). The failure of large pooling mechanisms in the nuclear sector also provide also important lessons for the offshore industry. Afterwards an evaluation of the various pooling mechanisms that have been discussed will follow (4.8) as well as a discussion of mechanisms for rapid payment of reasonable compensation to affected businesses (4.9). A few concluding observations finish the chapter (4.10).

In this chapter existing pooling mechanisms for offshore liability will be discussed. In addition attention will be paid to pooling mechanisms in other high risk sectors and in the related sector of marine pollution (where the P&I Clubs play an important role). However, this chapter does not yet address to what extent these pooling mechanisms are effectively used to cover the liability following a major offshore accident. The coverage of liability in practice will be dealt with in Chapter 5. Overlap will, however, to the extent possible be avoided by sketching how the various pooling mechanisms work in this chapter; the next chapter (5) will address to what extent the particular mechanisms are used in practice. In that respect the results of interviews with stakeholders will also be taken into account.

From the outset it is probably good to state that a large amount of insurance and reinsurance pools do exist. Recently a study has been commissioned by the European Commission concerning co(re)insurance pool. The study identified 51 pools, many of which focus on catastrophic risk (nuclear, environmental, terrorism).<sup>802</sup>

### 4.1. Theory: pooling versus insurance

A risk sharing agreement or a pool is a system whereby operators mutually agree to share each other's losses. It resembles insurance, but there are, as will be explained in more detail, a few fundamental differences. The basic difference is that insurance involves a third party (the insurance company) whereas in a risk sharing scheme the operators are both insured and insurer; there is hence no involvement of a third party.

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<sup>802</sup> See Ernst & Young, Study on co(re)insurance pools and on ad-hoc co(re)insurance agreements on the subscription market, EC Commission, Luxembourg, February 2013. See: <[http://ec.europa.eu/competition/sectors/financial\\_services/insurance.html](http://ec.europa.eu/competition/sectors/financial_services/insurance.html)>.

Nuclear pools<sup>803</sup> and pools under Protection and Indemnity Clubs (hereinafter as P&I Clubs)<sup>804</sup> are examples of pools or risk sharing agreements. It are the potential injurers themselves that finance this risk pool: they can either make an advance payment or constitute an *ex ante* risk-sharing agreement (it can be referred to as risk sharing, risk sharing institutions<sup>805</sup> or mutuals<sup>806</sup> in the literature). A significant feature of this mechanism is that the members of this pool are both insurers and insured. Commercial insurance can play an important social function to remedy the risk aversion of the injurer without increasing the size of the expected losses.<sup>807</sup> Both the insurers and insured can influence the likelihood of environmental accidents and of their losses. But interests of insurers and insured are not fully congruent.<sup>808</sup> Rather than minimizing the risk, the insured tend to externalize their costs and get lower premiums; the insurer, a profit-maximizing firm itself, may limit and deny coverage and may, depending upon the market situation, overcharge premiums. In a risk-sharing agreement, potential injurers are both the providers and recipients of insurance. Thus the conflicts of interest between insurers and insured are avoided in a risk-sharing agreement.

In a risk-sharing agreement, mutuality is created, whereby the contribution paid by one member depends on the claims made by all other members.<sup>809</sup> It is in the interests of all other members' claims to be as low as possible and thus a mutual interest of risk minimization is created.<sup>810</sup> To reduce risks, the members of such a group have incentives to differentiate risks to align a member's contribution to the risk each member poses and to monitor each other. Mutuality is established usually when the members are subject to similar safety rules, exposed to a comparable level of liability and is usually formed in highly technical industries. The members are faced with the same type of risk and have often more expertise and precise knowledge compared to a third party insurer.<sup>811</sup> Therefore they can evaluate the risk each member creates and can better monitor each other's behaviour.

Unlike in the case of commercial insurance, where *ex ante* information about the probability of a certain risk and its magnitude should be available to allow the calculation of an *ex ante* charged premium, in a risk-sharing agreement policy, each member's contribution can be agreed upon on beforehand and only actually paid *ex post*. This characteristic makes it possible for a risk-sharing agreement to deal with uncertain risk, for which the statistical data about the occurrence are rare or the probability and size is less predictable. As long as a risk differentiation can be made among the members, a risk-sharing agreement can be feasible, since an *ex ante* charging of premiums is no longer necessary. Only the relative contribution of each member to the risk has to be known.

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<sup>803</sup> In the nuclear industry, insurance is often supplied by a monopolist in a jurisdiction, which leads to high premiums and limited coverage. Thus an effort has been made by nuclear operators to establish risk pools to cover their third party liability or their own property damage (onsite damage). The retrospective premium system under Price-Anderson Act and the pool established by NEIL are some examples. The Price-Anderson Act is originally enacted by Congress in 1957 to amend the Atomic Energy Act of 1954. Public Law 85-256. A retrospective premium system was introduced in its 1975 amendment. Public Law 94-197. NEIL is a nuclear insurer called Nuclear Electric Insurance Limited, which insures nuclear plants and their generating units for some first party damage.

<sup>804</sup> A P&I Club is a non-profit making mutual insurance association, which is established by shipowners and charterers to cover their third party liabilities related to the use of operation of ships. Now thirteen separate and independent principle clubs cooperate together to comprise the International Group of P&I Clubs (hereinafter the Group), accounting for approximately 90% of the world's ocean-going tonnage. See the website of the Group: <<http://www.igpandi.org/Home>>.

<sup>805</sup> Faure and Skogh discussed a risk-sharing agreement as an alternative compensation mechanism for environmental damage and nuclear damage. See Faure (2004); Faure and Skogh (1992); Skogh (1999); Skogh (2008).

<sup>806</sup> See Bocken (2009).

<sup>807</sup> Van den Bergh and Faure (2002), 279.

<sup>808</sup> Boyer and Porrini (2008).

<sup>809</sup> Bennet (2001), 15.

<sup>810</sup> Ibid.

<sup>811</sup> Faure and Fiore (2008), 302.

Another difference between a risk-sharing agreement and insurance concerns the costs. In an insurance policy, the risk is shifted to the insurer at the price of a premium. The premium is not recoverable by the insured no matter whether the insured risk materialized or not. In a risk-sharing agreement, a member only contributes if an accident happens; the duty to contribute can either be postponed or the contribution can be carried over for the following year if there is no accident. A member can also recover his contribution by stopping creating the risk and leaving the pool.<sup>812</sup>

Summarizing, a risk sharing agreement has a few important theoretical advantages (and differences) compared to insurance:

- it creates strong incentives for mutual monitoring since the members are dependent on each other; i.e. a bad risk can create the likelihood that the pool will have to intervene;
- for highly technical and complicated (often new) risks operators themselves may have better information (compared to insurers) on optimal preventive technologies which they can reflect in a differentiation of the contribution to the pool (or excluding membership for bad risks);
- a risk sharing agreement does not require actuarial information *ex ante* on the probability of an accident and the scope of the damage for the simple reason that no *ex ante* premium has to be fixed. Only information is needed on the relative contribution of each member to the risk, but this does not necessarily have to be translated into a premium. *Ex ante* costs to administer a risk pool can hence be lower, especially in cases where actuarial information (for example because the risk is new and statistical information is lacking) may not be available;
- since *ex ante* premiums do not have to be paid, risk sharing creates less liquidity problems. It can be based on an agreement of the members to share in case the risk emerges;
- differently than with insurance when the risk would not emerge there are no premiums paid to an insurance company that are (at least in the view of the operator) “lost”. If the risk for which the risk sharing agreement is concluded does not emerge the members of the risk pooling scheme simply do not have to contribute;
- this also points at the relative flexibility of a risk pooling mechanism: when during a particular period many accidents happened the risk pool can *ex post* ask additional contributions from the member on an ad hoc basis;
- however, such a risk pooling mechanism may have all these advantages if the number of members in the pool is relatively restricted; the comparative benefit (compared to insurance) mostly applies to highly technical (new) risks. When, however, the members of the pool would be very large (e.g. all car drivers in a particular area) the administrative costs of running the pool would become huge and the comparative benefits vis-à-vis insurance would disappear.

We will now turn to a mechanism that does play an important role concerning offshore pollution liability, being OPOL, although, as we will explain, this is not a risk-sharing agreement in the sense as we have described it here.

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<sup>812</sup> Ibid.

## 4.2. OPOL<sup>813</sup>

### 4.2.1. Origins of OPOL

The Offshore Pollution Liability Association Limited (the Association) is an oil industry body which has been set up as a company limited by guarantee which administers a voluntary strict liability compensation scheme which is referred to as OPOL. It originated in the UK and came into effect on the first of May 1975 as an agreement between all UK offshore operators.

The original founders of OPOL were:

Amoco (UK) Exploration Company;  
Burmach Oil (North Sea) Limited;  
BP Petroleum Development Limited;  
Total Oil Marine Limited;  
Conoco North Sea Incorporated;  
Esso Exploration and Production UK Inc.;  
Gulf Oil Production Company;  
Hamilton Brothers Oil Company (GB) Limited;  
Mobil North Sea Limited;  
Shell UK Limited;  
Phillips Petroleum Company;  
Signal Oil and Gas Company Limited;  
Siebens Oil and Gas (UK) Limited;  
Texaco North Sea UK Company;  
North Sea Sun Oil Company Limited;  
Cluff Oil Limited.

In the UK, membership of OPOL is a condition for the granting of a licence by government. The reason for creating OPOL was that at the time operators anticipated that there may be a convention or a regulatory duty. In the end the convention never came, but OPOL lasted.<sup>814</sup> OPOL currently has 128 members.

Meanwhile, OPOL has been extended to cover offshore facilities within the jurisdiction of any state that is specified in the agreement. The states currently covered include the coastal states of the European Community, Norway, the Isle of Man and the Faroe Islands (a total of ten). It is de facto, however, only mandatory in the UK, Greenland and the Faroe Islands.<sup>815</sup> OPOL membership outside of the UK has declined. The reason is that for operators in countries where there is no regulatory duty to be a member of OPOL (like in the UK) there may not be an incentive to be a member. OPOL is therefore rarely used for example in France, Germany or Denmark.<sup>816</sup>

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<sup>813</sup> The discussion on OPOL here provides a different perspective than that in section 3.5.2.2.2 in the sense that the previous section discusses OPOL as a mechanism of providing civil liability and compensation for damage caused by offshore incidents in the UK, whereas in this section, the focus is on the role of OPOL as an existing pooling mechanism for offshore liability.

<sup>814</sup> Interview with representatives of OPOL on 27 March 2013 in Brussels.

<sup>815</sup> Ibidem.

<sup>816</sup> Ibidem.



#### 4.2.2. Main features

OPOL provides a mechanism for the settlement of claims expeditiously and without disputes.<sup>817</sup> It establishes a duty to compensate pollution damage based on a strict liability rule.

A second feature is that OPOL guarantees that funds are available to meet claims since members of OPOL need to provide proof of financial responsibility.

The overall limit on compensation is \$ 250 million per incident. In case of insolvency of one of the members or if a member for other reasons fails to meet its obligations, all remaining members to OPOL agree to contribute, in proportion to the number of relevant offshore facilities operated by it on the date of the incident in question, towards payment of claims due from a party that fails to meet its obligations.

In principle, OPOL is hence based on a strict liability of the operator, member of OPOL, for pollution damage and on a maintenance of financial responsibility. OPOL itself is not a compensation fund but only guarantees payment in case the member of OPOL would fail to meet its obligations.

#### 4.2.3. Rules – membership

OPOL is structured in such a way that operators of offshore facilities can become member of OPOL. In the most recent version of the Offshore Pollution Liability Agreement (OPOL) of 4 July 2012, an operator is defined as:

“A person which by agreement with other persons has been authorized to manage, conduct, and control the operation of an offshore facility, subject to the terms and conditions of said agreement, or which manages, conducts and controls the operation of an offshore facility in which only it has an interest”.<sup>818</sup>

The OPOL Agreement is a contract between the parties to the Agreement. The rights and obligations of the parties in relation to the OPOL guarantee are specifically laid down in the founding documents applicable to the Offshore Pollution Liability Association Ltd., namely the Memorandum of Association and the Articles of Association and in the Agreement. Hence, an operator is both a member of OPOL, the Company as well as a party to the OPOL Agreement.<sup>819</sup> The key of OPOL is that it obliges its members on the basis of agreement to pay compensation for remedial measures and pollution costs on a strict liability basis.<sup>820</sup>

Clause IIB of OPOL makes clear that any person which is or intends to be the operator of an offshore facility may become a party upon acceptance by the association of an application from said person in form prescribed by the association. De facto this means that the operator who wishes to join OPOL has to file form A from the website of OPOL, being the application to become a party to OPOL and a member of the Offshore Pollution Liability Association Limited. By applying for membership, the member agrees to abide by its memorandum and articles of association and its rules.

Indeed, in addition to the Offshore Pollution Liability Agreement (OPOL), an Offshore Pollution Liability Association has also been created which has as main goal to administer

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<sup>817</sup> Preamble of Offshore Pollution Liability Agreement (OPOL), as amended 4 July 2012.

<sup>818</sup> Clause I.10 of OPOL, as amended 4 July 2012.

<sup>819</sup> Interview with representatives of OPOL on 27 March 2013 in Brussels.

<sup>820</sup> Ibidem.

OPOL. Operators hence become members both of OPOL as well as of the Association. Clause III.2 makes clear that the association administers any sums which the association receives from the parties in the event that the party fails to satisfy its obligations to claimants.

#### 4.2.4. Financial responsibility

A key element of OPOL is that every party to OPOL agrees under clause IIC1 to establish and maintain its financial responsibility to fulfil its obligations under clause IV of OPOL with respect to offshore facilities of which it is the operator in accordance with criteria prescribed by the rules.

According to clause IV if discharge of oil occurs from one or more offshore facilities the party who was the operator of that offshore facility shall reimburse the costs of remedial measures and pay compensation for pollution damage up to an overall maximum of US\$ 250 million. Of this 250 million, \$ 125 million per incident shall be reimbursed for the costs of remedial measures incurred by the public authority; another sum of US\$ 125 million per incident shall be available to pay compensation for pollution damage to claimants.<sup>821</sup>

To cover these obligations the operator has to comply with the rules for establishment of financial responsibility.<sup>822</sup> *De facto*, the operator may use different ways of proving financial responsibility:

1. Insurance, by having an insurance company, agent or broker, which is acceptable to the association, complete a form referred to as FR1 or FR2 which provides evidence of insurance;
2. A surety bond on form FR3 issued by a surety company acceptable to the association;
3. A guarantee on form FR4 issued by a guarantor acceptable to the association;
4. A qualification as a self-insurer, by providing a financial statement meeting certain specified criteria. The consolidated financial statement of a parent company may be utilized, in which even an acknowledgement of commitment is required on form FR5.<sup>823</sup>

The idea of OPOL is hence that it requires from each operator which is a party to OPOL that it provides satisfactory evidence of its ability to meet any liability under OPOL. Whether this is satisfactory will be verified by the association. OPOL itself makes clear in its information for prospective members that evidence of financial responsibility is necessary as a protection to the party and claimants to ensure that the party has made adequate provision to meet the obligations assumed under OPOL. In addition, it protects the other parties since they have also agreed jointly to contribute to the payment of claims due from an operator that fails to meet its obligations. This makes clear that operators have a strong incentive to control and monitor the financial guarantees provided by other operators since they could otherwise be liable in case an operator, member of OPOL, would fail to meet its obligations.

#### 4.2.5. Claims handling

As was mentioned above, OPOL basically covers pollution damage. This is defined in OPOL as “direct loss or damage (other than loss of or damage to any offshore facility involved) by contamination which results from a discharge of oil”. In addition, coverage is also provided

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<sup>821</sup> Clause IV.A of OPOL, as amended 4 July 2012.

<sup>822</sup> Form B of OPOL.

<sup>823</sup> All these forms are available at the website of OPOL, <<http://www.opol.org.uk/forms.htm>>.

for remedial measures executed by public authorities. Remedial measures are defined in OPOL<sup>824</sup> as

“[r]easonable measures taken by any party from any of whose offshore facilities a discharge of oil occurs, and of which such party is the operator, and by any public authority to prevent, mitigate or eliminate pollution damage following such discharge of oil or to remove or neutralize the oil involved in such discharge, excluding however, well control measures and measures taken to protect, repair or replace any such offshore facility.”

Claimants, either public authorities or individual victims, should file a claim with the operator. Clause V of OPOL makes clear that the claimant shall “furnish the party against whom a claim has been filed with such information, documents and testimony as are reasonably required by said party in connection with the investigation of the claim and permit the making of such visual or other inspections or surveys as the party may request”.

Clause VI of OPOL makes clear that the claim has to be filed within one year from the date of the incident which resulted in the pollution damage or the taking of the remedial measures in question.

According to clause VII any payment to a claimant by or on behalf of a party shall be in full settlement of all said claimants claims against that party and against any other persons associated with that party in connection with the offshore facility or facilities involved with respect to the pollution damage or the costs of remedial measures.

The claim is hence made directly against the operator. Clause VIII. C clearly states that the association shall have no liability to any claimant other than its obligation to administer claims in the event that a party fails to satisfy its obligations to claimants.

In that case, each party is obliged to make a payment to the association of the parties' share. The share to be borne by each party is in proportion to the number of units operated by that party to the total number of units of all parties, except that of the defaulting party, at the time of the incident. The brochure of OPOL for prospective members holds: “Thus the amount involved is likely to be only a small proportion of the total sum involved in any claim”.<sup>825</sup>

In addition, parties have an obligation to pay administration costs for the functioning of the association.

#### **4.2.6. Enforcement**

Once a claim has been filed with an operator, only the operator remains responsible for the acceptance and payment of such claims. Payment to a claimant is required to be in full and final settlement of the claim against the operator. However, since OPOL is merely a private agreement between operators OPOL can of course not exclude the possibility that a claimant would not use OPOL but rather file a law suit in ordinary courts.

However, in the event of a dispute between the claimant and the operator as to the application or interpretation of the agreement, either the claimant or the operator can submit the matter to arbitration in London.<sup>826</sup> According to the OPOL agreement, arbitration shall be the exclusive means of disposing of disputes. Arbitrators are bound by the provisions of OPOL and do not

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<sup>824</sup> See Clause I. 15.

<sup>825</sup> Available at the website of OPOL, <<http://www.opol.org.uk/downloads/opol-memberinfo-jan13.pdf>>.

<sup>826</sup> Clause IX of OPOL.

have the power or authority to vary or increase the provisions of the contract or any rights or obligations there under. This hence means that arbitrators could e.g. not increase the amounts provided for in OPOL.

In principle, claimants can hence direct themselves to the operator who will in principle, given the strict liability formula in OPOL, compensate. In case of dispute, however, arbitration in London is the only remedy for the claimant. English law will apply according to clause XII. Clause XIII moreover holds that no person has any right under the Contracts Act 1999 to enforce any term of this contract but this clause shall not affect any third party rights which might exist apart from that Act.

This clause seems to imply that e.g. victims suffering pollution damage could not execute a direct right of action different than as provided in OPOL before ordinary courts and still call on OPOL. This clause probably has as goal to exclude victims as third party beneficiaries.

#### **4.2.7. Practice**

OPOL publishes yearly reports on its website. The most recent report is for the year that ended 31 December 2011. These annual reports, which are relatively brief, merely provide financial statements which largely relate to the administrative costs of operating the association.

Importantly, the reports systematically mention “no incident requiring the operation of clause III.2 of the agreement occurred during the year”.<sup>827</sup>

This means that until now never a default of the operator took place as a result of which the guarantee clause in the OPOL agreement would come into effect.

De facto in OPOL no member currently relies on self-insurance.<sup>828</sup> Of approximately 80 companies in the UK who have provided OPOL with details of financial responsibility currently in place four companies use a company guarantee and hence rely on credit rating of the guarantor. All but four members of OPOL show financial responsibility for operations in the UK via insurance.<sup>829</sup>

#### **4.2.8. Evaluation**

OPOL undoubtedly has, just on the basis of a preliminary analysis, based on a review of the available documents, undoubtedly many strengths:

1. It provides, as OPOL mentions itself, a strict liability obligation of operators to compensate pollution damage. Clause IV (A) makes clear that in case of discharge of oil from an offshore facility the operator “shall reimburse” the costs. Claimants hence do not need to provide proof of negligence or fault.
2. Since claims must be lodged against the operator who has caused the pollution, making the operator solely responsible for meeting these claims, a kind of channelling of liability to the operator has taken place. For the claimant, this may have the major advantage that no discussion takes place on attribution of liability.

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<sup>827</sup> E.g. The Offshore Pollution Liability Association Limited Report and Financial Statements for the Year Ended 31 December 2011, p. 2.

<sup>828</sup> Interview with representatives of OPOL on 27 March 2013 in Brussels.

<sup>829</sup> Ibidem.

3. The members of OPOL moreover agree to pay up to a total amount of US \$ 250 million, which seems substantial.
4. The fact that a strict liability for pollution damage is incorporated in OPOL does not exclude the claimants' right to still sue e.g. for other heads damage (like e.g. personal injury or other types of losses not covered under OPOL). OPOL of course cannot limit the victims' rights on compensation as awarded by law and does not do so.
5. Another strength of OPOL is undoubtedly also the financial guarantee, albeit that questions can of course be asked with respect to the strength of the various guarantees required by OPOL.
6. Finally, a strength of OPOL is the element of mutual risk sharing as far as the insolvency of one of the members would be. This is hence important since it guarantees that the obligations mentioned above under OPOL will be met via a proportional obligation to intervene in case of failure of one of the members.

Notwithstanding these strengths and advantages, at first blush also a few potential weaknesses could be mentioned:

1. The role of OPOL is in a sense relatively limited. OPOL is not, as it also stresses itself, a compensation fund. It merely is an agreement between operators to compensate losses and to provide financial security. Its role is therefore relatively limited.
2. The coverage is limited to pollution damage defined as direct loss or damage by contamination resulting from a discharge of oil. This would mean that e.g. property damage and clean-up operations would be compensated. It is, however, less clear whether other heads of damage like e.g. personal injury or economic losses would be covered as well.
3. The guarantee to provide coverage is merely based on a private agreement between operators. Only in the UK is the obligation to be a member of OPOL also a condition for obtaining a licence. However, for member states where this is not the case, the voluntary character of OPOL would hence entail that there is no guarantee that financial coverage is available.
4. Although the amount of compensation of 250 million US \$ seems quite substantial, recent cases like the Deepwater Horizon seem to indicate that in some cases even those limits could be broken.
5. The structure of OPOL is such that usual advantages of a pooling arrangement<sup>830</sup> like risk distribution and mutual monitoring will not be attained. OPOL is indeed not a risk sharing scheme. Risk sharing and risk distribution takes place via the financial security that the operator has opted for like e.g. insurance or other types of security. The guarantee provided by the other operators via clause III (2) is merely to intervene in the event that the party fails to satisfy its obligations. This means that OPOL does not provide incentives for mutual monitoring of preventive measures, but merely for monitoring of the solvency of the other members, which is obviously relatively limited.
6. Questions can also be asked about the importance of OPOL in practice. On the one hand, one could argue that its importance is relatively limited since the guarantee has never been applied in practice and in that sense claimants never had to call on OPOL. However, one could also hold that OPOL has worked well in the sense that apparently the financial guarantee to which OPOL members agree has apparently been able to satisfy all claims without a need to call on the guarantee provided via clause III (2).
7. The application of OPOL is limited to damage resulting from offshore facilities within the North Sea. Offshore facilities located in the Baltic and the Mediterranean Seas are hence explicitly excluded.<sup>831</sup> Hence, OPOL can only play a role for damage occurring

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<sup>830</sup> These advantages have been discussed above in 4.1.

<sup>831</sup> Interview with representatives of OPOL on 27 March 2013 in Brussels.

in the North Sea, whereas there are substantial offshore installations in other European waters as well.

8. OPOL relies on the information provided by the members to them about the level of financial responsibility which the operator has agreed with DECC. It is according to OPOL, up to DECC to verify the level of financial responsibility required of an operator in relation to each well “OPOL does not track financial viability but it is part of the job of DECC to check this”.<sup>832</sup> If for example the financial responsibility (in case of insolvency) of an operator would reduce, the regulator should recognise this, so OPOL holds.<sup>833</sup> OPOL waits for information in that respect, provided by operators. This will then be forwarded to the regulator.<sup>834</sup> This hence means that even as far as the (limited) pooling aspect is concerned (solvency guarantee) OPOL itself does not exercise any active control on the solvency, but relies on the regulator and operators.
9. A final potential limit of OPOL is that it does not at all intervene in case of an incident as long as there is no insolvency. Since there has never been a default of the operator OPOL has no experience and does not intervene in claims handling.<sup>835</sup>

### 4.3. OIL and OCIL

There exist in addition to the traditional insurance companies that provide coverage for offshore activities, also mutual insurance arrangements that pool the offshore risks. Two of the most known mutual insurers are Oil Insurance Ltd. (OIL) and Oil Casualty Insurance Ltd (OCIL).<sup>836</sup>

#### 4.3.1. OIL

OIL was formed in 1972 by 16 energy companies in response to two large industry accidents that occurred in the 1960s. One is the well blow out off the coast of Santa Barbara in Southern California in 1969, and the other is a refinery explosion in 1967 in Lake Charles in Louisiana.<sup>837</sup> At the beginning of its formation, the insurance industry showed little confidence in the organization. However, after more than 40 years operation, OIL’s membership has grown from the original 16 members in 1972 to 52 members in 2013.<sup>838</sup> Its members are widespread over all continents including Europe, America and Australia. Its globally insured assets have grown from \$48 billion in 1972 to over \$2 trillion in 2012.<sup>839</sup>

OIL’s membership had risen to 85 members in 2005. OIL is owned and operated for its shareholders, all of whom are engaged in energy operations.

OIL claims that it offers shareholders several principle advantages: “significant property capacity provided at a lower cost structure than the commercial market; broad coverage, including terrorism and pollution; greater contract certainty with standardized coverage provided through the shareholders’ agreement; a perpetual coverage term”.<sup>840</sup>

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<sup>832</sup> Ibidem.

<sup>833</sup> Ibidem.

<sup>834</sup> Ibidem.

<sup>835</sup> Ibidem.

<sup>836</sup> <[www.businessinsurance.com/article/20100912/NEWS/100919977](http://www.businessinsurance.com/article/20100912/NEWS/100919977)>, last accessed 6 February 2013.

<sup>837</sup> <[www.oil.bm/about-oil/at-a-glance](http://www.oil.bm/about-oil/at-a-glance)>, last accessed 17 February 2013.

<sup>838</sup> <[www.oil.bm/memberships/current-members](http://www.oil.bm/memberships/current-members)>, last accessed 17 February 2013.

<sup>839</sup> <[www.oil.bm/about-oil/at-a-glance](http://www.oil.bm/about-oil/at-a-glance)>, last accessed 17 February 2013.

<sup>840</sup> <<http://www.netlinkbermuda.com/Articles/OIL.html>>.

OIL is rated A-(stable) by Standard & Poor's and A2 by Moody's.<sup>841</sup> Membership is worldwide; the majority of members (23) come from the US,<sup>842</sup> 16 come from Europe<sup>843</sup> and 8 from Canada.<sup>844</sup>

OIL provides coverage for the following:

- physical damage: the OIL policy provides coverage “for physical damage to or loss of property owned by the assured and non-owned property insured under the policy (subject to the terms, conditions and exclusions of the policy). The basis of recovery is replacement cost value (RCV). But if the property is not repaired or replaced, the recovery is on an actual cash value (ACV) basis.” The capacity for this kind of coverage is \$300 million.<sup>845</sup>
- control of well: the control of well coverage is provided “under Insuring Agreement #2b of the OIL policy. It includes coverage for sue and labor expenses, removal of debris, and the costs and expenses associated with restoration and redrilling (subject to the terms, conditions and exclusions of the policy).” The limit of \$300 million is available for each of these coverages with no separate premium charge.<sup>846</sup>
- third party pollution liability: the coverage is provided for “legal liability (including punitive damages) or contractual liability of members for personal injury, loss of or damage to property arising from a seepage, pollution or contamination incident (subject to the terms, conditions and exclusions of the policy). Coverage is provided on a non-gradual basis subject to a 40 day discovery/120 day reporting requirement.” The block capacity is \$300 million.

According to the premium indication request form operators desiring coverage under oil need to fill in a detailed form, providing *inter alia* information on loss history, annual report, loss control measures, assets etc. They can also indicate a deductible, but the deductible is, as the form indicates “not less than \$ 10 million” whereas the maximum coverage is \$ 300 million.

A lengthy shareholders agreement (of 130 pages) provides the details of the structure of OIL explaining *inter alia* illegibility requirements, participation rights etc. This shareholders agreement also provides the condition for the insurance policy. The 2011 annual report of OIL *inter alia* states that 543,425,000 US\$ premiums were earned and that a net loss was made of 104,636,000 US\$. Total assets in 2011 were 5,746,005,000 US\$ and shareholders' equity was 3,033,147,000 US\$.

#### 4.3.2. OCIL

OCIL was founded in 1986 “as an insurance provider owned by companies in the energy industry to pool similar risks”.<sup>847</sup> The goal of such an institute was to “limit exposure to often volatile commercial insurance and reinsurance market”.<sup>848</sup> By the year 2011, OCIL has 96

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<sup>841</sup> <[www.oil.bm/about-oil/at-a-glance](http://www.oil.bm/about-oil/at-a-glance)>, last accessed 17 February 2013.

<sup>842</sup> Members include *inter alia* Chevron Corporation, ConocoPhillips Company, Marathon Oil Corporation and Murphy Oil Corporation as well as Noble Energy, Inc.

<sup>843</sup> Members include *inter alia* BASF SE, Electricité de France, Royal Vopak NV and Statoil ASA.

<sup>844</sup> See <<https://www.oil.bm/membership/current-members>>, last accessed 17 February 2013.

<sup>845</sup> <[www.oil.bm/products/all-risk-physical-damage](http://www.oil.bm/products/all-risk-physical-damage)>, last accessed 17 February 2013.

<sup>846</sup> <<https://www.oil.bm/products/control-of-well>>, last accessed 17 February 2013.

<sup>847</sup> OCIL Casualty Insurance Ltd. Annual Report 2011, p. 6.

<sup>848</sup> *Ibid.*

members, among which 72% is based in the US, and 14% in Europe.<sup>849</sup> The OCIL has expanded its business in 2006, which provides now also direct insurance and reinsurance.<sup>850</sup>

OCIL is an excess liability insurance company owned by the energy industry. It provides excess general liability insurance and is exclusively dedicated to servicing energy companies. It holds that OCIL was created in 1986 “at a time when the commercial markets had ceased to provide adequate insurance coverage for liability risks”.<sup>851</sup> OCIL was created by the members of OIL who recognized the need to create a special industry-owned vehicle, specializing in liability insurance.

It may be interesting to notice that some energy companies participate in both pooling mechanisms, e.g. Chevron Corporation, ConocoPhillips Company, Marathon Oil Corporation and Murphy Oil Corporation.

For OCIL it is not necessary to become a shareholder; energy companies could also simply become a policy holder without being a shareholder of OCIL.<sup>852</sup> OCIL is rated A- “excellent” by A.M. Best and BBB+ stable by Standard & Poors.

The essence of OCIL is that they provide insurance and reinsurance on an excess of loss basis.<sup>853</sup> The liability of a shareholder under OCIL is limited to paying the premiums due to OCIL from such shareholder under the terms of the policies issued by OCIL.<sup>854</sup>

From the annual report 2011 of OCIL it appears that OCIL insured in 2011 96 companies and that total assets are 1,082,263,000 US\$. Premiums written in 2011 were 82,105,000 US\$ and a net loss was realized of 29, 614,000 US\$.

OCIL is strongly linked to OIL. For example the Chief Executive Officer of OIL and OCIL are the same. Of the 82 million premiums written 53 million was derived from excess liability insurance whereas \$ 29 million came from the reinsurance business. Membership of OCIL is for 72% United States and 14% European.

#### **4.4. The Civil Liability Convention and Fund Convention**

As was already mentioned in the introduction (Chapter 1), for vessel-based pollution there already is a convention regulating civil liability for oil pollution damage since 1969 as well as an international fund since 1971. Moreover, voluntary agreements have also existed. Like in the nuclear sector (discussed above in section 3.6) the US again did not join the international conventions but installed its own Oil Pollution Act 1990 with a separate but interesting regime. Hence, these compensation mechanisms are definitely interesting to look at from the perspective of comparing them with the potential liability and compensation regime for offshore installations.

In this section we will first describe the Civil Liability Convention (CLC) (4.4.1). After that we will focus on the International Oil Pollution Compensation Fund (IOPC) (4.4.2.) and on the related voluntary mechanisms (4.4.3.). Next, we will turn to the US Oil Pollution Act (4.5.) and the existing fund in the US, which has to some extent some interesting different features from the international fund. A discussion of the compensation and liability regime for vessel-

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<sup>849</sup> OCIL Casualty Insurance Ltd. Annual Report 2011, p. 17. In addition, 9% members are in Canada, 2% in South America, 2% in Australia and 1% in Africa.

<sup>850</sup> <[www.ocil.bm/about.html](http://www.ocil.bm/about.html)>, last accessed 17 February 2013.

<sup>851</sup> <<http://www.netlinkbermuda.com/Articles/OIL.html>>, last accessed 26 February 2013.

<sup>852</sup> <<http://www.ocil.bm/about.html>>, last accessed 26 February 2013.

<sup>853</sup> <[http://www.ocil.bm/product\\_reinsurance.html](http://www.ocil.bm/product_reinsurance.html)>.

<sup>854</sup> Article 13 of the Shareholders Agreement of OCIL of March 2012.



based pollution is interesting, not only to show the differences with the regime for offshore related damage, but also to examine how the (financing of) the compensation funds compares to the pooling mechanisms, central to this chapter.

#### **4.4.1. The Civil Liability Convention**

##### *4.4.1.1. Historical background and evolution of the international regime*

The international regime concerning civil liability for vessel-source marine oil pollution damage was originally established through two international conventions, the International Convention on Civil Liability for Oil Pollution Damage 1969 (known as the Civil Liability Convention 1969 or CLC 1969) and the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1971 (Fund Convention 1971). These two conventions came as a reaction to the incident caused by tanker Torrey Canyon in 1967.

The CLC 1969 imposes strict liability on the tanker owner, and exclusively on the tanker owner (channelling of liability). Moreover, it requires compulsory financial guarantee and limits the liability of the shipowner up to a certain amount (financial cap). The Fund Convention 1971 has established an International Oil Pollution Compensation Fund (IOPC Fund, or the Fund) to provide a second tier of compensation.

The CLC 1969/Fund Convention 1971 regime came into effect in 1976. However, several serious oil spills that happened afterwards, for example, the Amoco Cadiz in 1978 and the Tanio in 1980, showed the inadequacy of this regime and triggered the revisions to the original conventions. Therefore, in 1992 two Protocols were adopted to revise the existing regime, mainly to expand the scope of application (geographically and also with respect to recoverable damages) and increase the amount of compensation.<sup>855</sup>

The CLC 1969/Fund Convention 1971 after revision through the 1992 Protocols are referred to as the CLC 1992/Fund Convention 1992. They came into force on 30 May 1996. However, again, the adequacy of the 1992 regime was questioned when more tankers caused serious oil spills, e.g. Nokhodka in 1997 (Japan) and Erika in 1999 (France). Therefore, the compensation limits under the 1992 regime was increased by around 50% through 2000 Resolutions. These increased amounts of compensation came into effect in November 2003.

But before the 2000 Resolutions became effective, another tanker Prestige caused a catastrophic spill off the coast of Galicia. The states around the coast areas, Spain, France and Portugal have all suffered heavy losses. The sufficiency of the international regime dealing with tanker oil spill was once again highlighted.

The EU, witnessing some catastrophic oil pollution incidents caused by tankers, have decided to take their own initiative instead of simply relying on the International Maritime Organization. A few months after the Erika incident, in March 2000, the European Commission launched some set of legislative proposals, the Erika I package.<sup>856</sup> In these documents, the Commission has developed three criteria to critically examine the existing

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<sup>855</sup> The first Protocols to revise the conventions were reached in 1984. Since the US did not ratify the 1984 Protocols, they could not come into force. Nevertheless, the changes in the 1984 Protocols were needed as illustrated by some major tanker oil spills, they are hence largely incorporated in the 1992 Protocols, which also eliminated the need of US participation.

<sup>856</sup> COM(2000) 142 final, Communication from the Commission to the European Parliament and to the council on the safety of the seaborne oil trading, 21 March 2000.

international liability and compensation regime.<sup>857</sup> Subsequently in December 2000, the European Commission published a second set of proposals in the Erika II package,<sup>858</sup> where it proposed to set up a European fund (the Fund for Compensation for Oil Pollution in European Waters, referred to as the COPE Fund), with a ceiling of EUR 1 billion<sup>859</sup> in order to provide compensation to the pollution victims in Europe. The Council preferred to refer the discussion to the competent international body, namely, the IMO, in order to obtain a similar agreement, but one which can be applied worldwide.<sup>860</sup> After the occurrence of Prestige spill in the European waters, the EU took even a firmer position on the need for an improved compensation system.<sup>861</sup>

Indeed, it is due to the activism of the EU that the IMO has adopted in May 2003 Protocol on the Establishment of a Supplementary Fund for Oil Pollution Damage (the 2003 Protocol or the Supplementary Fund Protocol). This 2003 Protocol introduced a Supplementary Fund of 750 million SDR (at the time of adoption, this corresponded to approximately EUR 920 million, which is close to the amount of COPE Fund proposed by the Commission). After the adoption of the Supplementary Fund Protocol, EU Member States reacted actively and cooperatively by ratifying the 2003 Protocol. It is again, thanks to the quick reaction of the EU, that the 2003 Protocol could enter into force on 3 March 2005.<sup>862</sup> As a result, the current international regime concerning civil liability and compensation for vessel-source oil pollution consists of CLC imposing strict liability on the shipowner, an IOPC Fund contributed by the oil cargo owners, and an additional Supplementary Fund contributed by the oil industry from the countries who ratify it.

It should be mentioned that after the revision in 1992, parties have to choose to be party only to one of the regimes, either the 1969/1971 regime, or the 1992 regime. A large amount of parties have chosen for the 1992 regime which provides a much higher amount and more extensive compensation. However, the co-existence of the 1971 Fund and 1992 Fund seemed problematic. The fact that the contribution from oil industry was divided between two funds to a large extent weakened the financial viability of the fund and hence lowered the chance of full compensation in case of a major oil spill. Therefore, it was decided in 2000 to terminate the 1971 Fund with effect as of 24 May 2002. But there are still two CLCs co-existing. As of 28 February 2013, 128 states are parties to the CLC 1992, whereas only 36 states remain members to the CLC 1969; 28 states are parties to the Supplementary Fund Protocol.<sup>863</sup>

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<sup>857</sup> COM(2000) 142 final, 21 March 2000, p. 34-37.

<sup>858</sup> COM(2000) 802 final, Communication from the Commission to the European Parliament and the council on a second set of community measures on maritime safety following the sinking of the oil tanker Erika, 6 December 2000.

<sup>859</sup> In comparison, the then existing international regime provides compensation up to approximately EUR 200 million at the time. See in this respect the amended proposal for a regulation of the European Parliament and of the Council on the establishment of a fund for the compensation of oil pollution damage in European waters and related measures, *OJ* C227 E/487 of 24 September 2002).

<sup>860</sup> The Council had some hesitations against the idea of a regional compensation fund and this idea was also strongly opposed by industry. In December 2000, the Transport Council reached conclusions on the need to achieve improvements to the existing international regime, including “a substantial increase in liability and compensation ceiling”. For further discussion, see Wang (2007), 207-209.

<sup>861</sup> See in this respect, the European Commission, Communication on Improving Safety at Sea in Response to the Prestige Accident 3 December 2002; also the Presidency Conclusions, European Council, Brussels, 20 and 21 March 2003, p. 26-27.

<sup>862</sup> Among the countries that first ratified the 2003 Protocol to make it effective, the majority are EU member states: Denmark, Norway, Finland, France, Germany, Ireland and Spain.

<sup>863</sup> Information available at the website of the IOPC Fund: <[http://www.iopcfunds.org/fileadmin/IOPC\\_Upload/Downloads/English/stateslist\\_e.pdf](http://www.iopcfunds.org/fileadmin/IOPC_Upload/Downloads/English/stateslist_e.pdf)>, last accessed 22 February 2013.

#### 4.4.1.2. *Principle of liability*

The CLC adopts strict liability on the shipowner. At the diplomatic conference leading to the adoption of CLC 1969, delegations spent a lot of time debating on to whom the liability should be directed (either the shipowner or the cargo owner) and whether it should be strict or negligence liability rule.<sup>864</sup> However, no agreement could be reached until the Belgian delegation made the proposal that another layer of compensation should be contributed by the oil industry. Envisaging the prospect of a compensation fund contributed by the oil industry, compromise was quickly reached to impose strict liability on the shipowner. It may be interesting to realize that the decision to impose strict liability on the shipowner came as a balance striking between various states with different interests (e.g. those with shipping interests vis-à-vis coastal interests). The strict liability on the shipowner can be decided only when the oil industry promised to contribute to the liability regime as well.<sup>865</sup>

The CLC 1969 adopt strict liability exclusively on the shipowner without further efforts whether such a channelling mechanism would be suitable.<sup>866</sup> This is probably due to the existence of the nuclear conventions that have introduced similar channelling mechanism.<sup>867</sup> The CLC 1969 makes clear that no other claims are eligible other than those under the convention. It shows explicitly that no claims are made against the servants or agents of the owner.<sup>868</sup>

The shipowner is defined as “the person or persons registered as the owner of the ship or, in the absence of registration, the person or persons owning the ship.”<sup>869</sup> Recourse against third party is allowed under the 1969 CLC.<sup>870</sup>

In the CLC 1992, liability is still imposed on shipowners and it remains strict liability. However, there are some changes with respect to the channelling provision. According to the 1992 CLC, not only servants or agents of the owner, but also some other parties, such as the pilot or any other person who is not a member of the crew and performs services for the ship, any charterer, any person performing salvage with the consent of the owner or on the instructions of a competent public authority; any person taking preventive measures, and their agents or servants are also exonerated from oil pollution liability. The broadened scope of the list that can be protected from the liability strengthens the effect of channelling.

#### 4.4.1.3. *Amount of compensation*

The liability established under the 1969 CLC is capped at 210 million francs or 2,000 francs for each ton of the ship’s tonnage. The amount is higher than that under the 1957 Convention on the Limitation of Shipowners’ Liability, but still far from covering the whole potential damage that can be caused by oil pollution. The shipowner’s right of limitation cannot be used if the incident occurred as a resulted of his actual fault or privity.<sup>871</sup>

The CLC 1992 has increased the limit of liability to 4.51 million SDRs or 89.77 million SDRs, depending on the size of the ships. As a compromise to the increase of the liability limit, the

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<sup>864</sup> Wang (2007), 212-219.

<sup>865</sup> For further discussion on the legal history, see (Wang 2011), 53-97.

<sup>866</sup> See the summary of the discussions at LEG/CONF/C.2/SR.5, LEG/CONF/C.2/SR.12, Official Records of the International Legal Conference on Marine Pollution Damage 1969, IMO, 1969.

<sup>867</sup> For further analysis of the nuclear conventions, see the discussion in section 4.4 below.

<sup>868</sup> The 1969 CLC, Art. III 4.

<sup>869</sup> The 1969 CLC, Art. I 3.

<sup>870</sup> The 1969 CLC, Art. III, 5.

<sup>871</sup> The 1969 CLC, Art. V 2.

criteria when the shipowners lose their right to limit liability are further constricted: damage should result from their wilful misconduct.<sup>872</sup>

#### 4.4.1.4. *Compensable damage*

The CLC 1992 applies to pollution damage that happened on the territory (including territorial sea) and the exclusive economic zone of a contracting party, and applies to the preventive measures.<sup>873</sup> The “pollution damage” is defined as:

loss or damage caused outside the ship by contamination resulting from the escape or discharge of oil from the ship, wherever such escape or discharge may occur, provided that compensation for impairment of the environment other than loss of profit from such impairment shall be limited to costs of reasonable measures of reinstatement actually undertaken or to be undertaken;  
the costs of preventive measures and further loss or damage caused by preventive measures.<sup>874</sup>

This definition is constricted by the word “contamination”, which means that damage caused by fire or explosion following a discharge is not covered.<sup>875</sup> It is very likely that complex issues as to causation would arise where contamination by oil is followed by contamination by fire.<sup>876</sup> The definition is still vague and its concrete scope only became clear over years. Personal injury is eligible for compensation, but not including exposure to health risks, anxiety and upset. Damage to property should be “real” and not speculative. Pure economic loss is eligible if the loss is quantifiable in economic terms.<sup>877</sup> Preventive measures contain clean-up and restoration. They are compensable if they are reasonable and the loss is quantifiable in economic terms. The claims based on abstract methods calculation are not admissible.<sup>878</sup>

This definition further delimitates the scope of compensable environmental damage. The loss of profit from the impairment of the environment is compensable, including both consequential loss and pure economic loss. In addition to that, the term “impairment of the environment” is limited to the costs of reasonable measures of reinstatement actually taken or to be undertaken. Even with this definition, its clear implication has to be understood in practice. Disputes have taken place on the issues of damage quantification, the state as environmental trustee and ecological restoration.<sup>879</sup> It is often up to the national courts, where the lawsuits are brought, to interpret the meaning of vague terms such as “reasonable measures”.

#### 4.4.1.5. *Compulsory financial guarantee*

Article VII.1 of the CLC provides that the shipowner

“registered in a Contracting State and carrying more than 2,000 tons of oil in bulk as cargo shall be required to maintain insurance or other financial guarantee, such as the guarantee of a bank or a certificate delivered by an international compensation fund, in

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<sup>872</sup> The 1992 CLC, Art. V, 1, 2.

<sup>873</sup> The CLC 1992, Art. II.

<sup>874</sup> The 1992 CLC, Art. I 6.

<sup>875</sup> Abecassis (1978), 208.

<sup>876</sup> As illustrated by the incident involving tanker Aegean Sea.

<sup>877</sup> Verheij (2007), 138-139.

<sup>878</sup> Ibid., 139.

<sup>879</sup> Mason (2003), 3-5.

the sums of applying the limits of liability prescribed in Article V, paragraph 1 to cover his liability for pollution damage under this Convention.”

Critiques have been formulated on the fact that there is a minimum tonnage requirement, which means tankers carrying less than 2,000 tons of oil do not need to take any financial guarantee, whereas they can cause equally large pollution damage and thus facing the insolvency risk. Without any financial guarantee, compensation to pollution victims in such an event may be rather difficult.

The CLC is wise in providing that the form of financial guarantee is not restricted to insurance, but can also be other forms which give certain flexibility in using other market financial instruments. In practice, this is mainly done through the pooling arrangement among the Protection and Indemnity Clubs (P & I Clubs) as will be discussed below.

When it comes to the enforcement of the compulsory financial guarantee requirement, CLC has rather weak provisions. Article VII.11 provides that each contracting state “shall ensure, under its national legislation, that insurance or other security... is in force in respect of any ship, wherever registered, entering or leaving a port in its territory, or arriving at or leaving an off-shore terminal in its territorial sea, if the ship actually carries more than 2,000 tons of oil in bulk as cargo.” Article VII.10 provides that: “A Contracting State shall not permit a ship under its flag to which this Article applies to trade unless a certificate has been issued” with respect to the financial guarantee. Therefore, given these provisions, a state, as a flag state shall not permit its ship to trade without providing the financial guarantee; as a port state, shall ensure all ships entering or leaving its port or offshore terminal have required financial guarantee available.

Despite the seemingly weak enforcement provisions, the financial guarantee with respect to tankers has been available in almost all of the jurisdictions that are parties to the CLC.

#### **4.4.2. Compensation funds in the international regime**

##### *4.4.2.1. The 1971/1992 Fund Convention*

As mentioned before, the prospect of a compensation fund was already decided at the 1969 conference leading to the conclusion of the CLC 1969. Two years after the adoption of the 1969 CLC, the 1971 Fund Convention was passed. The 1971 Fund Convention has two aims: to provide compensation when the protection available from the 1969 CLC is inadequate and to relieve the shipowners from additional financial burden.<sup>880</sup>

The 1971 Fund Convention plays two roles: to compensate the victims and to indemnify the shipowners. Firstly, it complements the compensation from the 1969 CLC under these situations: no liability can be established under the 1969 CLC; owners and his financial guarantors are financially incapable of compensation and the damage exceeds the owners’ liability. To encourage preventive measures, their costs raised from the voluntary activities of the owners are also treated as pollution damage.<sup>881</sup> The Fund has no obligation to pay if it can prove the damage resulted from an act of war, hostilities, civil war or insurrection or oil from a warship or a state owned/ operated ship; or if the claimant cannot prove that damage resulted from a ship-related incident. Contributory negligence can also be used as a defense for the fund.<sup>882</sup> The compensation available from the 1971 Fund is not unlimited: the total sum of the amount from the 1969 CLC and the 1971 Fund Convention is capped at 450

<sup>880</sup> The 1971 Fund Convention, Art. 2 (1).

<sup>881</sup> The 1971 Fund Convention, Art. 4 (1).

<sup>882</sup> The 1971 Fund Convention, Art. 4 (2) (3).

million francs; for the damage caused from a natural disaster of an exceptional, inevitable and irresistible character, the amount payable from the Fund is capped at 450 million francs. The Assembly of the Fund has the right to increase the amount up to 900 million francs. When claims exceed the amount payable from the fund, payment should be reduced proportionally for each claimant.<sup>883</sup>

In addition to providing complementary compensation to victims, the 1971 Fund also indemnifies the shipowners. Indemnification is available for the payment between (1) the amount in excess of 1, 500 francs for each ton of the ship's tonnage or 125 million francs, whichever is the less; and (2) the amount not in excess of 2, 000 francs for each ton of the said tonnage or 210 million francs, whichever is less. But the indemnification is not available if the damage is caused from the wilful misconduct of the shipowners.<sup>884</sup> Claims to compensation or indemnification should be made within three years from the occurrence of the damage and six years from the occurrence of the incident.<sup>885</sup>

The Fund is financed by big oil importers in contracting states. The eligible importers need to make initial contributions as the working capital of the fund, and the annual contributions to cover the administrative expenses and claims.<sup>886</sup> The calculation of contributions is based on a fixed sum for each ton of contributing oil received.<sup>887</sup> The Contracting State has the obligations to ensure that the eligible contributing importers appear on a list and to communicate it to the Fund.<sup>888</sup> The Contracting State can also declare that it assumes the obligation that lies on the importers within its territory to make contributions.<sup>889</sup>

The original CLC and Fund Convention proved to be insufficient to cover the potential catastrophic oil pollution damage. In 1992 a new compensation fund was established. The 1992 Fund Convention removed the function of the Fund to alleviate the burden of liability of shipowners. Therefore the only function of the 1992 Fund is to provide additional protection to the victims of oil pollution. The conditions of the application of the 1992 Fund to compensate victims are the same as that of 1971 Fund.<sup>890</sup> The available compensation from the 1992 CLC and the 1992 Fund Convention is increased to 203 million SDRs.<sup>891</sup>

The 1992 Fund is also financed by the oil industry. To remove an obstacle for ratification, the requirement of the considerable initial contributions is removed. The 1992 Fund is solely financed by annual contributions. The calculation of the contributions is also based on the amount of oil received.

#### 4.4.2.2. *The 2003 Supplementary Fund*

Though the limitation of compensation under the 1992 Fund Convention had been considerably increased, shortly after its adoption, the amount was dwarfed again by yet other catastrophic oil pollution cases.<sup>892</sup> Under this background, a Supplementary Fund was established in a 2003 Protocol.<sup>893</sup> The Supplementary Fund provides an additional layer of

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<sup>883</sup> The 1971 Fund Convention, Arts. 4 (4) (5)(6).

<sup>884</sup> The 1971 Fund Convention, Art. 5 (1).

<sup>885</sup> The 1971 Fund Convention, Art. 6 (1).

<sup>886</sup> Wu (1996), 98.

<sup>887</sup> The 1971 Fund Convention, Arts. 11 (1), 12 (2).

<sup>888</sup> The 1971 Fund Convention, Art. 15 (1).

<sup>889</sup> The 1971 Fund Convention, Art. 14 (1).

<sup>890</sup> The 1992 Fund Convention, Art. IV 1.

<sup>891</sup> The 1992 Fund Convention, Art. IV 4.

<sup>892</sup> The Nakhodka accident near Japan in 1997 and the Erika disaster in France in 1999 are two examples.

<sup>893</sup> Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992 (The Supplementary Fund Protocol), RMC II. 7.115.

compensation for oil pollution victims under the 1992 CLC and the 1992 Fund Convention. In other words, a condition for the payment from the Supplementary Fund is that the victim is entitled to compensation under the 1992 CLC and the 1992 Fund Convention, and is unable to obtain full and adequate compensation from them.<sup>894</sup> The Supplementary Fund Convention increases the aggregated amount of compensation up to 750 million SDRs.<sup>895</sup>

The amount of compensation available under the international regime can be summarized as follows:

Table 10: Compensation for pollution damage under the international regime<sup>896</sup>

Tonnage of ship (GT)	CLC 1969 (Euro)	CLC 1992 (Euro)	2000 Protocol (Euro)	
Ships ≤ 5000	153 per ton	3.45 million	5.19million	
5,000<Ships<140,000	153 per ton	3.45 million + 483/additional ton	5.19million + 726/additional ton	
Ships ≥ 140,000	16.1 million	68.6 million	103.2million	
	1971 Fund (Euro)	1992 Fund (Euro)	2000 Protocol (Euro)	2003 Supplementary Fund (Euro)
Overall limit <sup>897</sup>	69 million	155.2 million	233 million	862 million

#### 4.4.3. Voluntary mechanisms

In fact, the international liability regime for oil pollution started to develop in 1960s. The Torrey Canyon oil spill awakened the broad public awareness of the oil pollution risks. Before the coming into being of the international conventions, some voluntary scheme was adopted: the Tanker Owners Voluntary Agreement concerning Liability for Oil Pollution (the TOVALOP),<sup>898</sup> under which, fault liability with a reversal of the burden of proof is imposed on the tanker owner or the bareboat charter. The TOVALOP is complemented by another voluntary agreement by the oil industry: the Contract Regarding an Interim Supplement to Tanker Liability for Oil Pollution (the CRISTAL). The CRISTAL established a fund to cover oil pollution damage in addition to the TOVALOP with the contributions from oil industry.

However, after the changing of the regime in 1992 those original voluntary agreements CRISTAL and TOVALOP were no longer necessary. But after the introduction of the supplementary fund convention which imposes an additional burden on oil importers to compensate for pollution damage to new voluntary agreements were introduced. They were introduced to alleviate the additional burden imposed on the oil importers and to balance the interests between shipowners and the oil industry. Under the Small Tanker Oil Pollution Indemnification Agreement (STOPIA) and the Tanker Oil Pollution Indemnification Agreement (TOPIA), the tanker owners indemnify parts of the additional burden under the Supplementary Fund Convention.<sup>899</sup>

<sup>894</sup> The Supplementary Fund Convention, Art. IV 1.

<sup>895</sup> The Supplementary Fund Convention, Art. IV 2.

<sup>896</sup> The original unit of calculation in the Conventions are in SDR as defined by the International Monetary Fund (IMF). For the convenience of comparison, all the units are converted to Euros, as per exchange rate on 22 February 2013, 1SDR=1.1498 Euro.

<sup>897</sup> The overall limit is the maximum compensation payable by the Fund for any incident and it includes the compensation made by the shipowner or his insurer under the CLC.

<sup>898</sup> TOVALOP, 8 International Legal Materials, 497-501 (1969).

<sup>899</sup> Wang (2007), 210.

## 4.5. The US Oil Pollution Act

### 4.5.1. Historical background

The US has sent delegations to the negotiation of the 1969 CLC and the 1971 Fund Convention. However, due to some characteristics of the conventions, such as the preemption of states laws, low-liability limits and channelling liability to shipowners, the US failed to ratify the conventions.<sup>900</sup> In response to the Exxon Valdez accident in 1989, the US Congress quickly passed the OPA 1990. The OPA has some similarities with the international regime, such as strict liability, limited liability and a compulsory financial guarantee. However, it has some substantial differences as well: the scope of compensable damage is much wider, liability is not channelled, and higher liability limits with higher possibilities for the potential responsible parties to lose their right to limit. The OPA does not preempt state laws, which means states can still impose additional liability or financial responsibility.<sup>901</sup>

The OPA does not only adopt a liability regime for oil pollution, but also requires the establishment of response mechanisms for oil spills. The federal responders are required to prepare a National Contingency Plan outlining federal and state responsibilities, and responsible parties are also required to prepare private response plans.<sup>902</sup>

### 4.5.2. Strict Liability and the Limitation of Liability

Like in the international regime, strict liability is imposed on the responsible parties. A defense is available to responsible parties, if the damages or removal costs were caused solely by an act of God, an act of war, or by an act or omission of a third party with no contractual or employment relationship to the responsible party.<sup>903</sup>

The OPA also establishes limits on oil pollution liability according to different types of facilities. With the exception of an offshore facility (non-deepwater port), a cap is established for the total sum of removal costs and damages. The cap is the greater of a per incident cap and a per gross ton cap.<sup>904</sup> The cap was increased in 2006 by the Coast Guard and Maritime Transportation Act (CGMTA). Besides, the CGMTA also established different caps for single hull and double hull tankers. A further increase was made by the Coast Guard according to Consumer-price Index in 2009.<sup>905</sup> The existing caps for different facilities are as follows:

Table 11: Comparison of liability limits under OPA 90 and the Coast Guard and Maritime Transportation Act of 2006<sup>906</sup>

Vessel	OPA 90 liability limits (Euro)	2006 (2009) liability limits (Euro)
Single hull tanker > 3000GT	910/GT or 7.6 million	2,275(2,427)/GT or 16.7 million (17.82 million)
Single hull tanker ≤3000 GT	910/GT or 1.5 million	2,275 (2,427)/GT or 4.55 million (4.86 million)

<sup>900</sup> Wang and Faure (2010), 3.

<sup>901</sup> 33 U.S.C. § 2718.

<sup>902</sup> Sump (2011), 1102.

<sup>903</sup> 33 U.S.C. § 2703 (a).

<sup>904</sup> 33 U.S.C. § 2704 (a).

<sup>905</sup> US Coast Guard, Consumer Price Index Adjustments of Oil Pollution Act of 1990 Limits of Liability-Vessels and Deepwater Ports, Federal Register, Vol. 74, No. 125, 1 July 2009, 31357-31369.

<sup>906</sup> The original currency is in USD, but converted to Euro here for the convenience of comparison. As per exchange rate IMF on 22 February 2013, 1Euro = 1.3186 USD.



Double hull tanker > 3000GT	910/GT or 7.6 million	1,441 (1592.6)/GT or 12.1 million (12.96 million)
Double hull tanker ≤3000 GT	910/GT or 1.5 million	1,441 (1592.6)/GT or 3.03 million (3.24 million)
Any vessel other than a tanker	455/GT or 0.38 million	720.5 (758.4)/GT or 0.61 million (647,960)

In spite of those caps, a responsible party can lose his right to limitation if the incident was proximately caused by “gross negligence or wilful misconduct of, or the violation of an applicable Federal safety, construction, or operating regulation”.<sup>907</sup> A responsible party may also face unlimited liability if it fails to report an incident, or fails to provide requested cooperation in connection with removal activities or fails to comply with an order of the President.<sup>908</sup> Even when a responsible party can revoke the limitation under the OPA, it may still face unlimited liability if the applicable state statutes require so.

The OPA does not preempt state legislation. States can still have their own liability legislation concerning oil pollution. In the US, thirty of the fifty States have a coastline. All but six of the coast states have legislation on vessels liability.<sup>909</sup>

States may have diverging liability rules from the OPA by allowing a broader definition of the responsible parties, higher liability limits or even unlimited liability.<sup>910</sup>

For example, cargo owners are admitted as responsible parties explicitly in some states, such as Alaska and California, Maryland and New Jersey. In some other states, cargo owners are also potentially liable. Though they are not explicitly listed as responsible parties, the broad definition of responsible parties does not exclude cargo owners either.<sup>911</sup>

Some states impose strict and unlimited civil liability for cleanup costs, natural resources damages and private losses caused by oil pollution, including pure economic losses, such as Alaska, California, North Carolina and Rhode Island. In some other states, unlimited liability is only established for certain categories of damage, such as in Washington (for cleanup costs and damages to persons or property), Maryland (for cleanup costs, damage to real and personal property and natural resources damages), Massachusetts (for natural resources damages) and Florida (for natural resource damages, damage to real and personal property, and losses consequential upon property damage).<sup>912</sup>

A comprehensive discussion of the state oil pollution statutes is out of scope here. However, it is worth noting that the states statutes in addition to the OPA make vessels coming into American ports face potential unlimited liability. This is quite diverging from the international regime. Besides, the stricter states statutes often require a higher financial responsibility. Whether and to what extent the combination of unlimited liability and financial responsibility in states can contribute to better costs internalization and safer records also deserve more attention.

<sup>907</sup> 33 U.S.C. § 2704 (c)(1).

<sup>908</sup> 33 U.S.C. § 2704 (c)(2).

<sup>909</sup> Force, Davies and Force (2011).

<sup>910</sup> For a short summary of the states legislations, see De La Rue and Anderson (2009), Appendix 3, 1163-1181; Force, Davies and Force (2011).

<sup>911</sup> See De La Rue and Anderson (2009), Appendix 3, 1163-1181.

<sup>912</sup> Force, Davies and Force (2011).

### 4.5.3. Responsible Parties

One significant difference between the OPA and the international regime is that liability is not channeled to shipowners. The OPA identifies responsible parties based on the types of facilities involved. For vessels, any person owning, operating or demise chartering the vessel can be the responsible party. The OPA also defines the responsible party for onshore facilities, offshore facilities, deepwater ports and pipelines respectively.<sup>913</sup> Thus, unlike in the international regime, as far as vessels are concerned, not only shipowners, but also operators and charters who may actually contribute to the oil pollution risks, can be held liable.

However, remarkably, cargo owners can escape liability under the OPA although they benefit from and contribute to the risks of oil transportation as well. During the promulgation of the OPA, there were proposals to establish a secondary liability on oil cargo owners. However, those proposals were not adopted.<sup>914</sup> This arrangement led to some criticism since the OPA provides the cargo owners no incentive to choose safer ships. There were also some recommendations to impose liability on cargo owners since the promulgation of the OPA.<sup>915</sup> Triggered by the Deepwater Horizon accident in 2010, liability and financial responsibility under the OPA became a hotly debated topic again. The Coast Guard Authorization Act (CGAA) was enacted in 2010. Although focusing on authorizations to the Coast Guard, it contains some general provisions influencing OPA liability. One of those provisions extends liability to the cargo owner of single hull tankers.<sup>916</sup> Aware of the large risk of oil spill posed by single hull tankers, the OPA 1990 requires the phase out of single hull tankers by 2015.<sup>917</sup> To further give cargo owners incentives to choose safer tankers, the CGAA extends liability to cargo owners if they choose to use a single hull tanker for transportation.<sup>918</sup>

### 4.5.4. Removal Costs and Natural Resources Damage

Before the OPA, many other federal or state statutes, such as the CWA also authorized federal, state authorities and Indian tribes to remove or arrange removal of a discharge of oil.<sup>919</sup> The OPA allows compensation for removal costs. Under the OPA, removal is defined as “containment and removal of oil or a hazardous substance from water and shorelines or the taking of other actions to minimize or mitigate damage”.<sup>920</sup> This definition shows that removal is the first step taken after oil pollution to clean up. The OPA treats removal costs differently from other damages, including natural resources damage. Under the OPA, responsible parties are liable for removal costs and damages.<sup>921</sup> The term “damages” includes: natural resources, real or personal property, subsistence use, revenues, profits and earning capacity and public services.<sup>922</sup> It is clear from this definition that the term “natural resources damage” does not include removal costs. This dichotomy is different from the structure in the ELD, under which the term “environmental damage” includes both the emergency response and restoration afterwards. Hence, when discussing the compensation for ecological damage in the U.S., it should be borne in mind that both removal costs and natural resources damage

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<sup>913</sup> 33 U.S.C. § 2701 (32).

<sup>914</sup> H.R. CONF. REP. NO. 101-653, at 102 (1990). See Kiern 2000.

<sup>915</sup> E.g. Comments of the International Association of Independent Tanker Owners (INTERTANKO) on Preliminary Regulatory Impact Analysis for Financial Responsibility for Water Pollution (Vessels) (20 September 1993). See De la Rue and Anderson (2009), 61.

<sup>916</sup> 124 Stat 2905 § 713.

<sup>917</sup> 46 U.S.C. § 3703a.

<sup>918</sup> Papayizas and Kiern 2011.

<sup>919</sup> 33 U.S.C. § 1321 (c).

<sup>920</sup> 33 U.S.C. § 2701 (30).

<sup>921</sup> 33 U.S.C. § 2702 (a).

<sup>922</sup> 33 U.S.C. § 2702 (b)(2).

are relevant. Removals are taken immediately after or in case of a substantial threat of discharge to prevent/mitigate the damage. Only when there is still damage left after the removals, it is necessary to make natural resources damage assessment to quantify the remaining damage and to restore the environment.

How to determine the scope and to quantify the damage has long been a problem perplexing people when compensating for damage to the environment. The OPA gives a definition to the term “natural resource damage”, which includes:

- (A) the costs of restoring, rehabilitating, replacing, or acquiring the equivalent of, the damage natural resources;
- (B) the diminution in value of those natural resources pending restoration; plus
- (C) the reasonable cost of assessing those damages.<sup>923</sup>

This definition is quite broad. Restoration is used as the primary method to evaluate the loss of natural resources and the diminution of services.<sup>924</sup> Not only restoration costs, other alternatives and interim losses pending the restoration are also compensable. To quantify the damage, the OPA authorizes federal, state authorities and Indian tribes as trustees of natural resources to assess the damage. It also requires the National Oceanic and Atmospheric Administration (NOAA) to promulgate regulations for natural resources damage assessment.<sup>925</sup> The assessment made according to these regulations has the force and effect of a rebuttable presumption.<sup>926</sup> The final rules concerning natural resources damage assessment were promulgated in 1996 by the NOAA.<sup>927</sup> Under this regulation, a concrete procedure and available assessment methods are prescribed. Under the NOAA assessment rule, “the costs of restoring, rehabilitating, replacing, or acquiring the equivalent of, the damage natural resources” is defined as “primary restoration”.<sup>928</sup> To compensate for interim losses, the NOAA rule also adopts a restoration-based approach: compensatory restoration should be taken to compensate for the lost natural resources and service during primary restoration.<sup>929</sup> When determining compensatory restorations, trustees should use a resource-to-resource or service-to-service approach to compensate for the lost natural resources service or value.<sup>930</sup> If these approaches are not possible, trustees can use other evaluation techniques to estimate the estimate the dollar value of the lost services and select the scale of the restoration action that has a cost equivalent to the lost value.<sup>931</sup> A variety of valuation techniques is allowed to calculate the monetary value, including the disputed contingent valuation.<sup>932</sup>

According to the OPA and the assessment regulation, an assessment can either be made by the trustees and the trustees can claim against the responsible parties for the costs afterwards, or responsible parties can conduct the assessment themselves with the approval of the government. A most common approach would be a cooperative assessment involving both the

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<sup>923</sup> 33 U.S.C. § 2706(d)(1).

<sup>924</sup> Lee, Bridgen and Environment International Ltd. (2002), 16.

<sup>925</sup> 33 U.S.C. § 2706 (e) (1).

<sup>926</sup> 33 U.S.C. § 2706 (e) (2).

<sup>927</sup> 60 *Fed. Reg.* 39804.

<sup>928</sup> 15 C.F.R. § 990.30.

<sup>929</sup> 15 C.F.R. § 990.30.

<sup>930</sup> 15 C.F.R. § 990.53 (d)(2). “Resource-to-resource restoration actions are designed to restore the damaged natural resource to an equivalent quantity of the same or comparable resource.” “A service-to-service restoration action is one designed to restore lost services to an equivalent quantity.” See Letourneau and Welmaker (2000), 147 and 188.

<sup>931</sup> 15 C.F.R. § 990.53 (d)(3)(ii).

<sup>932</sup> Letourneau and Welmaker (2000), 188. Contingent valuation is a method to value natural resources by doing a survey and asking people what monetary value they would like to place on certain resources. It is not based on actual market transactions but is hypothetical by assuming people will respond to the surveys as in an actual transaction. See Cross (1989), 315-319.

trustees and responsible parties in the assessment procedures.<sup>933</sup> A cooperative approach can be desirable since it can promote a fast restoration and avoid costly and time-consuming litigation. An early involvement of the responsible parties and even insurers can also make the risks more predictable for the insurers and can thus enhance the insurability of natural resources damage. Although it has been subject to many challenges since its promulgation, the regulation provides a practicable guidance in tackling the debatable and difficult task of natural resources damage assessment.<sup>934</sup>

#### **4.5.5. Compulsory financial guarantee**

OPA requires the responsible party for vessels to establish evidence of financial responsibility for his vessels over 300 gross tons and up to the amount of the liability limits imposed under the OPA.<sup>935</sup> For an offshore facility located seaward of the seaward boundary of a State, the level is set at \$ 35 million. For an offshore facility located landward of the seaward boundary of a State, the level is set as \$ 10 million.<sup>936</sup> The responsible party of a deepwater port is required to provide financial responsibility sufficient to meet its maximum liability established under the OPA.<sup>937</sup> Failure to do so will lead to sanctions, like withholding clearance, denying entry to or detaining vessels, even seizure of vessels.<sup>938</sup> Therefore, the pure fact of lacking financial evidence may lead to these civil penalties, even if there is no oil spilled.

Various methods can be used by potential responsible parties to meet their financial responsibility, including: insurance, surety bond, guarantee, letter of credit, qualification as a self-insurer or other evidence.<sup>939</sup> As a guarantor under the OPA, one has to accept the direct action by claimants. Besides, “the guarantor may not invoke any other defense that might be available in proceedings brought by the responsible parties against the guarantor”.<sup>940</sup>

#### **4.5.6. Trust fund**

If in the US potentially responsible parties can demonstrate the required financial responsibility, a Certificate of Financial Responsibility (COFR) is issued. However, even though a COFR is issued, damage may remain uncompensated if the limit of the COFR or liability is exceeded. In response to an accident, the public authorities may need to take removal actions and make natural resources assessment, and then claim the costs from liable parties. The prolonged claim procedure may influence the capacity of public authorities to make a promptly response. To fill in those gaps, the OSLTF is established.

The Fund is available for the removal costs of the trustees consistent with the National Contingency Plan, the costs incurred by the trustees in assessing the natural resources damage and developing and implementing the restoration plans, removal costs incurred by other parties determined to be consistent with the National Contingency Plan, uncompensated removal costs and damages and related administrative costs.<sup>941</sup> Unless under some limited

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<sup>933</sup> Allen (2011).

<sup>934</sup> For a more detailed analysis of the NOAA assessment regulation, see Letourneau and Welmaker (2000); Anderson (1997); SeEVERS (1996).

<sup>935</sup> 33 U.S.C. §2716.

<sup>936</sup> 33 U.S.C. § 2716 (c) (1).

<sup>937</sup> 33 U.S.C. § 2716 (c) (2).

<sup>938</sup> 33 U.S.C. § 2716 (b).

<sup>939</sup> 33 U.S.C. § 2716 (e).

<sup>940</sup> 33 U.S.C. § 2716 (f).

<sup>941</sup> 33 U.S.C. § 2712 (a).

situations, the claims should be presented to the responsible parties or their guarantors first.<sup>942</sup> The OPA limits payments of the OSLTF for removal costs and damages in each incident to \$ 1 billion. A sublimit for natural resources damages payments is set as \$ 500 million per incident.<sup>943</sup> The per incident limit for removal costs and damages was increased to \$ 2.7 billion under the Energy Policy Act of 2005.<sup>944</sup>

The OSLTF is financed from several sources: the tax on crude oil transported to or produced in the U.S., the transfers from the previously existing pollution funds, interest on the Fund principal from U.S. Treasury investments, recovery of costs from responsible parties or their guarantors and penalties.<sup>945</sup> The tax on oil is the major part of the fund, which was set as 5 cent per barrel initially for a five-year period. In 1994 the balance of the OSLTF reached \$ 1 billion and the tax expired. The tax was reinstated by the Energy Policy Act of 2005 and increased by the Energy Improvement and Extension Act of 2008 to 8 cents per barrel till 2016 and 9 cents per barrel in 2017. After paying removal costs and damages, the OSLTF can recover from responsible parties. According to an implementing report by the OSLTF, the annual recovery from the financial year 2004 to 2008 fluctuates from \$ 7 million to \$ 16 million, which means that 16% of the OSLTF removal and claims expenditures were recovered.<sup>946</sup>

## 4.6. Protection and Indemnity Clubs

### 4.6.1. Origins

In the area of maritime transportation, the technical uncertainties with regards to the occurrences of oil spills combined with the legal uncertainties about establishing liability make it difficult to cover marine oil pollution via a traditional insurance policy. The P&I Clubs appeared as a response to commercial insurers' reluctance to underwrite marine risks.<sup>947</sup> P&I policies cover the liabilities specifically enumerated in the agreement - the Club's rulebook. P&I coverage usually includes "unlimited" reimbursement for claims arising from: liabilities in respect of persons, liability in respect of cargo, collision with ships, or with fixed and floating objects, salvage, compulsory wreck removal, fines imposed by government agencies, quarantine expenses, towage liabilities, "sue and labor" and legal costs, any other liabilities which the club's directors deem proper to cover as well as limited reimbursement for oil pollution claims which arise from the entered vessels.<sup>948</sup> The oil pollution claim refers to "a liability, cost, loss or expense, howsoever incurred, in respect of or relating to an escape or discharge of oil or any threat or consequence of such escape or discharge, but excluding liability for loss of or damage to such oil."<sup>949</sup> The term "liability" in this expression is determined by international conventions and national legislations applicable in each case. As a typical risk-sharing arrangement, in a P&I Club, the shipowners make contributions to a risk

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<sup>942</sup> 33 U.S.C. § 2713.

<sup>943</sup> 26 U.S.C. § 9509 § (c)(2)(A).

<sup>944</sup> 119 Stat. 1058-1059 & 1361.

<sup>945</sup> 26 U.S.C. § 9509 (b).

<sup>946</sup> Oil Spill Liability Trust Fund Annual Report FY2004-FY2008, p. 3-4, available at: <[http://www.uscg.mil/npfc/docs/PDFs/Reports/OSLTF\\_Report\\_FY04-FY08.pdf](http://www.uscg.mil/npfc/docs/PDFs/Reports/OSLTF_Report_FY04-FY08.pdf)>.

<sup>947</sup> Ronnerberg (1990).

<sup>948</sup> Ronnerberg (1990), 7-9. Ronnerberg's analysis was based on the Swedish Club's 1990 rulebook. A similar coverage can also be found in the 2010 rulebook of the United Kingdom Mutual Steam Ship Assurance Association (Bermuda) Limited. (Bermuda Rulebook) In the rulebooks, the "unlimited" reimbursement does not mean that the Club should pay the full costs which fall into the categories. Instead, the reimbursement is subject to the limitation of liability set by law. While for oil pollution claims, the compensable sums are determined by Directors of the Club. See Rule 5, B of the Bermuda Rulebook, <[http://www.ukpandi.com/ukpandi/resource.nsf/Files/2010Rules/\\$FILE/2010Rules.pdf](http://www.ukpandi.com/ukpandi/resource.nsf/Files/2010Rules/$FILE/2010Rules.pdf)>.

<sup>949</sup> See Rule 5, B, the Bermuda Rulebook.

pool according to an *ex ante* agreement. Instead of paying fixed *ex ante* premiums, at the beginning of each year, an “advance call” is made to cover the claims and administrative costs.<sup>950</sup> The amount of each advance is based on the shipowners’ claims history, the size of the fleet, and the Club’s anticipated needs and the strength or profitability of the insurance market.<sup>951</sup> If the pool of advance call is insufficient to cover the losses, a supplementary call can be asked from the members.

The P&I Clubs combine an *ex ante* payment with retrospective payment. In a P&I policy, an advance call is made at the beginning of each year, and an additional call is needed to supplement if the pool established earlier is not sufficient to cover the heavy claims.

P&I Clubs began to develop with the reluctance of traditional insurance companies to provide sufficient insurance for marine vessels. The first English Protection Associations were founded in the mid-19<sup>th</sup> century under the background of the lack of capacity and unwillingness to underwrite marine risks by private insurers. This lack of capacity and interest is the consequence of the increasing risk of being seized or destroyed of English commercial vessels by the enemy navies of France, Spain or the United States during the previous two centuries.<sup>952</sup> Following the development of those associations in Britain, P&I Clubs began to grow in the late 19<sup>th</sup> and early 20<sup>th</sup> century in Scandinavia and America.<sup>953</sup> The International Groups of P&I Clubs (the P&I Group) has been formed on the bases of individual P&I Clubs. Its thirteen member clubs provide liability cover for approximately 90% of the world’s ocean-going tonnage.

The essence of the P&I Club is that the shipowners are members of the club. Hence they in principle are not considered a client (like within an insurance company) but rather a member thus having a very close relationship to the club. Still, there is competition between the clubs as a result of which shipowners may change from club.

The important point is that P&I Clubs provide service and also compete on the point of service they provide. That is an advantage of a P&I club compared to insurance. The P&I Club in principle does not act for profit and hence profits in principle return to the shipowners. Those benefits to some extent also apply when P&I Clubs engage in providing offshore cover:

- they provide service to the offshore operator;
- advise on preventive measures;
- claims handling.

However, since in the offshore case the Club acts more like a traditional insurer profits in that case will normally not return to the “insured”.<sup>954</sup>

#### **4.6.2. P&I coverage**

P&I coverage usually includes both pollution damage liability and other liability caused by shipowners. When defining the term “liability” under the P&I policies, one has to refer to the applicable international conventions and national legislation. The CLC and the US OPA are important examples. The CLC involves traditional damage and ecological damage, which is evaluated by the costs of reasonable measures of reinstatement. The OPA in the US defines liability even broader, under which, the responsible parties are liable for removal costs and six

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<sup>950</sup> Faure (2002), 232.

<sup>951</sup> Ronnerberg (1990), 29.

<sup>952</sup> Ibid., p. 3.

<sup>953</sup> Libby (1952), 171.

<sup>954</sup> Interview with representatives of the International Group of P&I Clubs on 1 May 2013 in London.

kinds of damages: natural resources damage, real or personal property, subsistence use, revenues, profits and earning capacity and public services.<sup>955</sup> Thus the coverage of a P&I policy can be rather broad: not only does it provide a coverage to the liability for ecological damage, the relevant personal injury and property damage as well as other non-environment related losses are also covered. A P&I Club provides services more than a pure insurer and operates as a mixture of an insurance company, a law firm and a loss adjuster. Besides offering an insurance coverage, a P&I Club can also provide a worldwide network of correspondents and representatives to give on-the-spot assistance to the shipowner when required, give Letters of Undertaking to offer a security when members' vessels are arrested and assist in claims handling and settlement.<sup>956</sup>

Under the P&I policies, the insured must have suffered actual monetary losses before they can seek reimbursement from the insurers. That means a member is only entitled to seek compensation for the amount he has in fact lost due to the occurrence of a covered incident. This is called the "pay to be paid" rule, which is usually incorporated in the Club's Rule Book. In a P&I policy, the Club is only obliged to assist his contractual counterpart, the Club's Member in case of losses. Thus usually, the injured cannot bring a direct action against a P&I Club and can only get the compensation by a claim, litigation against or settlement with the injurer. This policy can create problems in case of the insured's bankruptcy, since then the injurer may have insufficient assets to realize his liability. Clubs vary in their attitudes towards this issue. In English law, the injured party ranks as an ordinary creditor, and thus does not have a general direct right against the insurer in case of insured's bankruptcy. However, according to the 1930 Third Parties Act and some case laws, an injured party is provided a limited right of direct action against an insurer in particular circumstances.<sup>957</sup> In the US, there is no right of a third party of a "direct action" against the insurer under the common law. But if the federal state enacts a "direct action statute", an injured party can be provided with such a right.<sup>958</sup> The Louisiana Direct Action Statute<sup>959</sup> is the first legislation in the US to stipulate a right of direct action, and it goes so far as to provide such a right independently from the assured's insolvency. The New York Statute is more restrictive than the Louisiana one, which allows direct action where the insured is bankrupt and if the assured's liability is already determined by an actual court decision.<sup>960</sup> According to the above analysis, the Clubs vary in regard to the protection they award to the injured.

The P&I Group arranges reinsurance together for each Clubs. At this moment, for the shipowners' policies, each Club retains the first \$ 80 million as their retentions. The amount between \$ 8 million and \$ 60 million is divided among all the Clubs. The captive insurer of the Group - Hydra Insurance Company, and reinsurance with the international insurance market also play an important role in providing reinsurance for the upper layers. This brings the upper limit of its reinsurance program to \$ 3060 million. Among this amount, the limit for compensation for oil pollution is limited to \$ 1060 million.<sup>961</sup>

#### **4.7. Risk pooling in the nuclear sector**

We will first focus on the risk pooling arrangements in the Price Anderson Act (4.7.1.) where a second layer of liability is provided through retro-active premiums; then the mutual pool for property damage in the US is discussed (4.7.2.) and then we turn to the mutual nuclear pools

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<sup>955</sup> 33 U.S.C. § 2702.

<sup>956</sup> Ronnerberg (1990), 25-29.

<sup>957</sup> Holstein-Childress (2002), 205.

<sup>958</sup> Dougherty (1985).

<sup>959</sup> LSA-R.S. 22:655.

<sup>960</sup> Foster (1998), 281.

<sup>961</sup> <<http://www.igpandi.org/Group+Agreements/Pool+reinsurance+programme>>.

in Europe (4.7.3.). Finally the nuclear liability and pooling regime in Germany is discussed (4.7.4.) as well as the possibility of a European pool for nuclear liability (4.7.5.).

#### 4.7.1. Risk pooling in the Price-Anderson Act

The nuclear risk is a typical catastrophic risk with low probability to happen but immense losses once materialized. Considering the low occurrence, reliable data on the probability and magnitude of an accident are often lacking. The nuclear mutual pools established in the US are such examples. In the US, nuclear liability is governed by the Price-Anderson Act of 1957,<sup>962</sup> which has been revised approximately every decade.<sup>963</sup> According to the Price-Anderson Act, each license issued should have and maintain financial guarantee to cover public liability claims.<sup>964</sup> The term “public liability” is defined as “any liability arising out of or resulting from a nuclear incident”, with the exceptions of claims arising out of an act of war, workmen’s compensation claims, and claims for damage to on-site property at a licensed nuclear facility.<sup>965</sup> The existing capacity of the insurance market (provided by a monopolistic national pool, American Nuclear Insurers, ANI) to provide is \$ 300 million. If an accident creates damage in excess of \$300 million, a retrospective premium needs to be called upon all American nuclear operators licensed by the regulatory party Nuclear Regulatory Commission (NRC). This premium is payable in annual instalments up to a certain maximum amount per incident per power plant and is determined according to the size and number of reactors each plant has.<sup>966</sup> The amount of this second tier is now set at \$111.9 million, with a maximum annual retrospective premium of \$17.5 million per reactor per year.<sup>967</sup> If a catastrophic accident happens, which needs the collection of retrospective premiums through years, the victims do not need to wait until the operators paid all the premiums. The NRC guarantees those retrospective premiums, or in other words, advances the compensation in the second tier and later collects this from the operators.<sup>968</sup>

The Price-Anderson Act established only a risk-sharing pool for third party liability. However, a nuclear accident can also create serious onsite damage. The Three Mile Island accident has shown that cleanup of the onsite damage would be far more important than the third-party liability coverage of the nuclear operator.<sup>969</sup> This has led to the introduction of the so-called property rule by the NRC, which requires each power reactor licensee to obtain financial guarantee to stabilize and decontaminate the reactor and the reactor station site.<sup>970</sup>

A national mutual pool has been established under this rule, Nuclear Electric Insurance Limited (NEIL). The risks covered in NEIL include costs associated with interruptions of electric generation due to accidental physical damage to insured sites, decontamination expenses, and other risks of direct physical loss at insured sites.<sup>971</sup> To cover those risks, NEIL established three insurance programs: the accidental outage program, the primary program and the excess program. The interruption risk is covered under outage and the primary program, and other risks are covered under the primary and excess programs.<sup>972</sup> To reduce the exposing risks and guarantee the capacity, NEIL seeks reinsurance from the ANI.

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<sup>962</sup> 42 U.S.C.A. § 2210.

<sup>963</sup> The Price-Anderson Act has been revised in 1967, 1975, 1988 and 2005.

<sup>964</sup> Pub. L. No. 85-256, 71 Stat. 576,577 (1957).

<sup>965</sup> Pub. L. No. 85-256, 71 Stat. 576,576 (1957).

<sup>966</sup> Faure and Vanden Borre (2008), 243.

<sup>967</sup> 10 C.F.R. § 140.11 (4); 75 FR 16646, Apr. 2, 2010.

<sup>968</sup> Faure and Vanden Borre (2008), 260.

<sup>969</sup> Faure and Vanden Borre (2008), 245.

<sup>970</sup> Conditions of Licenses, 10 C.F.R. 50.54(W) (2008).

<sup>971</sup> Nuclear Electric Insurance Limited, 2009 Annual Report, 20 (2009), available at: <<http://www.nmlneil.com/Members/AboutNEIL/ar2009.pdf>>.

<sup>972</sup> Ibid.



The premium under the second layer of the Price-Anderson Act is financed through a so-called retrospective premium scheme. Hence, premiums do not have to be paid *ex ante*, but only *ex post* after the nuclear accident materialised. This retrospective premium scheme was introduced in 1975. Initially, the financial requirement was satisfied with the coverage from private insurance and a government indemnity agreement. This was because it was regarded that the nuclear industry was not capable to bear all the burdens at its infancy period and the PAA intended to encourage the development of the nuclear industry. However, after years of development, it was believed that the industry should take its responsibilities.<sup>973</sup> This was achieved by phasing out federal indemnity and establishing a system of retrospective premiums paid by nuclear operators.

Under the retrospective premiums scheme, if an accident leads to the damage in excess of \$ 375 million, all qualified nuclear operators are obliged to pay the retrospective premiums up to \$ 111.9 million. This arrangement is a form of a risk sharing agreement. However, different from the usual understanding about risk sharing agreements, this arrangement is a mandatory system. It is effectively imposed by statute. Rather than the voluntary pooling of operators, the retrospective premiums scheme is established according to the legislative requirement of the amended PAA. This arrangement ensures that all nuclear power plant operators participate in the system and provide strong capacity. Besides, this system is used only when the primary instrument - the insurance market fails to cover the full damage. In other words, the retrospective premiums scheme provides an upper layer of compensation for victims.

The retrospective premiums are collected only when damage with a magnitude in excess of the primary coverage happens. The premiums can be charged through years with an annual amount within \$ 17.5 million per incident.<sup>974</sup> Since the obligation of payment only comes due after the occurrence of damage, a special arrangement is needed to ensure that the operators can pay their retrospective premiums in the case of damage. According to NRC regulations, the operators need to provide one of the following guarantees: surety bond, letter of credit, revolving credit/term loan arrangement, maintenance of escrow deposits of government securities, annual certified financial statement and other type of guarantee approved by NRC.<sup>975</sup> Since late 1990s, the bond for payment of retrospective premiums an operator made with ANI was accepted as a guarantee complying with the NRC regulations. The bond is a contractual arrangement between ANI and operators, under which ANI will collect retrospective premiums in the event that claims exhaust primary coverage. If the operator fails to pay the retrospective premium, ANI would pay for up to \$ 30 million in one year of the premiums and collect it later from the defaulting operator.<sup>976</sup> According to NRC regulations, if an operator fails to pay the retrospective premium, NRC reserves the right to pay those premiums on behalf of the licensee and recover the amount from the operator.<sup>977</sup> After the deregulation of the electricity industry, 31 out of the 103 operating commercial nuclear power plants in the US were limited liability companies till 2004.<sup>978</sup> The NRC does not differentiate the limited liability companies from the others and does not conduct in-depth financial reviews to determine the operators' ability to pay retrospective premiums. However, ANI goes further than the NRC. It requires limited liability companies to provide a letter of guarantee from their parent or other affiliated companies with sufficient assets to cover

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<sup>973</sup> H.R.Rep.No. 94-648, 10.

<sup>974</sup> 10 C.F.R. § 140.11(4).

<sup>975</sup> 10 C.F.R. § 140.21.

<sup>976</sup> GAO (2004), Report to Congressional Requesters, Nuclear Regulation: NRC's Liability Insurance Requirements for Nuclear Power Plants Owned by Limited Liability Companies, p. 8.

<sup>977</sup> Ibid.

<sup>978</sup> Ibid., p. 6.

retrospective premiums as a condition to issue the bond for payment of retrospective premiums.<sup>979</sup>

The existing policy is based on a bonding made between ANI and operators. Even though ANI has a contingent liability if the retrospective premiums are not paid when due, its payment can be reimbursed from operators. Thus the burden of secondary financial protection still lies with the nuclear operators. However, ANI also shows its interest in developing a system on a guaranteed basis: with the payment of an additional per reactor premium, ANI would cover the secondary financial protection without reimbursement afterwards from operators.<sup>980</sup> This coverage shifts the burden of payment after a severe nuclear accident from the industry to the insurance industry.

#### 4.7.2. The mutual pool for property damage in the US

NRC regulations require nuclear power plant operators to obtain insurance or demonstrate their financial status to cover property damage, especially to stabilize and decontaminate reactors up to an amount of \$ 1.06 billion. The operators satisfy this requirement through a mutual insurance system, Nuclear Electric Insurance Limited (NEIL). The reason for creating this mutual insurance was to provide nuclear operators with an alternative to commercial insurance.<sup>981</sup>

NEIL provides two types of policies: on-site accidental property damage and decontamination coverage and accidental outage coverage.<sup>982</sup> On site property damage policy covers the costs to decontaminate and stabilize the reactor.

The on-site accidental property damage policy contains two programs: the primary program with a limit of \$ 500 million and the excess program with a limit of \$ 2.25 billion.<sup>983</sup> NEIL provides coverage different from ANI and is reinsured by the latter. The primary program provides coverage to expenses incurred in connection with the stabilization and decontamination of the reactor and direct physical damage to, or destruction of the insured property as a result of an accident.<sup>984</sup> The excess program provides coverage to both property damage and decommissioning liability. The payment of expenses under the excess program is made in the following order: losses under nuclear liability coverage, losses under decommissioning liability coverage, losses under debris removal and decontamination coverage, property damage coverage and functional total loss coverage.<sup>985</sup> The property damage policies cover property damage caused by an “accident”. The term “accident” is defined broadly to incorporate more than nuclear related incidents: “a sudden and fortuitous event, and event of the moment, which happens by chance, is unexpected, and unforeseeable.” However, “it does not include any condition which develops, progresses, or changes over time, or which is inevitable.” In this case, damage that occurs over time, such as erosion, corrosion, cracking and gradual accumulation of radioactive contamination are excluded.<sup>986</sup> The property damage policy is related to ecological damage, since it covers on-

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<sup>979</sup> Ibid., p. 9.

<sup>980</sup> Testimony of John L. Quattrocchi, Senior Vice President, Underwriting American Nuclear Insurers Before The United States Senate Energy and Natural Resources Committee, May 24, 2001, available at: <<http://www.amnucins.com/library/johnQ5-01testimony.pdf>> (visited 25 March 2011).

<sup>981</sup> Faure (2008), 255.

<sup>982</sup> Annual Report of NEIL (2009), p. 20. Available at the website of NEIL.

<sup>983</sup> Ibid.

<sup>984</sup> Gittus (2006), 226, available at: <[http://www.ansto.gov.au/\\_\\_\\_data/assets/pdf\\_file/0016/12445/nuclear\\_options\\_paper\\_Gittus\\_complete.pdf](http://www.ansto.gov.au/___data/assets/pdf_file/0016/12445/nuclear_options_paper_Gittus_complete.pdf)>, last accessed 25 March 2011.

<sup>985</sup> Ibid, p. 233-234.

<sup>986</sup> Wilks (2001), 5, available at the website of IAEA:<<http://www.iaea.org/worldatom/Meetings/2001/GWilks-FinalSession.pdf>>, last accessed 25 March 2011.

site decontamination and cleanup, debris removal and disposal, damage repair and/or site restoration. However, NEIL believes that the likelihood of such an event that results in payment of those aspects is very remote, and the more likely insurance risk involves equipment failures that do not challenge nuclear safety.<sup>987</sup>

The premium is based on the amount of the coverage, the deductible and various rating criteria. One of the missions of NEIL is to insure Members' nuclear risks by "providing value and equitable treatment".<sup>988</sup> Thus Members are provided with the same coverage, subject to the same loss control standards and requirements.<sup>989</sup> But the policy allows deductibles. The NEIL policy is linked with the self-regulation under the Institute of Nuclear Power Operations (INPO). As we mentioned above, that INPO monitors and controls nuclear risks. In the event that the site is determined by INPO as not meeting the industry standard of acceptable performance, the premium can be increased up to 25%.<sup>990</sup> NEIL can make a call to the Member insured for payment of a retrospective premium up to ten times the annual premium to cover losses incurred by the company during the policy year.<sup>991</sup>

NEIL also developed methods to evaluate risks and to control losses. It first assumes that each insured plant creates the same level of risk and minor differences are reflected through premium adjustment.<sup>992</sup> Insurance evaluations focus on balance-of-plant or non-nuclear safety areas. For the nuclear safety issues, NEIL relies on work done by regulators, such as the IAEA, the World Association of Nuclear Operators (WANO) and INPO.<sup>993</sup> NEIL Members' Engineering Advisory Committee developed loss control standards.

#### **4.7.3. Mutual nuclear pools in Europe**

Two mutual pools were established in Europe: the European Mutual Association for Nuclear Insurance (EMANI) and the European Liability Insurance for the Nuclear Industry (ELINI). They are both mutual insurance associations and both provide not only coverage to nuclear power stations, but also to other nuclear facilities. EMANI was established in 1978, and provides coverage for material damage, business interruption, machinery breakdown, terror and erection all risk. The overall insurance capacity in 2010 is 600 million euro and the capacity for terrorism is 500 million euro. The decontamination costs for installations in case of an accident are also covered in the material damage policy within the limitation of 600 million euro. However, since there is no legal obligation for nuclear operators to seek financial coverage for their onsite decontamination as is the case in the US EMANI can either act as the leading underwriter or as a coinsurer to provide insurance directly, or act as a reinsurer. Since EMANI can act either as a leading underwriter or as a coinsurer with national pools, two different types of policies exist: the national pool policy and the EMANI policy. They may have different coverage and prices.

ELINI was created at the end of 2002 to provide insurance capacity for nuclear liability risks. It is the first worldwide nuclear pooling system aimed at providing nuclear third party liability coverage.<sup>994</sup> ELINI is not designed as competitor to the national pools, but instead to offer

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<sup>987</sup> Ibid., 6.

<sup>988</sup> See website of NEIL: <<http://www.nmlneil.com/Members/AboutNeilDefault.aspx?P=c1XEII1uGSb9oL%-2bDkDqTS3xGBiX8pNMhensz%2fWXGW%2fg&nav=cbIgExm%2fbAleztDq8vil0w&dep=a4%2feUdsSDvyOQNs0lim7UQ&Page=MemberAboutNeilDefault>>, last accessed 25 March 2011.

<sup>989</sup> Wilks (2009), 22, available at: <[http://www.winus.org/Portals/0/2009win/5\\_Thursday.pdf](http://www.winus.org/Portals/0/2009win/5_Thursday.pdf)>, last accessed 25 March 2011.

<sup>990</sup> Gittus (2006), 231.

<sup>991</sup> Ibid., 231.

<sup>992</sup> Wilks (2009), 25.

<sup>993</sup> Wilks (2001), 7-8.

<sup>994</sup> Faure and Vanden Borre (2008), 219, 257.

excess liability coverage: it provides coverage to all the headings under the revised Paris and Brussels Supplementary Conventions and also coverage for terrorism and the 30 years prescription period.<sup>995</sup> The capacity to provide coverage for the less predictable risk is because of the special structure of ELINI. There are three types of membership for ELINI: the insured members who have an insurance policy and have contributed to the constitution of the guarantee fund; non-insured members who take part in the constitution of the guarantee fund (supportive members) and non-insured members who do not take part in the constitution of the guarantee fund, but pay an administration fee.<sup>996</sup> Both insured members and supportive members make annual contributions to the guarantee fund according to the agreed ratios. If the total losses exceed the contributions, an additional call can be made up to 20 times the annual contributions. The availability of additional calls makes an *ex ante* calculation of premiums for the unpredictable risks less necessary. It is worth noting that ELINI is different from national mutual pools established in the U.S. and Germany. Under the national regimes, the insurers and insured are the same; the operators make contributions according to pre-set ratio when a major accident happens to one of the operators. However, under the system of ELINI, supportive members who are not insured can also make contributions to the guarantee fund. ELINI can either act as a leading underwriter or a coinsurer. Thus the individual insurance policies can be varied from one to another; the extent of involvement of ELINI and the percentage of each contributor in different policies may also be different. The insured are also free to choose the amount of coverage. Through cooperation with national pools, ELINI works more like a combination of a traditional insurer and a mutual pool.

To guarantee sufficient compensation for future damage, ELINI makes reserves. The contributions made by members are put into a special bank account and can only be withdrawn after the dissolution of the pool or 30 years after the expiring of its policies. In 2010 the maximum insurance capacity per policy is 89 million euro, of which 37.5 million euro is provided through retention.

ELINI can provide insurance by itself, as a leading underwriter or coinsurer with national pools. The content of the contract and insured amount depend on national laws, since different countries have divergent liability limits and liability and insurance requirements. When it acts as a coinsurer to national pools, ELINI relies on the national pools to decide the content of the insurance contract but can decide its own premium. Usually, the basic premium among electricity producers is the same, which are subject to increasing or decreasing according to the grading made by ELINI. When accepting one as a member of ELINI, ELINI has to make a risk review and grades the risks according to technical, insurance and financial features. The grading can be used to adjust the premium later.<sup>997</sup>

ELINI makes an attempt in establishing an international pooling system for nuclear liability. If the revised Paris Convention comes into effect and is accepted by many countries, the additional capacity provided by ELINI may become more attractive. However, given the divergent liability requirements among different countries, and given the lack of consistent and harmonized standards on nuclear safety, as we will explain below, in Europe nuclear operators may not have a strong interest in establishing a mutual pool. That may be one of the

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<sup>995</sup> Annual report ELINI (2010), 16, <[http://www.elini.net/ELINI\\_2010\\_\(2011\)\\_FINAL.pdf](http://www.elini.net/ELINI_2010_(2011)_FINAL.pdf)>.

<sup>996</sup> Ibid, 17.

<sup>997</sup> The pool in the US, NEIL can rely on some self regulatory organizations, such as WANO and INPO to control the safety of members. WANO is the World Association of Nuclear Operators, INPO is Institute of Nuclear Power Operations in the US. They make important roles in checking the nuclear safety in nuclear power plants. In the US, NEIL cooperates with INPO. However, to be a member of WANO or INPO, one should be the operator of nuclear power plants. But the members of ELINI vary: they can be either operators for nuclear power plants or other nuclear installations. Thus, unlike NEIL, which can reply on INPO's information in setting premiums, ELINI are not affiliated with those institutions. Hence, ELINI can not affiliate with a nuclear self regulatory organization like WANO or INPO to control the nuclear risks.

reasons why the mutual pools have developed so slow since their creation. After several decades, the capacity of EMANI only increased from 150 million euro in the first decade of existence to 600 million euro in 2010,<sup>998</sup> while the capacity of ELINI was still only 89 million euro in 2011.<sup>999</sup>

#### 4.7.4. The nuclear liability and pooling system in Germany

In Germany, the nuclear liability clauses are mainly stipulated under the Act on the Peaceful Utilization of Atomic Energy and the Protection against its Hazards (Atomic Energy Act).<sup>1000</sup> The Atomic Energy Act was passed in 1959 and was revised in 1985, 2002 and 2011. In addition to this act, Germany is also a party to the Paris Convention and to the Brussels Supplementary Convention, as well as to the Joint Protocol. According to the Atomic Energy Act, “the Paris Convention and the Joint Protocol shall apply as national law in the Federal Republic of Germany, unless its provisions depend on reciprocity as effected by the entry into force of the Convention.”<sup>1001</sup>

The 1959 Atomic Energy Act aims both at promoting the use of nuclear energy and preventing damages.<sup>1002</sup> The pro-nuclear policies continued until the 1990s, when the Government started to make an effort to phase out nuclear energy. An agreement was reached on the gradual phasing out of nuclear energy in 2000 between the government and the industry<sup>1003</sup> and the Act on the Structural Phase-Out of Nuclear Power for the Commercial Production of Electricity was passed in 2002. According to the act, there will be no further licences issued for new nuclear power plants or reprocessing facilities, and the existing nuclear power plants are supposed to be closed before 2020.<sup>1004</sup> In 2010, the German government decided to extend the operation of the existing nuclear reactors by an average of 12 years. However, the catastrophic Fukushima accident in 2011 in Japan triggered the change of nuclear policy in Germany again. The Government stopped the extension plan and came back to the phase out policy again. The nuclear power will only serve as a bridging tool before the replacement with renewable energy. An amendment to the Atomic Energy Act was passed in the same year.<sup>1005</sup>

According to existing act, the nuclear liability in Germany has the following characteristics. As in the international regime, the liability is channeled to the nuclear operators and the operators are strictly liable for the damage caused by a nuclear incident.<sup>1006</sup> The liability is even stricter in Germany, since the defences under the international regimes are no longer available, such as an armed conflict, hostilities, civil war, insurrection or a grave natural disaster of an exceptional character. But if the damage occurs abroad, the defences are not applicable only if that country provides the same benefits to Germany.<sup>1007</sup> One significant difference between the German and the international system is that an unlimited liability system is established in Germany. Only if the damage is caused by an armed conflict, hostilities, civil war, insurrection or a grave natural disaster of an exceptional character, the liability is limited to the maximum amount of the government indemnification.<sup>1008</sup> To provide

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<sup>998</sup> Faure and Vanden Borre (2008), 219, 257; EMANI (2010) Annual Report, 16.

<sup>999</sup> Annual report ELINI (2010), 18.

<sup>1000</sup> Atomgesetz (AtG) - Gesetz über die friedliche Verwendung der Kernenergie und den Schutz gegen ihre Gefahren.

<sup>1001</sup> The Atomic Energy Act, Section 25.

<sup>1002</sup> Carrol (2007), 90.

<sup>1003</sup> Mez and Piening (2002), 161.

<sup>1004</sup> For the phase out of nuclear power in Germany, see Vorwerk (2002), 7.

<sup>1005</sup> <[http://www.bmu.de/english/nuclear\\_safety/information/doc/4300.php](http://www.bmu.de/english/nuclear_safety/information/doc/4300.php)>.

<sup>1006</sup> The Atomic Energy Act, Section 25 (1).

<sup>1007</sup> The Atomic Energy Act, Section 25 (3).

<sup>1008</sup> The Atomic Energy Act, Section 31 (1).

coverage for the potential liability, the operators are required to seek financial security. The administrative authority shall determine the type, terms and amount of the financial security. “The amount of the financial security shall be fixed subject to a maximum of EUR 2.5 billion.”<sup>1009</sup> Financial security can either be the third party liability insurance or be in other forms. If the liability is not covered by or cannot be satisfied by financial security, the federation shall indemnify the operator. The maximum amount of indemnification is set at EUR 2.5 billion, and the obligation of payment is the maximum amount minus the amount that is covered by financial security.<sup>1010</sup> After the payment of the indemnification, recourse is possible if the operator disobeys specific obligations, or the operator caused the damage wilfully or by gross negligence, or if the operator did not seek financial security to the required extent.<sup>1011</sup>

At that time, in the beginning of the 1970s, the pooling system in Germany emerged. At that time, an increase of the financial security up to 1 billion DEM was on the legislative agenda. The first DEM 500 million should be covered by private means while the government should indemnify the remaining half. The insurers and nuclear operators negotiated to cover liability up to DEM 500 million fully by insurance. The first DEM 200 million was covered by insurers while for the remaining DEM 300 million, the insurer only fronted contract. The remaining DEM 300 million was reinsured by the operators of nuclear power plants as a whole. This arrangement remained valid until 2002.<sup>1012</sup>

In 2002, the amendment to the Atomic Energy Act increased the amount of financial security up to EUR 2.5 billion and allowed financial security in other forms rather than through liability insurance.<sup>1013</sup> At that moment, insurers only covered EUR 256 million. The insurers agreed that they could not provide full coverage.<sup>1014</sup> The operators started to find alternatives: in 2001, the four parent companies of the 19 nuclear power plants negotiated and concluded a “Solidarity Agreement” to provide the remaining coverage mutually.<sup>1015</sup>

Under this agreement, the companies pool together to cover the second tier (in addition to the first EUR 246 million by the insurers) up to EUR 2.24 billion. Each party has an obligation to contribute a percentage of the total amount in case of a damage is attributed to one of the parties. The percentage for each nuclear power station is calculated according to the square root of the thermal reactor output. The percentage of power plants is then attributed to the parent companies on the basis of their participation (Clause 1 (3)). This allocation of liability is different from that in the US, where each operator bears the same quota. In Germany, the allocation of contribution is based on the generating capacity. As in the US, the obligation to make the contribution only comes due after a damage in excess of the insurance capacity happens. However, the risk that the operators have to contribute is even smaller in Germany: the partners only have to pay if neither the operator nor the parent company are in a position to pay up to EUR 2.5 billion (Clause 1 (5)). The solidarity agreement is hence only a guarantee for the payment by the liable parties. After the payment, the partners have a right of claim for repayment on the liable parties. But the liability for third parties prevails over the claims for recourse (Clause 1(8)). In addition to mutually guaranteeing the coverage of liability, the partners also need to provide help in handling the claims such as to make available legal and commercial staff capacity and infrastructure. For this kind of support, the partners cannot ask for repayment. The partners also provide help for the use of independent contractors, up to the amount of EUR 122, 218 million (Clause 2). To ensure the availability

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<sup>1009</sup> The Atomic Energy Act, Section 13.

<sup>1010</sup> The Atomic Energy Act, Section 34 (1).

<sup>1011</sup> The Atomic Energy Act, Section 37.

<sup>1012</sup> Pelzer (2007), 43.

<sup>1013</sup> The Atomic Energy Act, Section 13, 14; Carroll (2007), 91.

<sup>1014</sup> Carroll (2007), 91.

<sup>1015</sup> Pelzer (2007), 44, note 24.

of assets in case of damage, the partners need to submit an auditor's certification each year (Clause 3).

Both the US and Germany establish a retrospective pooling system to cover the nuclear liability. Both pooling systems provide a second tier of compensation: the first tier is made available through commercial insurance. However, some differences do exist: the US system is based on the statutory obligations arising from the PAA, while the German arrangement is achieved through a private contract. The contents in Germany are hence subject to changes in the contract. In addition, in the US each party's contribution is the same and is pre-determined in the statute, thus the total amount of compensation is dependent on the number of operators. In Germany, the maximum amount of compensation is set in the contract and the percentage of each partner depends on their involvement in the power plants and on the generating capacity. In the US, the individual liability of the operator is limited to the capacity of financial security, while in Germany, the operators are still liable if the capacity of the pooling is depleted. Another major difference lays in the conditions of payment. In the US, the obligation to pay the retrospective premiums comes due when damage in excess of the insurance capacity happens and the operators cannot get recourse from the liable parties. In Germany, the pooling is only a guarantee: it only pays in case the liable party fails to do so. The partners who have paid can claim for the repayment.

Research has shown that a risk sharing agreement is desirable when there is not sufficient actuarial information *ex ante* to make the risk insurable and mutual monitoring is possible.<sup>1016</sup> In the field of the nuclear industry, the operators have better access to risk information than the insurers. Besides, for a risk sharing agreement to work, the *ex-ante* information about the probability of damage is sufficient. While the insurers need also the information on the magnitude of potential damage for insurance to work. Another important issue is that the German nuclear pooling system is established within one country, where similar economic and legal conditions apply. Mutual monitoring is also facilitated through the nuclear regulatory authorities; they guarantee that the pool members have a comparable level of nuclear risks. To confine the scope of the pooling to one country, difficulties linked to the establishment of an international/European pool (on which we will elaborate in the next section) are avoided.<sup>1017</sup> Another advantage of the pooling system is that, as mentioned, it is less costly. In insurance the *ex ante* payment of premium is necessary and the premium paid is not refundable if no accident happens. In the German risk sharing pool, like in the US Price Anderson Act, the obligation to pay for contributions only becomes due in case of damage passing the triggering level and (in case of Germany) the liable parties fail to provide sufficient compensation.

#### **4.7.5. Towards a European pool for nuclear liability?**

The analysis so far shows, as was also examined when introducing risk pooling mechanisms theoretically, that pooling systems have many advantages. *Ex ante* information about the possibility and extent of risks are no longer necessary. One needs only to know the proportion of each member's contribution to the risk. As a low frequency high magnitude risk, nuclear liability is less predictable. A retrospective pooling system can relieve the heavy information burden. In addition, a pooling system also has financial advantages. A pooling system is not for profit, and can offer a cost-effective way to cover nuclear liability, especially the less predictable new headings under the second generation of the conventions. The pooling system

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<sup>1016</sup> Skogh (1998), 247-265 and Skogh (2000), 521-537.

<sup>1017</sup> Pelzer (2007); Carroll (2007), 94-96.

can also be beneficial for insurers, since they can be relieved from the burden of the new headings they do not feel able to cover.<sup>1018</sup>

For that reason many have been pushing for a risk sharing agreement as a solution for nuclear liability at the international level.<sup>1019</sup> It has also been argued that when the Paris and Vienna Conventions were revised risk pooling between operators would be able to generate substantially larger amounts than are currently available for nuclear damage under the international conventions.<sup>1020</sup> More recently the possibilities of a risk sharing by operators in Europe has also been worked out in further details whereby the financial consequences were calculated.<sup>1021</sup> Notwithstanding the theoretical advantages of using pooling by operators also in the nuclear sector at a larger scale a European wide nuclear liability pool has so far not emerged. To some extent this can also be understood. In spite of the promising features mentioned above, several requirements need to be satisfied for operators to pool effectively, especially at the international level. The states whose operators wish to participate in the pool should have comparable political, legal and economic backgrounds; the pooling members should have equal or comparable levels of nuclear safety and security.<sup>1022</sup> The countries with nuclear installations have varying political, legal and economic background, which creates a challenge for international pooling. This may be less a problem in the EU, where the members share more transboundary risks. However, with the enlargement of EU member states, the development status of the members are more diverging now. It is even more problematic as far as nuclear liability legislation is concerned. The EU states have a so called patchwork nuclear liability regime.<sup>1023</sup> They are subject to different nuclear liability conventions or do not join any convention at all. The domestic legislations have different attitudes towards many important issues such as limited/unlimited liability; amounts required for financial security, and so on.<sup>1024</sup> As for levels of nuclear safety and security, it is still problematic. Since pooling is based on trust and confidence, it should be possible for the operators to make mutual monitoring or an organization should exist to control the risks of its members. However, an EU-wide approach towards safety regulation and standards, and a single regulatory body is still missing in Europe. In spite of those weaknesses, it is worth noting that the EU is now making efforts towards a more harmonized system of nuclear liability, and many scholars are supporting this idea.<sup>1025</sup>

One of the reasons why risk pooling emerged successfully in the US is the role which is played by the Nuclear Regulatory Commission (NRC) which guarantees US wide nuclear safety standards. This obviously facilitates a risk pooling by operators since they know that all operators within the US at least have to comply with the minimum requirements imposed by NRC. A same harmonisation of safety standards is largely lacking in Europe which explains the reluctance of some operators in relatively “safe” member states to pool with operators in member states where lower safety requirements would apply. This comparison between the US and Europe teaches at least one important lesson: if one wishes pooling between operators to be successful at least a minimum safety requirement needs to be imposed by government (and seriously enforced) to facilitate mutual monitoring between operators.

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<sup>1018</sup> Carroll (2008), 96.

<sup>1019</sup> See for example Faure and Skogh (1992), 499-513.

<sup>1020</sup> Faure (1995), 21-43.

<sup>1021</sup> Faure and Fiore (2008).

<sup>1022</sup> Pelzer (2007).

<sup>1023</sup> See Reyners (2009).

<sup>1024</sup> For example, in Austria and Germany, unlimited liability was adopted. But in most member states, the liability is capped. With in those countries with limited liability, the required limitations also vary. For an overview of the liability limit in EU member states, see Final Report TREN/CC/01-2005, Legal Study for the Accession of Euratom to the Paris Convention on Third Party Liability in the Field of Nuclear Energy, p. 22-23, available at <[http://ec.europa.eu/energy/nuclear/studies/doc/2009\\_12\\_accession\\_euratom.pdf](http://ec.europa.eu/energy/nuclear/studies/doc/2009_12_accession_euratom.pdf)>.

<sup>1025</sup> For example, Ameye (2009); Hanrilica (2009).



## 4.8. Evaluation

In order to evaluate the risk sharing agreement it may be useful to employ the analytical framework offered by Guido Calabresi.<sup>1026</sup> Calabresi argues that liability rules should generally aim at a minimisation of the total social costs of accidents. He distinguishes between so-called primary, secondary and tertiary costs. The primary accident costs are the costs of accident avoidance and the accident costs. It are in other words the costs of preventing the accident and the expected damage. A first rule is hence that a risk sharing agreement should try to provide incentives to minimize the sum of prevention costs and expected damage by weighing the marginal costs of additional preventive measures versus the marginal benefits in a reduction of the accident risk.<sup>1027</sup>

Secondary costs are the costs of risk spreading. For example the ability of a mechanism to remove risk from persons that are risk averse would be a way of reducing secondary costs. The tertiary costs are referred to as administrative costs or more generally the costs of administrating the compensation system. Ideally a compensation mechanism such as a risk sharing agreement should minimise the sum of primary, secondary and tertiary costs. How can one evaluate risk sharing agreements from this perspective?

### 4.8.1. Primary cost reduction

To minimize the primary costs requires that the potential injurers are given optimal incentives to reduce the accidents. This means the contributions potential injurers have to pay should be aligned to the risks they create. Under a risk-sharing policy, it are the potential injurers who funded the risk pool. But whether the contributions of members in a risk-sharing agreement reflect the actual costs they produce deserve further analysis.

To base the contribution on each member's actual risk needs information on both the probability of a certain risk and the magnitude of losses in the case of occurrence. However, such information is not always available. This proposes a challenge to both the setting of contributions (premiums) and the capacity of a risk pool. Insurance policies try to deal with these problems by charging risk premiums for the uncertainties (referred to as insurer ambiguity).<sup>1028</sup> This, however, can lead to high premiums and make insurance a less attractive policy. The lack of information is less of a problem under risk-sharing agreements. An arrangement can be made in the agreements to make the contributions only actually paid when risks materialize. By then, the uncertain risks have been transformed into actual losses. Thus as long as a risk-sharing policy can differentiate between different levels of risks, accurate *ex ante* information on the probability and magnitude of the accidents would be no longer necessary. Risk-sharing policies are usually used to cover highly technical and complicated risks, such as nuclear liability and marine oil pollution liability. In specific sectors, members creating the same type of risks can cooperate together to tackle the potential losses. Different methods have been developed to differentiate risks among members in risk-sharing agreements. Theoretically speaking, pooling also provides members incentives for mutual monitoring, which contributes to maintaining the risks at a comparable level on the one hand, and alleviating the moral hazard problem on the other hand. However, whether effective mutual monitoring will happen in practice depends on specific situations. The primary costs reduction is not only related to the level of care, but also to the level of activity. As far as the nuclear risk is concerned, one can largely relate the activity level to the number of reactors a member possesses. The P&I Clubs try to set premiums commensurate with the riskiness of each member, using a combination of empirical, objective knowledge and tacit,

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<sup>1026</sup> Calabresi (1970).

<sup>1027</sup> This point has been further worked out by Shavell (1980).

<sup>1028</sup> Kunreuther et al. (1993).

subjective knowledge.<sup>1029</sup> At the beginning of the year, an advance call is made, based on the tonnage insured and the riskiness of their operations (expressed as a “rate” pre tonne).<sup>1030</sup> With the renewal of coverage, the premium of a member can be adjusted according to his past claim experience.

It has been argued that a competitive market is a prerequisite for liability insurance to work efficiently to spread risks and at the same time to sustain the appropriate preventive incentives.<sup>1031</sup> The risk-sharing agreement, as one type of mutual insurance, concerns the pooling of members and sometimes the co-insurance between different pools. For such an instrument, a competitive market is also essential for an efficient risk differentiation and maintaining a reasonable premium. The compatibility of risk-sharing agreements and competition deserves more discussion here. The pooling by various members, on the one hand can provide the otherwise unavailable large amount of coverage, and on the other hand, can decrease the competition by some arrangements such as agreements on premiums, standard form policies and so on.<sup>1032</sup> Whether the P&I Clubs should be exempted from EU competition policy is a long disputed issue. The International Group of P&I Clubs, composed by 13 major clubs, account for 93% of the worldwide market for P&I insurance. The Group operates on the basis of its International Group Agreement and Pooling Agreement, containing rules on the sharing of insurance claims and joint reinsurance. Those rules, especially the limitation on price cutting, have been hotly debated on their compatibility with EU competition policy. Despite it is doubtful that the conditions for exemption for the Group were fulfilled, the European Commission has granted the Group a 10 year exemption under the former Article 85(3) of the EC Treaty (Article 101(3), TFEU) in 1999. With the expiration of this exemption, this issue started to attract attention again. The agreements between the members of the Group are not automatically covered by the new competition block exemption for the insurance sector.<sup>1033</sup> Since the market share of the parties involved are substantially above the relevant thresholds provided by the block exemption (20% for co-insurance pools and 25% for co-reinsurance pools). Thus the European Commission opened formal proceedings to investigate whether the agreements between the P&I Clubs might infringe European Union antitrust rules on 26 August 2010.<sup>1034</sup> This investigation, however, closed in 2012, with the conclusion that the investigation cannot confirm the concerns over antitrust issues.<sup>1035</sup>

#### 4.8.2. Secondary cost reduction

A risk-sharing agreement also plays a role in the reduction of secondary costs. A risk-sharing agreement is usually established to provide protection to its members. Members of a risk-sharing pool can pay their contribution through *ex ante* payment, *ex ante* reserves or *ex post* payments. The difference in forms of payment can also lead to variance in corresponding costs. An obvious advantage of the model to ask members make a full contribution *ex ante* is that the funds would be available in the event of an accident.<sup>1036</sup> However, it is costly in the sense that the assets paid would be immobilized during the policy period. The substantial

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<sup>1029</sup> Bennet (2001), 15.

<sup>1030</sup> Ibid.

<sup>1031</sup> Van den Bergh and Faure (2002), 279.

<sup>1032</sup> For example, the clubs do not allow competition by cutting rates. They argue that rates cutting would decrease stability and derogate an effective claims records, based on which the premiums could be determined.

<sup>1033</sup> Commission Regulation (EU) No. 267/2010 of 24 March 2010 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to certain categories of agreements, decisions and concerted practices in the insurance sector.

<sup>1034</sup> <<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/10/1072&format=HTML&aged=0&language=en&guiLanguage=en>>.

<sup>1035</sup> Antitrust: Commission closes investigation in P&I Clubs case, available at: <[http://europa.eu/rapid/press-release\\_IP-12-873\\_en.htm](http://europa.eu/rapid/press-release_IP-12-873_en.htm)>.

<sup>1036</sup> Faure and Fiore (2008), 306.

contribution in some industries, such as the nuclear sector may make some smaller members insolvent.<sup>1037</sup> Instead of actually making the payment *ex ante*, the contributions can also be reserved, but not paid on an *ex ante* basis. Without actual payment, an arrangement should exist to ensure that the amount set aside is still available in the event of an accident, which creates high administrative costs on the control of reserves. Besides, “some priority regulation needs to be made in order to ensure that the trustee in bankruptcy cannot seize the funds.”<sup>1038</sup> In the case of a retrospective contribution, there is no requirement of *ex ante* payment or reserves, which means that no assets are immobilized or lost until an accident occurs. This costs saving, however, has to be balanced with the security of such a financial guarantee and the risk of insolvency of members. Many other factors need to be considered in determining the insolvency risk. Other regulations may contribute to the control of insolvency, as in the case of the nuclear sector.<sup>1039</sup> The insolvency of one member will lead to increasing shares of other members, which creates high incentives of mutual monitoring with respect to the solvency status. Besides, sometimes, guarantees are required to ensure the availability of funds in the event of an accident. The costs of a guarantee may also form a substantial part of the costs of an *ex post* payment method.<sup>1040</sup>

The method to finance a risk-sharing pool of course influences the primary costs as well. That financing method, or in the other words, the moment when the pool is established also has an impact on the security of a risk-sharing agreement as a compensation mechanism. The *ex ante* payment approach enjoys the merit of having funds available when the obligation to compensate is due. As for the *ex ante* reserves approach, regulation and monitoring should be used to ensure the amount is actually set aside by each member and is still available in the event of an insured risk materializes. Besides, the bankruptcy institution is also essential in the sense that other debtors should not have a priority over the claimers on the risk-sharing policy to be compensated by the reserved assets. Under the retrospective premium approach of the PAA, the *ex ante* reserves or payment are not required. Hence, the question of the availability of the agreed contribution in the event of an accident arises. The solvency regulation and financial guarantees of payment for shares of the members are then an important factor to determine the security of a risk-sharing agreement.

Except for the part of damage which can be regarded as damage to a member’s own property, the damage is only compensated under a risk-sharing agreement when the liability is established for one of the members. In some arrangement, such as the P&I policies, an even more stringent condition is required: the members should first pay for the damage and suffer actual losses to get the reimbursement. Those arrangements, from the victims’ perspective may be inferior, given the difficulties in establishing liability with respect to environmental damage.

Another factor to be considered here to evaluate the secondary costs of a risk-sharing agreement is the capacity of it to offer ample compensation. The risk-sharing agreement can provide coverage for otherwise uninsurable risks given their unpredictability. Besides, it has high potential to give a large amount of compensation due to its function in both interpersonal and intertemporal risk spreading. On the one hand, with the contributions to a risk pool by many members, the risk of a large amount of compensation is spread among those members.

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<sup>1037</sup> Ibid., 306-307.

<sup>1038</sup> Ibid., 307.

<sup>1039</sup> Ibid., 308.

<sup>1040</sup> For example, the risk-sharing arrangement under Price-Anderson Act adopts the third approach. To guarantee the payment of retrospective premiums, the licensees are required to prove their solvency by: surety bond, letter of credit, revolving credit, maintenance of escrow deposits of government securities, annual certified financial statements and other approved types. (United States General Accounting Office, Report to Congressional Requesters, Nuclear Regulation: NRC’s Liability Insurance Requirements for Nuclear Power Plants Owned by Limited Liability Companies.7-8 (2004)). As for the first four types, the cost of the guarantee would be positive.

On the other hand, in the case of catastrophes, it is not necessary to make the full contribution at once. Take the system of retrospective premiums in the Price-Anderson Act as an example. A risk pool is established with the participation of 104 nuclear operators in the U.S.,<sup>1041</sup> making the capacity to compensate for damage amounting up to \$ 12.2 billion (including the amount available from insurance market). The limitation for each reactor's contributions is \$111.9 million. This amount, however, is not required to be financed at once. Instead, it can be financed through years, with a maximum annual retrospective premium of \$17.5 million per reactor per year.<sup>1042</sup> With this arrangement, the capacity of compensation by a risk-sharing agreement is substantially increased. As far as the P&I Clubs are concerned, the pool provides a mechanism for sharing all claims in excess of \$6 million up to about \$4.5 million, with a retention of \$8 million by each Club, a layer of claims between \$8 million to \$2.03 billion arranged by the Group, and the upper layer falls back onto each Club.<sup>1043</sup>

### 4.8.3. Tertiary cost reduction

Besides the potential to reduce primary costs and secondary costs, a risk-sharing agreement also creates tertiary costs. The agreement is usually established among members of the same sector and producing the same types of risks. Compared to a third party insurer, the potential injurers themselves possess better knowledge about the potential risks, methods about risk assessment and controlling, as well as mutual monitoring. In this sense, the risk-sharing agreement can help to keep the costs to operate such a compensation mechanisms lower compared to insurance. However, this benefit needs to be balanced against the advantages of insurance, since insurers are specialized in dealing with risk.

A risk-sharing agreement can operate on the basis of an existing organization or through a specifically created one. The system of retrospective premiums in the Price-Anderson Act works through ANI, which is the insurer who provides insurance for nuclear operators for the liability of the first layer under the Price-Anderson Act. There are no separate entities established specifically for the operation of the nuclear pool. The ANI is also responsible for collecting the retrospective premiums when the claims exceed the amount of the first layer. This design, on the one hand, keeps the two layers of compensation consistent; and on the other hand, saves the costs of establishing another organization and keeping the functioning of two separate systems. In the marine transport area, a system of mutual associations has been established. Unlike nuclear insurance, which contains limited insured, and is often operated on a monopolistic basis, the insurance market of marine liability is composed of a large number of participants on both sides of insured and insurers. Thus is it not feasible to rely on a specific insurer or public authority to run the risk sharing pools. Specific entities - the P&I clubs have to be established to run the risk sharing pools. The operation of those clubs can lead to substantial administrative costs. However, the Clubs play more roles than providing insurance: they can provide correspondents and representatives to give on-the-spot assistance; Clubs also provide Letters of Undertaking when members' vessels are arrested; they also assist members in claims handling and settlement.<sup>1044</sup> Those additional uses beyond providing insurance can be regarded as a counterweight to the high costs of running such a pooling system.

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<sup>1041</sup> U.S. NRC, Power Reactors, available at: <<http://www.nrc.gov/reactors/power.html>>.

<sup>1042</sup> 10 C.F.R. § 140.11 (4); 75 FR 16646, Apr. 2, 2010.

<sup>1043</sup> See the website of UK P&I Clubs, at: <[http://www.ukpandi.com/ukpandi/infopool.nsf/html/About\\_IG](http://www.ukpandi.com/ukpandi/infopool.nsf/html/About_IG)>.

<sup>1044</sup> Ronnerberg (1990), 25-28.

#### 4.8.4. A few lessons from the other high risk sectors

This overview of how risk pooling is organized in other high risk sectors on the one hand provided theoretical conditions for a risk-sharing mechanism to work. It pointed out that more particularly when information with insurers on the probability may not be available, a risk-sharing agreement between operators may be an attractive alternative. The risk-sharing (or pooling) arrangement has the major advantage that actuarial fair premiums do not have to be established *ex ante*. Hence, even under uncertainty on precise probabilities risk sharing agreements can emerge as long as the relative contribution of each member to the risk is known. To the extent insurance solutions are not widely available for offshore installations, risk-sharing may thus be an attractive solution.

However, the examples of risk-sharing in the nuclear sector showed that the theoretical advantage of a risk-sharing agreement (strong incentives for mutual monitoring) are only materialized if there is a minimum level of harmonization of safety regulation. If the operators can at least rely on the fact that all members will have to comply with minimum safety regulations, their additional task a mutual monitoring will be relatively limited. Since such safety regulation is enforced in the US (via the nuclear regulatory commission) risk-sharing is easier in the US than in Europe where there was large reluctance given the absence of mandatory safety requirements.

That may hence be an important lesson at the policy level: if the policy maker (like the EU Commission) would like to stimulate risk-sharing by operators, it can play an important role in providing a facilitative strategy, i.e. providing minimum safety standards, thus reducing the need for very intensive mutual monitoring. In the absence of minimum safety standards, there will always be a risk of negative redistribution and adverse selection since the risk-sharing agreement will then be most attractive for the bad risks as a result of which the good risks will not be willing to join.

In that respect yet another interesting lesson may be drawn from the nuclear example (although the policy implication may not be that straightforward). In the Price Anderson Act, substantial amounts are generated in a second layer (differently than in the nuclear liability regimes under the international conventions, where large subsidies to the nuclear industry are generated). However, the risk-sharing is in fact mandated by the Price Anderson Act and hence not voluntary. The way it is arranged in the Price Anderson Act has, however, the advantage that funds do not have to be available upfront as a result of which one avoids to immobilize important financial capacity. Moreover, the nuclear regulatory commission again prefinances the compensation in the second layer and then only asks contributions from all operators via annual retrospective premiums. Hence, funds should only be made available *ex post* and, moreover, guarantees are provided that the operators will be able to meet their obligations. The model followed in the US Price Anderson Act seems more attractive than the compensation regime under the international conventions. However, this could perhaps work for a second layer of compensation for amounts which go above the individual capacity of one single operator of an offshore facility. As far as the individual liability of offshore facilities is concerned, an interesting lesson can be drawn from vessel-based marine pollution where compensation is provided via a risk-sharing agreement constitute through the so-called Protection and Indemnity Clubs. Both hence provide interesting lessons that can be taken into account when later drawing the scenarios (in chapter 7) and the recommendations for further action at the EU level (chapter 8).

#### 4.9. Rapid claims management

An important question, not only within the context of pooling (but also there) is to what extent a compensation mechanism is able to guarantee rapid claims settlement. This may more particularly be of importance for example for restaurants and hotels in coastal areas

affected by offshore related pollution, but also for the fishing sector. Often those industries have financed their activities based on credit. Hence, when for example a fisher or hotel would lose income as a result of business interruption following an offshore related incident this can have devastating consequences and potentially lead to the bankruptcy of those institutions since their income may be lacking whereas loans still need to be paid back. Hence, the question arises to what extent more particularly within pooling mechanisms a rapid claims settlement can be arranged such that payments e.g. to hotel/restaurant owner and fishermen can be guaranteed in order to prevent further damage resulting from their insolvency. A look at the solutions in that respect in pooling arrangements is particularly interesting since the traditional liability mechanism (via civil procedure) often has the disadvantage that court procedures in order to establish liability may take very long with potentially devastating consequences for the financial situation of the victims.

#### 4.9.1. OPOL

The essence of OPOL is that the operator, member of OPOL agrees to settle a claim quickly on a strict liability basis.<sup>1045</sup> The claim has to be filed within 12 months and the operator needs to pay expeditiously.

As long as there is no default of an operator OPOL does not intervene in claim settlement.<sup>1046</sup> Hence in the normal cases OPOL has no reason to intervene and the operator will settle the claim. However, the strict liability rule always applies, also if there is no default of an operator. Representatives of OPOL hold that this will guarantee a rapid payment by those who have provided financial guarantee under the OPOL arrangement.<sup>1047</sup>

As such the OPOL agreement does not provide a direct right of action to a victim. However, if a victim would be dissatisfied with the way in which one of the OPOL members has handled the claim the victim has the possibility to call on arbitration under the rules of the International Chamber of Commerce.

Also others hold that the strict liability to which OPOL members agree guarantees that there will be payment. Hence, normally there should be no problem with a rapid compensation of victims.<sup>1048</sup>

#### 4.9.2. Norway

As was made clear when discussing the compensation regime in Norway,<sup>1049</sup> Norway has in the Petroleum Activities Act a specific compensation regime for compensation Norwegian fishermen. Claims are handled by a commission (an administrative appeal body) within strict time limits (of two months). Specifically for fishermen's losses Norwegian legislation hence has a rapid claims settlement mechanism whereby compensation to fishermen is provided within short, strict, delays and through a special administrative commission.

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<sup>1045</sup> Interview with Niall Scott, Managing Director of OPOL and Collin Wannell, Chairman of the Board of OPOL on 27 March 2013.

<sup>1046</sup> Although Ms. Wendy Kennedy, representative of DECC held that OPOL will verify that the members comply with the strict liability duties under OPOL.

<sup>1047</sup> Interview with Niall Scott, Managing Director of OPOL and Collin Wannell, Chairman of the Board of OPOL on 27 March 2013.

<sup>1048</sup> Interview with representatives of Oil & Gas UK in London on 1 May 2013.

<sup>1049</sup> See *supra* 3.5.3.9.

### 4.9.3. CLC/Fund Convention

Also the regime of the CLC and Fund Convention, applicable to vessel-based pollution<sup>1050</sup> provides specific rules on claims management. Claims management is dealt with in Article 4.7 of the Fund Convention as follows:

“The Fund shall, at the request of a Contracting State, use its good offices as necessary to assist that State to secure promptly such personnel, material and services as are necessary to enable the State to take measures to prevent or mitigate pollution damage arising from an incident in respect of which the Fund may be called upon to pay compensation under this Convention.”

Article 6 furthermore provides:

The time limit to bring an action for compensation is within three years from the date of the incident which caused the damage. However, in no case shall an action be brought after six years from the date of the incident which caused the damage.

Moreover, claims handling by the IOPC Fund takes place on the basis of a Claims Manual. The fact that there is an annual contribution and the existing finances available may facilitate the payment to the victims. In this respect, the advantage of the IOPC Fund is that it always has a certain amount of funds available. So when it comes to compensation to the victims, the compensation can be quickly done (if all the conditions are complied with).

The Claims Manual of the IOPC Fund specifies that

“The 1992 Fund and the P&I Clubs try to reach agreement with claimants and pay compensation as promptly as possible. They may make provisional payments before a final agreement can be reached if a claimant would otherwise suffer undue financial hardship. However, provisional payments are subject to special conditions and limits, particularly if the total amount of claims exceeds the total amount of compensation available under the two 1992 Conventions.”<sup>1051</sup>

However, as the Claims Manual states, the “speed with which claims are agreed and paid depends largely on how long it takes for claimants to provide the required information.”<sup>1052</sup> It is also for the reason to facilitate claims settlement that the Fund has developed a Claims Manual to assist the claimants in pursuing their claims.

The Fund even has special guidelines for claimants from the fisheries, mariculture and fish processing sector in presenting their claims.<sup>1053</sup>

Representatives from the International Group of P&I Clubs explain that the way the P&I and Fund mechanism works is that victims have to hand in a claim and provide detailed documentation supporting the claim, thus providing evidence e.g. of the specific amounts of the damage.<sup>1054</sup> That documentation will then be carefully reviewed and normally, if the documentation indeed substantiates the claim, within 6 months a payment will be made. In principle the P&I Club will immediately investigate a claim after the documentation

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<sup>1050</sup> And discussed in detail in section 4.4.

<sup>1051</sup> Claims Manual, International Oil pollution Compensation Fund 1992, December 2008 Edition, p20. Available at <[http://www.iopcfunds.org/uploads/tx\\_iopcpublishments/2008\\_claims\\_manual\\_e.pdf](http://www.iopcfunds.org/uploads/tx_iopcpublishments/2008_claims_manual_e.pdf)>, last accessed 29 April 2013.

<sup>1052</sup> Ibid.

<sup>1053</sup> Guidelines for Presenting Claims in the Fisheries, Mariculture and Fish Processing Sector, International Oil pollution Compensation Fund 1992, December 2008 Edition.

<sup>1054</sup> In the interview with representatives of the International Group of P&I Clubs on Wednesday 1 May 2013 in London.

substantiating the claim has been received. When it concerns a large incident pay-out may obviously be later, since assessments may be more complex. In those cases that exceed the CLC limit usually a joint claim handling office by the involved P&I Club and the Fund will be set up. Joint experts will be appointed and the entire case will be jointly handled. In principle the club pays first up to the amount of the limit in the CLC; the Fund pays once the CLC limit has been reached.<sup>1055</sup>

In principle if claimants provide their claims rapidly and provide proof to substantiate the claims, claims will be rapidly assessed as far as their admissibility is concerned as well. However, it may require expert knowledge to analyze whether a claim is admissible. The pool of experts to assess this, is relatively small.

It should be stressed that *de facto* claims handling by P&I Clubs and the Fund (hence for marine vessel based pollution) has in the EU not led to a serious problem. The horror stories coming from the US with long litigation (like in the case of the Exxon Valdez) are typically linked to the specific US situation (e.g. including debates concerning punitive damages).<sup>1056</sup>

#### **4.9.4. Claims settlement in the Deepwater Horizon case**

##### *4.9.4.1. General claims procedure under OPA<sup>1057</sup>*

Section 2713 of OPA sets forth the procedures for claims handling after the occurrence of an incident. Following a spill, the President, acting through the Coast Guard, identifies the responsible party, which is required to advertise that it has been designated as the responsible party and to provide information about how claims can be pursued against the responsible party.<sup>1058</sup> “A claimant must first submit his claims for removal costs or damages to the responsible party for payment before either making a claim against the OSLTF or filing law suit under OPA against the responsible party. If the responsible party denies all liability for the claim or does not settle the claim by making payment within ninety days after the day the claim was presented or advertising was begun, whichever is later, then the claimant has an option. The claimant may either file a lawsuit against the responsible party, or it may make a claim against the OSLTF. A claim may be presented directly to the Fund, without first presenting it to the responsible party, only if

- (1) the President has advertised or otherwise advised claimants,
- (2) a responsible party has a complete defense or has exceeded its limit of liability, entitling it to recovery pursuant to §2708,
- (3) a State seeks recovery for removal costs it has incurred, or

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<sup>1055</sup> Ibidem.

<sup>1056</sup> Ibidem.

<sup>1057</sup> Force, Davies and Force (2011), 949-956.

<sup>1058</sup> 33 U.S.C. § 2714. The responsible party or guarantor has five days to deny its designation as a responsible party, and upon its failure to do so, must advertise the designation and procedures by which claims may be presented to it within fifteen days of the designation. If the responsible party does not advertise, the President is responsible, at the expense of the responsible party or the guarantor, for advertising the designation and procedures by which claims may be presented to the responsible party. The advertisement must continue for no fewer than thirty days. 33 U.S.C. § 2714(b)(1). Section 2714(b)(2) provides that the advertisement “shall state that a claimant may present a claim for interim, short-term damages representing less than the full amount of damages to which the claimant ultimately may be entitled and that payment of such a claim shall not preclude recovery for damages not reflected in the paid or settled partial claim.” Under Section 2714(c), if (1) during the five day period both the designated responsible party and the guarantor deny the designation, (2) the source of the discharge or threat was a public vessel, or (3) the President cannot designate the source, then “the President shall advertise or otherwise notify potential claimants of the procedures by which claims may be presented to the Fund.”

It should be noted that OPA does not impose a mandatory duty on the President to designate a responsible party, but instead, only requires the President to designate a responsible party “where possible and appropriate”.



(4) a U.S. claimant asserts a claim for damage for which the Fund is liable under §2712 (a) caused by a discharge from a foreign offshore unit.”<sup>1059</sup>

If a claimant files a lawsuit, he has temporarily waived his right to make a claim against the OSLTF. If a claim is not compensated or is not compensated in full through the claimant’s lawsuit, then the claimant may subsequently make a claim against the OSLTF. The presentment requirement under OPA is not a mere procedural technicality, but is a mandatory condition precedent to filing lawsuits against a responsible party. If a claimant does not comply with this requirement, his claim will be dismissed.<sup>1060</sup>

Following the OPA procedure, the Coast Guard designated BP and Transocean as responsible parties, and it also provided notice to a BP-related entity and an insurer of Transocean as these parties’ guarantors.

#### 4.9.4.2. *Claims settlement in Deepwater Horizon*

Within weeks after the Deepwater Horizon incident, BP already began to pay compensation for claims.<sup>1061</sup> Following the Deepwater Horizon incident, after negotiation with the Obama administration, BP established on 16 June 2010 a fund of \$20 billion to compensate those affected by the incident. Political pressure has undoubtedly been executed on BP by president Obama to create such a fund. If BP would have refused to create such a fund it was at risk of losing its right to drill in the Gulf of Mexico, which could potentially have even had more devastating financial consequences for BP and could potentially even have led to its bankruptcy.<sup>1062</sup> The claims would be processed through an independent claims facility, administered by Kenneth Feinberg. This facility is known as the Gulf Coast Claims Facility (GCCF). Two independent trustees, Kent Syverud and John Martin were appointed as independent trustees of the fund.<sup>1063</sup> The idea was to create a trust for the compensation which is independent and which can manage the available money. For both the defendant (BP) as well as for the plaintiffs (the victims) it was important that someone else than the defendant (BP) held the funds. That is why a separate facility was created.<sup>1064</sup> It began to accept claims as of 23 August 2010. Prior to that time, BP processed and awarded claims. According to BP, the company awarded \$399 million in claims from 3 May till 23 August 2010 in transition to the GCCF.<sup>1065</sup> This office was closed in June 2012 since the court took over the supervision of claims settlement.

On 23 August 2010, the GCCF issued its Protocol for Emergency Advance Payments, which established procedures for emergency advance payments by individuals and businesses for costs and damages incurred as a consequence of the incident.<sup>1066</sup> These mainly include compensation for the loss of earnings or profits, removal and clean-up costs, real or personal property damage, loss of subsistence use of natural resources and physical injury or death caused by the spill.

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<sup>1059</sup> For a detailed discussion on the claims procedure, see Force, Davies and Force (2011), 949-956.

<sup>1060</sup> Force, Davies and Force (2011), 950.

<sup>1061</sup> <<http://www.bp.com/sectiongenericarticle800.do?categoryId=9048917&contentId=7082602>>, last accessed 7 May 2013; see also the Claims and Government Payments Public Report, 31 March 2013, <[http://www.bp.com/liveassets/bp\\_internet/globalbp/globalbp\\_uk\\_english/gom\\_2012/STAGING/local\\_assets/downloads\\_pdfs/Public\\_Report\\_March\\_2013.pdf](http://www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/gom_2012/STAGING/local_assets/downloads_pdfs/Public_Report_March_2013.pdf)>, last accessed 7 May 2013.

<sup>1062</sup> So Dr. Philipp Wassenberg, representative of Munch Re, interview on 6 May 2013.

<sup>1063</sup> <<http://www.bizjournals.com/stlouis/stories/2010/10/18/focus3.html?page=all>>, accessed on 9 February 2013.

<sup>1064</sup> Interview with Kent Syverud in Saint-Louis on 5 March 2013.

<sup>1065</sup> Ramseur (2011), 15. See also BP Press Release, 23 August 2010, available at: <<http://www.bp.com/genericarticle.do?categoryId=2012968&contentId=7064597>>.

<sup>1066</sup> Gulf Coast Claims Facility Protocol for Emergency Advance Payments, Gulf Coast Claims Facility, section II (F), 23 August 2010.

On 22 November 2010, the GCCF issued Protocol for Interim and Final Claims, which the GCCF subsequently revised on 8 February 2011.<sup>1067</sup> The GCCF received claims for both interim payments designed to compensate claimants for past losses and final payments designed to compensate claimants for past and future losses.<sup>1068</sup>

According to a study commissioned by the US Department of Justice, during its one and half year tenure, the GCCF processed over one million claims and paid a total of more than \$6.2 billion to over 220,000 individual and business claimants. Approximately 99.8% of the claims paid and 96.8% of the amounts paid related to claims for lost earnings or profits.<sup>1069</sup>

In April 2012, BP has reached definitive agreements with the Plaintiffs' Steering Committee with regard to the substantial majority of eligible private economic losses and medical claims stemming from the incident. These agreements were approved by the court in December 2012 and January 2013, although BP is still challenging a recent ruling by the court regarding the interpretation of certain protocols established in the economic and property damages settlement agreement.<sup>1070</sup>

As of 31 March 2013, BP has paid approximately US\$10.7 billion to government, individual and business claims.<sup>1071</sup>

Table 12: Payments

Payments	Amount paid (US\$)
Individual and business claims	8,960,334,955
Government	1,419,854,638
Other	311,976,156
Total payments	10,692,165,749

The remainder of the 20 bio. US\$ that was provided to the GCCF by BP was returned to BP. BP may use it to pay government claims and to pay off other plaintiffs with whom litigation still exists.<sup>1072</sup>

#### 4.9.4.3. A critical review of the GCCF

The GCCF is a private funding to compensate victims of mass torts which cause damage over wide range (e.g. an environmental disaster).<sup>1073</sup> The approach adopted by the GCCF is not

<sup>1067</sup> For an analysis of the function of GCCF, see Force, Davies and Force (2011), 936-937.

<sup>1068</sup> BDO Consulting (commissioned by the US Department of Justice), Independent Evaluation of the Gulf Coast Claims Facility: Report of Findings and Observations, 5 June 2012. The study is available at: <<http://www.justice.gov/opa/documents/gccf-rpt-find-obs.pdf>>. This study defines the compensation process of GCCF into two phases: Phase I starts from August 2010, and Phase II starts from February 2011. The findings of the study shows that the claims filed during phase II were subject to more stringent documentation requirements than those filed during phase I, whereas meanwhile it expanded the types of businesses that would be potentially eligible for compensation and granted automatic eligibility to claimants located on the Gulf shore who were involved in businesses that were particularly reliant on Gulf resources.

<sup>1069</sup> BDO Consulting (2012), 62.

<sup>1070</sup> <<http://www.bp.com/sectiongenericarticle800.do?categoryId=9048917&contentId=7082602>>, last accessed 7 May 2013.

<sup>1071</sup> <<http://www.bp.com/sectiongenericarticle800.do?categoryId=9048911&contentId=7082592>>, last accessed 7 May 2013.

<sup>1072</sup> Interview with Kenneth Feinberg, special administrator of the GCCF on 16 June 2013 in Haifa.

<sup>1073</sup> For a discussion on various mechanisms used in mass tort claims, see Greenspan and Neuburger (2012), 97-136; Conk (2012), 137-183.

unique. Such an alternative claims resolution program is also used after e.g. September 11 attack.

One advantage of such a GCCF is that it can “forestall the potentially devastating effects on families and local areas directly impacted”.<sup>1074</sup> Compared with the lengthy and costly litigation, such private funding may have the advantage of “distributing funds to affected claimants more quickly and at less cost to the claimants”.<sup>1075</sup>

An important advantage of an alternative dispute resolution of this type is that the costs of its functioning are considerably lower than the costs of the tort system and that hence much more funds were available for the victims.<sup>1076</sup> In sixteen months time 220,000 real claims were settled. During this period of sixteen months 3,000 were employees were working for the GCCF in 35 offices at an approximate cost of 40 mio. \$/month.<sup>1077</sup> The fund could function as a confidence builder and substantial amounts could be paid out rapidly (most victims were paid in less than 3 years after the accident). For a catastrophe of this size such a rapid management of claims has not been heard of. The alternative would have been a litigation of hundreds of thousands of claims via different courts. Not only would this have taken many years and led to a lot of uncertainties, also with the victims that would probably still today not have been compensated. Moreover, generally in the US in mass damage class actions often one third of the available compensation goes to plaintiffs’ lawyers. Compared to that the expenses for the running of the GCCF are very modest.<sup>1078</sup> Of course there were some problematic aspects in the functioning of the GCCF as well. For example the costs of a consultancy firm (DBO) to verify payments (17 mio. US\$) were extremely high. Also, the mere fact that initially it was signalled to the victims that 20 bio. US\$ was available undoubtedly had an attractive effect on the amount and number of claims. This may have created a few unjustified (and perhaps even fraudulent) claims. However, on the whole, the advantages of such a fund solution (via the GCCF) are to be considered overwhelming, especially when compared to the court system. The important function was to reassure the victims that payment would be available, thus avoiding hundreds of thousands of claims initiated by victims, supported by a strong US plaintiff bar. The latter could potentially have led to the insolvency of BP as a result of which victims may never have been compensated at all and with potentially devastating consequences for British pension holders as well (since BP is largely owned by British pension funds). That is why there were many interests in avoiding the tort system and providing rapid reassurance to the victims that compensation would be rapidly available.<sup>1079</sup>

#### 4.9.4.4. *Civil compensation*

There have been two settlement agreements approved concerning the damages caused by the Deepwater Horizon incident. One was approved by a federal judge Barbier (of the US District Court for the Eastern District of Louisiana) on 21 December 2011 concerning the economic and property damages, the second one was approved by the same judge on 11 January 2013 concerning medical benefits. However, a significant amount of adjudication still needs to be conducted, since the government’s multiphase limitation and liability trial has not yet begun to determine the cause of the Macondo well blowout and assign percentages of fault to the companies involved. That trial was scheduled to begin on 25 February 2013.

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<sup>1074</sup> Greenspan and Neuburger (2012), 99.

<sup>1075</sup> Ibid.

<sup>1076</sup> Interview with Kent Syverud in Saint-Louis on 5 March 2013.

<sup>1077</sup> Interview with Kenneth Feinberg, special administrator of the GCCF on 16 June 2013 in Haifa.

<sup>1078</sup> Ibidem.

<sup>1079</sup> Ibidem.

First, with respect to the class action for economic and property damages, the settlement agreement covers individuals and businesses in Alabama, Louisiana, Mississippi, and certain coastal counties in eastern Texas and western Florida, as well as specified adjacent Gulf waters and bays.<sup>1080</sup> In his order, judge Barbier recognized six categories of damage:

- specified types of economic loss for businesses and individuals;
- specified real property damage;
- vessel of opportunity charter payments;
- vessel physical damage;
- subsistence damage, and
- the seafood compensation program.

The damages are summarized as follows:

1. “Seafood Compensation Program. Damages suffered by a commercial fisherman, Seafood Crew, or seafood vessel owner that owned, operated, leased or worked on a vessel that (1) was Home Ported in the Gulf Coast Areas at any time from April 20, 2010 to April 16, 2012, or (2) Landed Seafood in the Gulf Coast Areas at any time from April 20, 2009 to April 16, 2012; and damages suffered by, inter alia, oyster leaseholders and IFQ Owners. (Exhibit 10). Claims for Economic Damage arising from the fishing, processing, selling, catching, or harvesting of menhaden (or “pogy”) fish are excluded from the Seafood Compensation Program and other Economic Damage Claims under this Agreement.”

2. “Economic Damage Category. Loss of income, earnings or profits suffered by Natural Persons or Entities as a result of the Deepwater Horizon incident, subject to certain Exclusions. (Exhibits 16-19).”

3. “Subsistence Damage Category. Damages suffered by Natural Persons who fish or hunt to harvest, catch, barter, consume or trade Gulf of Mexico natural resources, including Seafood and game, in a traditional or customary manner, to sustain their basic or family dietary, economic security, shelter, tool or clothing needs, and who relied upon Subsistence resources that were diminished or restricted in the geographic region used by the claimant due to or resulting from the Deepwater Horizon Incident. (Exhibit 9).”

4. “VoO Charter Payment Category. Damages suffered by Natural Persons or Entities who registered to participate in BP’s Vessels of opportunity (“VoO”) program and executed a VoO Mater Vessel Charter Agreement with BP, Lawson, USMS, USES, DRC, or any other BP subcontractor as charterer, and completed the initial VoO training program.”

5. “Vessel Physical Damage Category. Physical damage that was sustained by an eligible Claimant’s eligible vessel due to or resulting from the Deepwater Horizon Incident or the Deepwater Horizon Incident response cleanup operations, including the Vessels of Opportunity Program. (Exhibit 14).”

6. “Coastal Real Property Damage Category. Damages alleged by a Coastal Real Property Claimant that meet the requirements set forth in the Coastal Real Property Claim Framework.”<sup>1081</sup>

We will come back to the possibility of creating such a rapid Claims Management system also for offshore-related damage in EU waters below.<sup>1082</sup>

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<sup>1080</sup> <[http://dailyreport.bna.com/drpt/display/batch\\_print\\_display.adp](http://dailyreport.bna.com/drpt/display/batch_print_display.adp)>.

<sup>1081</sup> Case 2:10-md-02179-CJB-SS, Document 8139, filed 21 December 2012.

<sup>1082</sup> See 7.6.

## 4.10. Concluding observations

### 4.10.1. Advantages of pooling

This analysis of pooling mechanisms sheds an interesting light not only on the pooling mechanisms that are currently in use in the offshore sector, but also on theoretical advantages of pooling mechanisms as well as on funding for vessel-based pollution and in the nuclear sector. Even though these other sectors may seem slightly remote from the offshore liability incidents, the analysis of pooling mechanisms in those other high-risk sectors showed to be quite revealing, on the one hand showing strengths and weaknesses of pooling mechanisms in general, but on the other hand also showing a few basic conditions for pooling mechanisms to develop in a successful manner. Moreover, the analysis of the compensation mechanism already in existence at the international level for vessel-based pollution was equally interesting. On the one hand it shows the possibilities to raise relatively high amounts of compensation via a combination of different techniques (coverage via Protection and Indemnity Clubs combined with a compensation fund). On the other hand, the international regime also showed a few specific features (like financial limits on liability and channelling) which are heavily criticised in the literature and hence may provide interesting warnings in the development of a liability and compensation regime for the offshore sector.

When addressing first risk pooling at a general level, the literature indicates (and the examples examined confirm) that risk pooling between operators has a few attractions and advantages, especially when risks are complicated, highly technical and relatively little information is available with third parties (more particularly insurers). Under those circumstances, insurance coverage may be problematic since insurance always requires *ex ante* information on the probability of an accident and the potential magnitude of the damage in order to be able to calculate actuarially fair premiums. In that respect, a pooling arrangement has the major advantage that coverage is possible without necessarily having actuarial correct information on risk. Even if *ex ante* probabilities of the accident are not known, pooling is possible. The only requirement is that the relative contribution of the different parties to the pool is known, as a result of which risks can be differentiated. Hence, as long as one would know that e.g. offshore installation A poses a higher risk than offshore installation B, pooling is possible whereby A will have to contribute more to the pool than B, even if the precise probability of the risk for either A or B is unknown. Second, pooling is especially attractive since it will provide excellent incentives for mutual monitoring. A pool is after all a risk sharing or risk distribution agreement whereby parties mutually share each other's losses. Hence, if installation A would free-ride and not take safety seriously, the risk for all members in the pool would increase. Mutual monitoring will hence be executed precisely to prevent free-riding. However, the different examples we discussed, especially in the nuclear area, showed that a crucial condition for a pooling arrangement to work effectively is that at least a minimum level of regulation exists. In other words, even though risks will be controlled via mutual monitoring, operators apparently rely on minimum levels of safety set by the regulator. Hence, this shows that the regulator can play an important role in facilitating pooling between operators by guaranteeing a minimum level of safety. The simple logic is that this guarantees to operators, members of the pool, that all members at least will have to comply with minimum safety requirements. It reduces the risk of free-riding and also reduces the need for the operators themselves to exercise mutual monitoring. This explains why a pool emerged for property damage in the US and why there are mutual nuclear pools in Europe, again for property damage, but why so far a European pool for nuclear liability failed. Differently than in the US (where minimum safety standards are enforced via the nuclear regulatory commission) minimum safety standards in the nuclear area are largely absent in Europe. An important lesson from these (also nuclear) examples is hence that the regulator can play an important role in facilitating pooling mechanisms by

introducing safety regulation that guarantees a minimum level of safety. This may hence be an important condition to support a pooling mechanism in the offshore sector.

A final and most important advantage of risk pooling mechanisms, not only theoretically, but also as was shown in practice, is first of all that money should not always be paid up front (like with premiums due to an insurance company) and that, if contributions were made (like with Protection and Indemnity Clubs) they are not “lost” if no incident would occur (like in the case of insurance) but could in principle lead to lower contributions in the future or eventually even be paid back to the members. Moreover, since a pooling mechanism is based on mutual trust, as long as financial guarantees to back up the solvency of the members exist, contributions should not necessarily be paid *ex ante*. This may be quite important since contributions to be paid *ex ante* may lead to a substantial immobilisation of capital and hence restrict the economic development of the sector. We discussed a few examples, again from the nuclear sector, where *ex post* pooling systems are in place based on retrospective premiums. In other words: there is no need to *ex ante* pay contributions (and thus immobilize capital which otherwise could be used to increase social welfare). Contributions only need to be paid *ex post* via retrospective premiums. The model of risk pooling in the US Price Anderson Act for the nuclear risk constitutes an interesting example in that respect and allows raising considerable amounts of compensation. A similar model also exists in Germany where the pooling is also based on *ex post* obligations and a total amount of €2.24 billion is raised which, e.g. compared to the total amount available for vessel based pollution in the international regime, is quite substantial.

The crucial question with such an *ex post* pooling system is of course how one can guarantee solvency of the members. In Germany, this apparently is not a major problem since the scale is relatively limited (only Germany). The pooling in Germany is also merely a guarantee that only plays in case other liable parties fail to pay. In the US system under the Price Anderson Act each party’s contribution is the same and predetermined in the statute. Hence, the pooling is mandatory and arranged by statute. Moreover, in the US it are not private parties, but the nuclear regulatory commission that will guarantee payment, compensate the victims and then claim back payment from the operators. The public authority (nuclear regulatory commission) hence in that case guarantees payment and claims back compensation from operators on an *ex post* basis. Again, this can constitute an interesting example for possible models of compensation in the offshore sector since it allows the generation of substantial compensation without necessarily immobilizing capital.

#### **4.10.2. OPOL**

The discussion of one pooling mechanism in the offshore sector today, OPOL, showed that OPOL is not a risk sharing agreement in the sense discussed in this chapter. It is a pooling mechanism, but in fact only the solvency risk is pooled. OPOL undoubtedly has strengths in the sense that it e.g. forces all its members to provide financial security up to the amount of compensation guaranteed by OPOL. In some member states, such as the UK, membership of OPOL is moreover a condition for obtaining a license. In those member states, via the membership of OPOL, there is hence a guarantee of financial security. However, the sufficiency of the guarantee is controlled via OPOL and not by regulatory authorities (at least in those countries where membership of OPOL is not a condition for obtaining a license). Moreover, since OPOL is not a risk sharing agreement, the benefits of mutual monitoring leading to increased prevention will not exist. Members of OPOL only have an incentive to monitor the solvency of the other members. But given mandatory guarantees which have to be proven *ex ante*, they should not necessarily constitute a large problem. That may also explain why in practice OPOL never had to intervene and in fact only played its “silent” role of forcing its members to provide guarantees up to the limits of OPOL. One could, with a view

to the future, of course consider the possibility of reconstructing OPOL to a true risk sharing agreement, but that would fundamentally change the nature of OPOL in its current structure.

#### **4.10.3. P&I Clubs**

Today, compensation for damage caused by offshore facilities is guaranteed via a variety of financial and market mechanisms.<sup>1083</sup> One risk sharing agreement which in that respect plays a (modest) role is the so-called Protection and Indemnity Club, also discussed in this chapter. The Protection and Indemnity Club is a true risk sharing agreement and consists of ship-owners that mutually cover each other's losses. Hence, this arrangement does provide incentives for mutual monitoring and in the area of vessel based pollution in fact functions as insurance. The P&I clubs play a much more important role in vessel based pollution and only a relatively modest role as far as the coverage of pollution coming from offshore installations is concerned. However, a discussion of their structure and functioning was of interest since they are a pooling mechanism in an area closely related to the offshore sector.

#### **4.10.4. CLC & Fund**

The (international) regulation of vessel based pollution shows a few other interesting aspects which are surely worth considering in developing a compensation and liability mechanism in the offshore sector. One interesting aspect is that the liability of the operator (in the case of vessel based pollution the tanker owner) is capped. This of course contrasts with the liability of operators of offshore facilities which is, as the overview in chapter 3 showed, largely unlimited. However, an important evolution has taken place in the sense that the amounts of the financial limit have increased over time, mostly as a result of new incidents which time after time showed that existing limits in the international conventions were too low. The international conventions are for that reason seriously criticized in the literature, arguing that limits on liability do not provide correct incentives to potential injurers (in that case the tanker owners).

#### **4.10.5. OPA**

In that case again the US example of the Oil Pollution Act 1990 constitutes an interesting example. Not only is it relatively easy to break the limits (financial caps) under OPA (as also the case of the Deepwater Horizon showed). Moreover, OPA does not preempt state law. Hence, many state legislations have unlimited liability, thus fully exposing tanker owners to liability for all damage resulting from their actions. Moreover, another interesting aspect of the US Oil Pollution Act is that the limit on liability depends on the safety measures taken. Limits are hence substantially higher for single hull tankers (which are considered more risky) than for double hull tankers. Hence, the US OPA shows that the liability regime can be structured in such a way that it provides operators incentives for investment in preventive technology.

Another interesting feature of the compensation regime for vessel based solution is its multi-layered aspect. Indeed, a brief look at the legal history showed that the CLC Convention of 1969 which introduced the capped strict liability of the tanker owner was combined with the Fund Convention 1971 to which the oil industry contributes. As a result of this, compensation awarded for vessel based pollution is partly awarded by the shipping industry (via the strict liability under CLC) and partially by the oil industry (via the Fund Convention). This hence

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<sup>1083</sup> To be further discussed in detail in the next Chapter 5.

has led to relatively large amounts being now available after the adoption of the latest convention on supplementary funding. Currently approximately one billion euro is available for compensating damage resulting from vessel based pollution. This of course constitutes an important difference with the offshore sector since, differently than in the area of vessel based pollution, there are not two different industry sectors (shipping industry and oil) that could contribute to the compensation and thus share the burden.

Finally, it should be mentioned that, similarly to OPOL, also in the area of vessel based pollution voluntary mechanisms (previously CRISTAL and TOVALOP and currently TOPIA and STOPIA) exist. However, their role is totally different and relatively limited. These voluntary agreements in fact only provide an additional layer of compensation by the tanker owner or oil industry to supplement the amounts available under the international conventions. Their role is hence relatively limited.

An issue which we did not cover so far but which has to be taken into account when devising pooling mechanisms is that pooling between either insurers or industrial operators may violate principles of competition policy. In EC competition law specific conditions have been elaborated explaining the requirements for those pools to be compatible with competition policy. It is an aspect that remains further undiscussed within the scope of this report, but that should be taken into account when analyzing the usefulness of pools.<sup>1084</sup>

#### 4.10.6. Summary

In sum, this analysis of pooling mechanisms in other sectors shows that there are a variety of features, both of the liability regime as well as of the available financial security that could provide inspiration for a liability and compensation mechanism for the offshore sector. In that respect, lessons can be learned (positive as well as negative) from compensation mechanisms in the nuclear and vessel based pollution sectors as well as from risk pooling mechanisms in other sectors. These lessons, summarized in this section, will of course be further developed in the next chapters when discussing various scenarios and possibilities of compensation for damage resulting from offshore installations. In that respect, the question will of course again be asked to what extent risk pooling mechanisms could play an important role in compensating damage resulting from offshore incidents. The lessons learned from this chapter have provided some insights on conditions that will have to be fulfilled to make risk pooling mechanisms work.

In bullet points the main lessons could be summarized as follows:

- Pooling (in the sense of risk sharing between operators) has many theoretical advantages compared to insurance, especially for highly technical risks like the offshore related damage.<sup>1085</sup>
- OPOL has many advantages, but is not a risk-sharing agreement; only the risk of insolvency is shared. Until now the OPOL guarantee has never been used.
- The only real existing pooling mechanisms for offshore related damage are OIL and OCIL.
- The CLC and Fund Convention provide an interesting combination of financing of compensation by the tanker owner (CLC) and the oil industry (Fund), but have disadvantages as well, e.g. the limitation of liability and the financial cap.

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<sup>1084</sup> See on these aspects inter alia Faure and Hartlief (2003), 90-94 and see the recent study by Ernst & Young, Study on co(re)insurance pools and on ad-hoc co(re)insurance agreements on the subscription market, EC Commission, Luxembourg, February 2013. See: <[http://ec.europa.eu/competition/sectors/financial\\_services/insurance.html](http://ec.europa.eu/competition/sectors/financial_services/insurance.html)>.

<sup>1085</sup> These advantages are summarized in 4.1.



- The US OPA has a limit on liability, but this can be set aside in case of gross negligence or violation of regulations. OPA moreover does not preempt state law.
- P&I Clubs are an interesting example of a risk-sharing agreement for marine related risks.
- The US Price-Anderson Act provides an interesting example of an *ex post* risk pooling via a retrospective premium scheme.
- The emergence of a European-wide pooling system for nuclear risks in Europe is not likely given the absence of EU-wide harmonized safety standards and highly different risks created by various operators.
- The CLC/Fund Convention provide mechanisms for rapid claims settlement and so does the GCCF. This allows speedier compensation than the traditional compensation via tort law and civil procedure.



## **5. The use of financial market instruments to cover liability following a major offshore accident**

After having discussed the existing pooling mechanisms available in the offshore sector and also more generally in the previous chapter (4) we will now provide an inventory of the financial market instruments that are currently used to cover liability following a major offshore incident. In this chapter we will describe to what extent various mechanisms (including the pooling discussed in Chapter 4) are currently used in covering liability risks following a major offshore accident. In fact, not only the coverage of liability risks will be discussed. De facto many of the instruments to be discussed in this chapter are also used to cover the property damage suffered by the operator and the costs of well control. From a policy perspective the policy maker may be more worried about the coverage of third party liability. However, also the way in which first party (property) damage and the costs of well control are covered are quite important. In practice the available financial and insurance instruments often cover both first party damage, including well control as well as liability. Moreover, the extent to which the instruments are used to cover e.g. well control can have an important influence on the available cover for liability. This means de facto that the more capacity is used for first party damage, the less may be available for liability and vice versa.

In this chapter first the theoretical possibilities of various mechanisms will be briefly sketched; then the current use in the offshore sector will be illustrated and finally the advantages and disadvantages will be discussed. The latter is of course important in the light of the next chapter where the potential of the various instruments to provide an enlarged coverage in the future are discussed. Whereas hence this chapter discusses the status quo the next chapter discusses the ability of various instruments to provide wider coverage than today.

Subsequently we will deal with self-insurance (5.1), the use of the capital market (5.2), bank guarantees (5.3), insurance (5.4), risk pooling schemes (5.5), OPOL (5.6) and various combinations (5.7). To the extent possible a similar set-up will be used when describing every system. First the theoretical advantages and limits of a particular instrument will be sketched; then the practice of that particular financial instrument for covering offshore-related risks will be discussed and finally a brief analysis will be provided on the use of the particular instrument.

### **5.1. Self-insurance**

#### **5.1.1. Theory**

Self-insurance basically is a mechanism whereby larger players in the market (often referred to as the “majors”) do not take insurance coverage at all, but run the risk themselves. In fact, self-insurance can take two different forms. One is pure self-insurance, which in fact is nothing else than major companies constituting a reserve for future losses. In a technical sense this cannot be considered as “insurance” for the simple reason that there is no risk spreading, no risk distribution and hence no loss spreading after an accident happens.<sup>1086</sup> Self-insurance in that sense is merely a reserve for potential losses whereby operators use their balance sheet to guarantee payment in case a major accident would happen. Reserves do allow for a risk spreading in time, but not between various parties exposed to a risk.

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<sup>1086</sup> See Faure and Hartlief (2003), 144.

Another possibility is the creation of a so-called captive.<sup>1087</sup> A captive could be created by a major offshore operator and would de facto function as an insurance company. In this case the captive takes the form of an insurance company. Still there is no loss-spreading since for example an operator would create its own captive, but would not share risks with others. The reason for e.g. a major oil company to create a captive is that it in some cases is obliged as a result of regulation to take out insurance coverage. Instead of shifting the risk to a commercial insurer (and hence paying premiums) the oil company could create a captive which basically is an insurance company which is wholly-owned by the particular operator. From the operator's perspective the advantage of using a captive is that profits and losses are kept within the captive (and hence with the oil company). Captives can often operate at lower costs than an insurance company and may thus be attractive to hedge risks for major offshore companies. Often companies that create such a captive would still use an insurer, for example AIG or a broker to provide various services. The broker could for example be involved in managing the captive; the insurance company could assist in providing information on policy conditions and premiums to be set by the captive.

### 5.1.2. Practice

Stakeholders report that especially major oil and gas companies largely use self-insurance and captives to hedge offshore-related risks. This is obviously not only the case for liability following a major offshore accident but also, as mentioned above for the first party damage (like well control costs).

During interviews all majors<sup>1088</sup> confirmed that they use self-insurance. The argument that is often advanced by the majors is that for them it would make little sense to shift their risks to insurance companies which would force them to pay high costs with little added value as far as financial security is concerned. This is especially the case with some majors that have very high credit rating (for example A minus or higher). A major with such a credit rating would obviously not take insurance coverage with an insurance company that has a lower rating. That would only lead to additional costs and have no added value. However, the number of insurance companies which is rated as high as the major oil and gas companies is relatively limited. That also explains why the majors largely call on self-insurance.<sup>1089</sup> A second point is that stakeholders also mentioned that insurance for them is a relatively costly alternative to hedge risks. BP for example refers to a loss experience of 30%. This effectively means that for every 100 dollars BP would pay in insurance premiums it would also receive 30 dollars back in compensation for losses; the remainder would either go to transaction costs or profits to the insurance company. Because majors consider insurance relatively costly they prefer self-insurance. However, it was equally reported that self-insurance obviously only is a solution for the majors and not for potentially smaller or middle-sized enterprises.

Majors in some cases also make use of captives. For example BP created a captive Jupiter Insurance Ltd. The captive has no staff but is managed by Willis, a large insurance broker. The captive is 100% owned by BP. In its underwriting policy BP is assisted by AIG who consults the captive on insurance practice, but carries no risk. Legally the captive is an insurance company which can hence underwrite risks.

The reason for creating the captive is that some countries (like in the case of BP Angola) require operators to take out insurance coverage. That explains why the captive is formally set

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<sup>1087</sup> See on those captives *inter alia* Bawcut (1991); Dowding (1997).

<sup>1088</sup> More particularly Shell, BP and ExxonMobil with whom we had interviews.

<sup>1089</sup> It was a point strongly made by representatives of BP during an interview on 13 March 2013.

up as an insurer and why the captive also formally underwrites risks, fixes premiums and policy conditions. Some captives do have reinsurance; Jupiter (of BP) not.

BP's captive was *inter alia* involved in compensating the losses due to the Macondo incident but up to a limit of 700 million US\$:

it paid out 300 million US\$, the limit in pollution costs;  
400 million US\$ was provided for well control costs, but this amount did not have to be used completely.

The capacity of a captive is of course not unlimited, but limited to the assets brought into the captive by the operator, who owns the shares of the company. In the case of Jupiter a capacity can be provided of 1,5 billion US\$.

The captive functions completely as a commercial insurance company. That means that also commercial rate premiums are asked, that deductibles are required and that risk dependent premiums are charged as well in order to provide incentives for prevention. Risks are also hedged on the basis of particular underwriting guidelines. The captive hence only differs from an ordinary insurance company through its ownership (owned by a major oil company).

Also OGP confirmed that most large companies do self-insurance, but that the forms of self-insurance can differ. Some may simply constitute reserves; others could create captives and still others may use the capital market. However, generally for major oil and gas companies the insurance market would not be used.<sup>1090</sup> It was, moreover, also mentioned that in some cases also operators that do use insurance (smaller or medium-size operators) may still use self-insurance to cover a first layer. The first layer would be a so-called retention and insurance coverage would only be asked for higher amounts that the particular operator cannot carry itself.<sup>1091</sup> Larger players in some cases would use for example 400 million euros in self-insurance retention (SIR). But even smaller to medium-size companies could take amounts like 5-10 million in SIR. Also representatives of (re)insurance companies argued that the use of self-insurance may (at least partially via retentions) even be increasing. One reason is the more limited capacity available in the market after Deepwater Horizon. A second reason is due to the mentioned fact that (re)insurance requires higher premiums.<sup>1092</sup> It is important to stress that almost all insurance solutions will include a retention (or deductible). There will normally never be a so-called first dollar coverage for the simple reason that it would be too expensive.<sup>1093</sup>

Finally it should also be mentioned that many pointed at the fact that oil and gas companies de facto have a large reserve (of oil and gas) which they have on their balance sheet, but which can de facto also constitute an important reserve to guarantee payment in case of future losses.<sup>1094</sup>

### 5.1.3. Analysis

Self-insurance (either via reserves, captives or using the capital market) obviously has several strengths and weaknesses.

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<sup>1090</sup> Interview with OGP in Brussels on 25 February 2013.

<sup>1091</sup> Ibid.

<sup>1092</sup> Interview with representatives of Swiss ReInsurance Company on 11 February 2013.

<sup>1093</sup> Ibid. This was also mentioned in an interview with Mr. Phil Bell of RSA in an interview on 26 February 2013.

<sup>1094</sup> This was especially mentioned by representatives of OGP.

The advantage from the industry's perspective is obviously that it is a relatively low cost solution; operators can take themselves care of providing guarantees for future losses and do not have to transfer risks to an insurance company which may create additional transaction costs. Moreover, especially for major oil and gas producers forcing them to shift risk to an insurance company may make little sense especially in cases where the credit rating of the oil and gas producer is in fact higher than that of an insurance company.

Using self-insurance moreover has, at least partially, an advantage in curing the so-called moral hazard risk that will always emerge in case of insurance: by taking a substantial retention the operator will still be exposed to risk as a result of which moral hazard (created through insurance) can be controlled.<sup>1095</sup>

The disadvantages of self-insurance (no matter what form it takes) may also be obvious: self-insurance is obviously not necessarily a waterproof guarantee against insolvency. That would only be the case if regulation could guarantee that the money set aside for covering the offshore related losses would only be used for that specific goal. Moreover, self-insurance could hence lead to an externalization of risk in case of insolvency. Especially smaller operators without strong balance sheets or credit rating could simply run the risk of liability and if the risk materialized would simply pass on the costs to the tax payer. Self-insurance can hence only be considered effective financial security if guarantees can be provided that the reserves set aside will actually be used for the potential losses for which they were earmarked. Otherwise the risk would also exist that e.g. in case of insolvency the trustee in bankruptcy could simply collect the assets and money may not be available to compensate victims.

The issue in case of offshore related damage is obviously that self-insurance may be a valuable hedging strategy for major oil companies, but not for others. For smaller and medium size players self-insurance retention can only play a role as a deductible in addition to other strategies. That is why if self-insurance is offered as financial guarantee serious controls would have to be imposed to verify the viability of the self-insurance as guarantee. That is why in most regulatory documents concerning financial security there is often doubts on self-insurance based on a financial test. For example in the EU Commission guidance document concerning the geological storage of carbon dioxide,<sup>1096</sup> self-insurance is considered the most risky option because no protection is provided from claims of creditors. The certainty of self-insurance also depends on the stringency of the required financial test. However, in that respect experience exists within the offshore sector. Both in the Guidelines on Financial Responsibility from Oil and Gas UK as well as in the rules concerning the establishment of financial responsibility under OPOL stringent criteria apply in order for a company to be allowed to qualify as self-insurer. For example, in the Guidelines on Financial Responsibility from Oil and Gas UK, the credit or financial strength rating that is considered sufficient for a company to be qualified as a self-insurer which is acceptable to DECC is: BBB- or above from Standard & Poor's, B+/bbb or higher from A. M. Best, Baa3 or higher from Moody's, BBB- or higher from Fitch (Investment Grade). The standards under OPOL are even more stringent: an operator can only qualify as self-insurer under OPOL if it has an A or higher rating from Standard & Poor's, A minus or higher from A.M. Best or an A3 or higher from Moody's.<sup>1097</sup> These examples hence show that it may be necessary to apply flexibility as far as the use of self-insurance is concerned: for some (major) operators self-insurance could perhaps even be the only financial mechanism; for others it could at least partially be used in addition to other hedging strategies. The experience with OPOL shows

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<sup>1095</sup> See Shavell (1979).

<sup>1096</sup> Implementation of Directive 2009/31/EC on the geological storage of carbon dioxide, guidance document 4 Brussels, European Commission 2011.

<sup>1097</sup> See Forum B and forum Fr-4 on the website of OPOL; in addition other conditions to qualify as self-insurer apply as well.

that stringent rules must apply to control whether a particular operator can qualify as self-insurer.

## 5.2. Capital market

### 5.2.1. Theory

Also capital markets can theoretically be used to hedge offshore related liability risks. For a few centuries now forms of so called alternative risk transfer or securitization have been used to transfer environmental risks.<sup>1098</sup> The idea is to buy catastrophe bonds (often abbreviated as cat bonds) at the stock exchange.<sup>1099</sup> Initially these alternative mechanisms to hedge environmental risks were mostly developed in the US and not used to a large extent in Europe.<sup>1100</sup> Although it is still held that the capital market will never totally replace traditional insurance products,<sup>1101</sup> the capital markets and more particularly alternative risk transfer is increasingly used for environmental risks.<sup>1102</sup>

The principle is that particular bonds are issued whereby the interest rate on the bond would reflect the accident rate. Investors have hence the opportunity to buy e.g. a bond creating a warrant in favor of the operator of their choice. If for example during the period of the bond (say one year) no accident happened the amount of the guarantee provided by the bond would be paid with interest. If, however, the risk materialized the bond posted would be used to cover the damage.<sup>1103</sup>

### 5.2.2. Practice

As already mentioned capital markets and more particularly bonds are used to cover particular catastrophic risks.<sup>1104</sup> For example also in the March 11, 2011 tsunami and the subsequent nuclear incident at Fukushima, cat bonds were used. It was estimated that there were more than 1.7 billion USD in cat bonds that were potentially affected by the Japanese earthquake.<sup>1105</sup>

However, as far as offshore (liability) risks are concerned most stakeholders reported that capital markets and more particularly bonds are not often used. Insurance experts held that the problem with a bond is that it normally expires very quickly, whereas damage caused by an offshore incident often has a so called long tail character. Moreover, it is equally mentioned that since the 2008 financial crisis financial institutions may be less willing to issue bonds.<sup>1106</sup>

Also representatives from OGP held that operators themselves do not use bonds; only insurers may.<sup>1107</sup> Of course (re)insurance companies may use the capital market to transfer particular risks which is in fact nothing new. If capital markets could provide better capacity at a good

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<sup>1098</sup> See *inter alia* Wagner (1998).

<sup>1099</sup> See for example Smith, Canelo and Tidio (1997).

<sup>1100</sup> *Ibidem*.

<sup>1101</sup> See Zech (1998).

<sup>1102</sup> For an overview see Bruggeman (2010).

<sup>1103</sup> See for an explanation of the working of these cat bonds also Tyran and Zweifel (1993).

<sup>1104</sup> For examples see Bruggeman (2010).

<sup>1105</sup> See Faure and Liu (2012). See also Finken and Laux (2009).

<sup>1106</sup> Interview with Mr. Phil Bell of RSA on 26 February 2013. This was also held by representatives of the Swiss Re-insurance Company: financial instruments like bonds are not suited for potentially long tail risks related to offshore installations.

<sup>1107</sup> Discussion with OGP representatives in Brussels on 25 February 2013.

price they would use it.<sup>1108</sup> However, they equally hold that cat bonds may be attractive e.g. for natural catastrophes like a hurricane, but not for long tail risks. The essence with e.g. a cat bond is that an investor takes a bond e.g. for one year and then either takes his profit or accepts a loss (if the risk materialized). This is not possible with long tail risks like offshore related damage.<sup>1109</sup> On the whole it was held that compared to insurance for environmental risk generally the capital market (more particularly via cat bonds) still place a relatively minor role.

### **5.2.3. Analysis**

All stakeholders, but equally literature agree that capital markets and more particularly cat bonds are only well suited for sudden events and less for long tail risks. That is why e.g. also for a typical long tail risk like the storage of carbon dioxide the literature also holds that bonding may be difficult given the long tail character of that risk.<sup>1110</sup>

Given the remarks of stakeholders and the fact that bonds are apparently little used today for hedging offshore related risks this may not be the primary instrument to look at.

## **5.3. Guarantees**

### **5.3.1. Theory**

Obviously many parties could provide a financial guarantee to the operator. Such a financial guarantee could be provided by a mother company or another third party that would be presumably have a stronger financial capacity than the operator. It could also be provide by a financial institution such as a bank. In particular cases the guarantee could take a form of a letter of credit.

All of those guarantees have a simple theoretical basis: a presumably stronger third party (either a corporate entity or a financial institution) basically puts its balance sheet at risk by guaranteeing that it will cover the liabilities of the operator in case a particular risk would materialize.

For the policy maker or regulator the advantage may be that a stronger guarantee is provided than when only the operators assets were at stake. Operators themselves would presumably use these types of guarantees when regulatory authorities find it necessary (and hence hold that merely relying on self-insurance is not sufficient). However, in particular cases the costs of those guarantees can be quite high. If it would be a guarantee by a related corporate entity that should not necessarily be the case, but it may be different if guarantees would have to be provided by a bank. Compared to insurance one can hold that if insurers specialize in offshore operations they may have more information for an appropriate risk differentiation and premium setting as a result of which the costs of insurance could be lower than the costs of a bank guarantee.

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<sup>1108</sup> Interview with representatives of Munich Re-insurance Company in Munich on 12 March 2013.

<sup>1109</sup> Ibidem.

<sup>1110</sup> See for example Klass and Wilson (2008), 160-162.



### 5.3.2. Practice

Stakeholders reported that alternatives to insurance or pooling like guarantees by banks and letters of credit are essentially more expensive than insurance. Moreover, the financial crisis also taught that banks may fall over if they are too heavily exposed to risk.<sup>1111</sup> Also operators hold that bank guarantees or letters of credit can be extremely costly.<sup>1112</sup> Moreover, they again stress that a bank guarantee may only be attractive from a financial and institution with a good credit rating and then again with a higher rating than the operator concerned; otherwise the guarantee would not have a lot of added value. It was held that letters of credit are *de facto* not used in the EU, but only for so called fronting arrangements in different parts of the world; *de facto* they are only used when commercial insurance would not be available (like in developing countries).<sup>1113</sup>

### 5.3.3. Analysis

In this respect we can be short: also bank guarantees or letters of credit are seldom used to cover offshore liabilities. The simple reason seems to be that they are relatively expensive compared to available alternatives in the market. Corporate guarantees are also not always considered as good security since there is no protection from potential claims of the operator's creditors. Moreover, there may be a high risk of financial connection between the operator and the affiliated guarantor. That why it is often held in related areas<sup>1114</sup> that the certainty of such a corporate guarantee depends on the stringency of the required annual financial test.<sup>1115</sup> OPOL does accept guarantees from specific guarantors that are deemed acceptable to the association and which have to fill out particular forms and of which the financial viability is screened.<sup>1116</sup>

## 5.4. (Re-) Insurance

### 5.4.1. Theory

The theoretical advantages of insurance are well-known. Economists have used the concept of risk aversion to explain that many persons will be averse towards risks with a relatively low probability of occurring, but with a possible large magnitude when they occur.

The utilitarian approach with respect to insurance has demonstrated that risk creates a disutility for people with risk aversion. Their utility can be increased in case of loss spreading or if the small probability of a large loss is taken away from the injurer in exchange for the certainty of a small loss<sup>1117</sup>. The latter is of course exactly the phenomenon of insurance. The risk averse injurer has a demand for insurance; he prefers the certainty of a small loss (the payment of the insurance premium) whereby the probability of a larger loss is shifted to the

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<sup>1111</sup> Interview with Phil Bell, RSA Insurance on Tuesday 26 February 2013.

<sup>1112</sup> Discussion with representatives of OGP in Brussels on 25 February 2013. Letters of credit and bank guarantees are therefore *de facto* never used, so representatives of Oil & Gas UK, interview on 1 May 2013 in London.

<sup>1113</sup> *Ibid.*

<sup>1114</sup> Like the financial security for damage caused by geological storage of carbon dioxide.

<sup>1115</sup> Implementation of Directive 2009/31/EC on the geological storage of carbon dioxide guidance document 4, p.27.

<sup>1116</sup> See form FR3 on verification of guarantee which shows that the guarantor again needs to have strong proofs of credit or financial strength such as A minus or higher from Standard & Poor's, A minus or higher from A.M. Best or A3 or higher from Moody's.

<sup>1117</sup> See Arrow (1961), 245-255.

insurance company, thereby increasing the utility of the injurer<sup>1118</sup>. It is remarkable that in this utilitarian approach of insurance liability insurance is in the first place regarded as a means to increase the utility of a risk averse injurer, not so much as a means to protect victims as is sometimes argued by lawyers.

The reason an insurance company can take over the risk of the injurer is well known: because of the large number of participants the risk can be spread over a larger group of people. The insurer only has to pay attention that he builds relatively small risk groups in which the premium is as much as possible aligned to the risk of the members of that group.

In addition to this utility based theory of insurance which sees insurance as an instrument to increase the expected utility of risk averse persons through a system of risk spreading, Skogh has powerfully argued that insurance may also be used as a device to reduce transactions costs<sup>1119</sup>.

The basic principle of insurance is therefore relatively simple: because individuals have an aversion against risk, they will seek insurance coverage. The insurer is able to aggregate many risks of risk averse individuals facing the same risk profile. Using the law of large numbers, the insurer is able to spread the risk over a larger risk group. However, this supposes that the insurer is able to calculate an adequate premium based on the one hand the probability ( $p$ ) that a certain accident will occur and on the other hand the potential magnitude of the damage ( $D$ ). The latter is obviously important because the insurer has to make sure that he has enough capacity at the moment a certain systemic risk with a potential large magnitude emerges.

These principles can be used to explain the demand in case of offshore-related risks. Since the attitude to risk is strongly related to the wealth of an individual the degree of risk aversion will hence also depend upon the available assets of the offshore operator. For relatively small expected losses a wealthy operator could be risk neutral and hence not have a demand for coverage. In that case the demand for insurance would only emerge if insurers could manage for example claims handling more effectively. It would then mostly be for the reduction of transactions costs and not for risk aversion that insurance would be taken out.

The degree to which offshore operators have a demand for insurance may hence strongly depend upon their own risk attitude which in turn is related to their assets. Normally it is fair to state that especially for smaller operators risk aversion is higher and hence a demand for some type of coverage (insurance or alternatives) may emerge.

Generally a distinction is made between two types of insurances: there are on the one hand insurances that individuals take to protect themselves against the future losses that they may suffer themselves, either in their income or in their property. A fire insurance is a typical example. These types of insurances are referred to as first party insurance. Insurances can also be taken for the risk that one has to compensate damage suffered by a third party. These are therefore referred to as third party insurances. A liability insurance is a typical example of a third party insurance. In that case the potential injurer takes insurance against the risk he runs of having to compensate the potential victim.

In the case of offshore-related risks both first party and third party insurance can be relevant. First party insurance will then be taken by the operator for the property damage he could suffer to his installations. However, most likely it will be a liability insurance that plays the

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<sup>1118</sup> See Shavell (1987), 190.

<sup>1119</sup> This argument has been made by Skogh (1989), 726-732.

most important role in case of offshore-related risks. In that case coverage is demanded for the risk that damage is suffered by a third party.

## 5.4.2. Practice

### 5.4.2.1. Stakeholders in the insurance market (major insurance/re-insurance providers)

Given that the offshore oil and gas activities may involve many parties (including operator or licensee, the service company, contractors and equipment providers),<sup>1120</sup> each party may take insurance to cover their potential risks. Therefore, the structure for offshore insurance is also complicated due to the involvement of various stakeholders. Moreover, as illustrated by the country studies in Chapter 3, many jurisdictions (both in Europe and in other jurisdictions such as the US and Australia) require the establishment and maintenance of financial security. This financial security is often provided through insurance.

The insurance for offshore facilities is mainly provided via three different actors:

- the casualty insurance market,
- the specific offshore insurance market covering platforms, and
- the marine insurance, usually covering tankers, but in some cases also offshore and even onshore installations.<sup>1121</sup>

The offshore energy insurance traditionally covers a large amount sometimes even more than USD 1 billion, so the insurance companies found it necessary to syndicate themselves in order to cover the entire risk of exposure. The main syndicates in this are the London and the Bermuda insurance market.<sup>1122</sup>

According to a study carried out by Booz Allen Hamilton, the insurers who provide offshore oil and gas exploration and production (E&P) insurance and reinsurance (at least in the US market) mainly include but not limited to:

- Munich Reinsurance Co.;
- Swiss Reinsurance Co. Ltd.;
- Hannover Rueckversicherung AG;
- Chartis (a subsidiary of American International Group Inc); and
- W.R. Berkley Corporation.<sup>1123</sup>

Gard (a P & I Club that normally covers marine insurance for shipowners) has also developed an offshore insurance product since a couple of years ago.<sup>1124</sup>

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<sup>1120</sup> Emmerson (2012), 41.

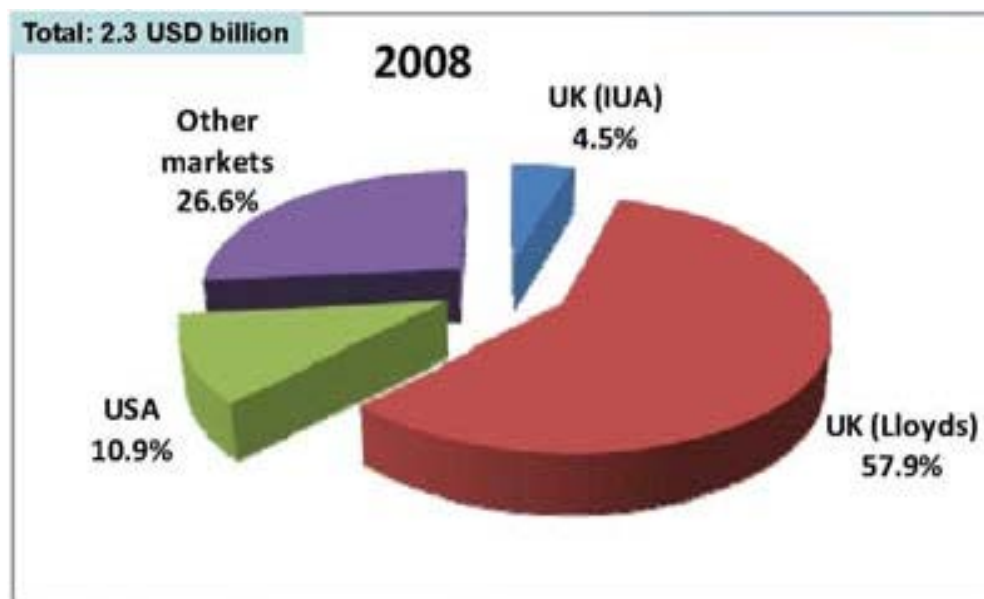
<sup>1121</sup> Interview with Swiss Re, 11 February 2013.

<sup>1122</sup> King (2010).

<sup>1123</sup> Hamilton (2010), 13.

<sup>1124</sup> Interview with Mr. Karl Moens, representative of Marsh Belgium, 8 February 2013.

Figure 13: Global Offshore Energy Premium by Market<sup>1125</sup>



Source: International Union of Marine Insurance

Many stakeholders in the insurance industry hold that there are quite a few difficulties in insuring offshore related risks as a result of which the number of layers may be relatively limited. One problem for insurers is the volatility of the offshore related risk. That means that the probability of an accident may be very low, but once the accident happens the damage could be catastrophic and e.g. amount to 1,5 billion Euro.<sup>1126</sup> The reason why insurers generally dislike those low probability high damage risks is that solvency regulations (so called Basel I and Basel II regulations) may force insurance companies to immobilize large sums of capital for those futures risks that hence cannot be used in another, potentially more profitable way.<sup>1127</sup>

Another difference between insuring e.g. hurricanes or flooding on the one hand and offshore installations on the other hand is that with natural catastrophes there are much better available data on the probability and the potential damage. Moreover, there are potentially millions of people that are interested in purchasing flooding insurance. Hence actuarially fair premiums can be calculated and adequate risk spreading is possible so coverage can be provided at realistic prices.<sup>1128</sup> The opposite may be the case with offshore related risks:

- There are a small number of players in the market (a small number of offshore companies demanding insurance cover);
- Limited data are available and;
- Difficulties to predict losses in individual cases<sup>1129</sup>

There is also involvement of a few protection and indemnity (P&I) clubs<sup>1130</sup> in the cover of offshore-related risks. However, it should be noted that some of the P&I Clubs that would provide cover for offshore-related risks (like GARD, SKALD and UK) would do that more as

<sup>1125</sup> Table taken from Schmitt (2010).

<sup>1126</sup> Interview with Phil Bell on 26 February 2013.

<sup>1127</sup> Ibid.

<sup>1128</sup> Interview with Phil Bell on 26 February 2013.

<sup>1129</sup> Ibid.

<sup>1130</sup> See on these P&I Clubs *supra* 4.10.3.

commercial insurers than as P&I Clubs. This hence means that for those non-maritime risks there is no mutualisation (pooling) with the maritime (traditional P&I) risk.<sup>1131</sup>

In practice an important role is played by large brokers (e.g. Willis or Marsh) in arranging cover for large offshore-related risks. The broker will contact underwriters and try obviously to get the best deals for his client, the insured offshore operator. Usually there is not just one insurance company that covers the risk, but maybe ten or more actors. In practice there will be one so-called leader and many followers.<sup>1132</sup> It is hence never just one underwriter who takes the entire risk, but the broker contacts a leader and then gets followers (it is referred to as a so-called subscription market).<sup>1133</sup>

De facto an offshore operator will present a file showing the broker that they are a good risk (and hence demand low premiums). The insurers will do a risk analysis using their own experts and relying on the information provided by the operator.<sup>1134</sup>

#### 5.4.2.2. *Structure of coverage of offshore insurance*

The basic structure is that usually in case of offshore installations, first, a so-called property offshore package is provided. This obviously insures potential property damage to the installation itself. The amounts of coverage may vary, depending upon the value of the installation.

In addition, a so-called casualty programme can be added that covers clean-up and liability for damage to third parties. Usually, this is then linked to the property damage insurance. It is important to stress that the liability cover will always be linked, especially as far as pollution coverage is concerned, to sudden and accidental pollution. Gradual pollution, e.g. operational releases of oil from an offshore installation, is not covered.

In practice often one single policy is used with one single limit. That means that if there would for example be a major blow-out with e.g. pollution, the primary attention will be focused on re-instating the oil rig. That may *de facto* take a large part of insurance proceeds away. In some cases all cover is hence used by the first party cover as a result of which little may be left to cover pollution or losses of other third parties. Of course that depends upon the specific type of coverage.<sup>1135</sup>

The principle is that the traditional insurers (the Bermuda market playing an important role) will cover in excess of coverage that is provided by others, *inter alia* by P&I clubs. It is a model that follows the same structure as the coverage for vessel-based pollution. Also there, they intervene basically in excess of the maritime coverage provided *inter alia* by P&I clubs. Again, also in this excess casualty insurance, only accidental pollution will be covered, not gradual pollution.

Insurance coverage for offshore activities mainly covers physical damage and liability exposures. The risks may involve construction, physical damage, removal of wreck, control of well and liability.<sup>1136</sup> A typical offshore insurance covers the following:

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<sup>1131</sup> Interview with representatives of the International Group of P&I Clubs on 1 May 2013 in London.

<sup>1132</sup> Representatives of Lloyds, interview on 1 May 2013 in London.

<sup>1133</sup> *Ibidem*.

<sup>1134</sup> *Ibidem*.

<sup>1135</sup> Interview with Phil Bell on 26 February 2013.

<sup>1136</sup> *Ibid.*

- Offshore physical damage coverage: it indemnifies the insured for all risks associated with physical loss or damage to fixed offshore drilling, production and accommodation facilities, including fixed offshore drilling, production and accommodation facilities, pipelines, subsea equipment and offshore loading.
- Operators' extra expense (OEE): this is a policy offered to oil and gas companies that provide coverage for expenses associated to regaining control of a well. This policy typically covers the cost to control operations (both materials used and cost of hiring firms to help control), redrill the well to a depth it was previously, and the cost associated with removing or cleaning seepage/pollution.<sup>1137</sup> The policy can also be extended to cover expenses associated with the property of others in the insured's care, underground blowout, evacuation expenses, removal of wreck, and legal expenses emanating from the incident. Although there are common terms typical in OEE policies, there are several renditions of OEE policy wording in the market and there is no industry standard policy for OEE coverage.<sup>1138</sup>
- Environmental/Pollution liability: it provides coverage for bodily injury, property damage, and cleanup costs as a result of pollution incident.
- Business interruption/ loss of production income: it provides coverage for energy businesses against loss due to temporary interruption in oil and gas supply from an offshore facility.
- Comprehensive general liability: provides coverage for claims an energy business is legally obligated to pay as a result of bodily injury or property damage to a third party.
- Workers compensation/employers liability: provides coverage for claims arising out of employee injuries or deaths incurred while employee is in the line of duty.<sup>1139</sup>

A distinction should again be made between the insurance that is provided to the operator on the one hand and insurance coverage that may be provided to subcontractors, such as the drilling company. The drilling company will often work with a MODU, a floating device. In many jurisdictions, the MODU is often considered as a ship when in transit and as an offshore facility when stationed. The liability for MODUs may not be clear under various national laws, and when considered as a ship, the Bunker Convention may apply in which relatively low limits of liability are provided. Under the US OPA, a MODU is treated as a tanker when determining the responsible party, and as an offshore facility when deciding on excess liability.<sup>1140</sup> Representatives of the drilling contractors hold that some of the larger drillers will self-insure, but that most drillers will take insurance coverage. They experience no problem to obtain cover on the commercial market.<sup>1141</sup>

The policy wording which is referred to as Energy Exploration and Development Insurance (EED) or Operators Extra Expense (OEE) has particular general provisions e.g. excluding any loss or expense caused by or attributable to earthquake or volcanic eruption. However, this exclusion does not apply to the Gulf of Mexico or to the North Sea. The policy also contains a due diligence clause prescribing that the assured shall exercise due care and diligence in the conduct of all operations and utilise safe practices and equipment generally considered prudent for such operations. Interestingly it is also held that where the assured is the operator or joint operator of any insured well being drilled, a blowout preventer has to be set on

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<sup>1137</sup> International Risk Management Institute (IRMI) provides a definition of OEE insurance, which states that OEE insurance is a "specialized policy available to oil or gas well operators that covers the cost of regaining control of a wild well. Coverage for pollution, stuck drill stem, evacuation expense, and care, custody, or control (CCC) exposures can be added by endorsement". See the website of IRMI: <<http://www.irmi.com/online/insurance-glossary/terms/operators-extra-expense-oe.aspx>>.

<sup>1138</sup> Bosma (2012), 106.

<sup>1139</sup> Hamilton (2010), 15-16.

<sup>1140</sup> 33 USC 2704 (b). For further details on the status of MODU, there is a so-called MODU Code, being Code for the Construction and Equipment of Mobile Offshore Drilling Units. The most recent version of the Code is MODU Code 2009, which revises the version of 1989.

<sup>1141</sup> So Mr. Alan Spackman, Vice-President IADC, interview on 5 June 2013.

surface casing or on the well head and installed and tested in accordance with usual practice. Moreover, the assured should also warrant that in case of a well becoming out of control he will use every endeavour to control the well or stop the escape or flow.

#### 5.4.2.3. Available insurance amount/insurance capacity

According to a study carried out by Bosma, information and data regarding the amounts of cover available for pollution damage is not openly available and difficult to access. Cover is typically based on a per project basis and on terms that are confidential to each of the insurer and the insured parties. As a result, it is difficult to ascertain what or how much insurance may actually be available to respond to any pollution incident involving offshore oil facilities.<sup>1142</sup>

Bosma's work establishes after discussions with experienced offshore oilfield insurance industry specialist brokers that: the amount of pollution cover placed by oil industry participants are generally:

- a. oil companies: USD 500 million to 1 billion (although this can often be self-insured, i.e. no insurance is actually placed with a third party insurer);<sup>1143</sup>
- b. drill rig contractors: USD 300 million to 1 billion; and
- c. other oilfield service providers: USD 50 million to 1 billion.

However, there are significant regional variances in the levels of insurance cover placed for pollution damage, particularly within the jurisdiction of developing countries.<sup>1144</sup>

Interviews with insurance experts suggest that as far as offshore pollution is concerned (i.e. platforms), in addition to coverage provided *inter alia* by maritime insurers, the so-called casualty insurers can provide coverage (for pollution and liability) in excess of amounts varying between 500 and 750 million euro. This amount of coverage for casualty would then come in addition to the amount for property damage and in excess of the casualty sublimits.<sup>1145</sup> The coverage would hence be structured as follows:

Casualty sublimits part of property offshore packages: 50-200 million plus 500-750 million casualty (but in excess to offshore property insurance).<sup>1146</sup>

Other insurance experts also hold that the total amount of coverage available on the market would now vary between 1 billion and 1,5 billion USD.<sup>1147</sup>

Also operators hold that one billion US Dollars is easily available for third party liability but when asked also amounts of 1,5 to 2 billion would be coverable as well.<sup>1148</sup>

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<sup>1142</sup> Ibid.

<sup>1143</sup> This also corresponds with information provided by the International Association of Oil & Gas Producers (OGP) holding that "Stand alone OEE (Operators Extra Expense) insurance capacity is available up to a limit of US\$ 500 m per event but that OEE limits under insurance packages can be procured up to US\$ 1 billion per event." (mail of the International Association of Oil & Gas Producers (OGP) of 13 May 2013 to Michael Faure).

<sup>1144</sup> Ibid.

<sup>1145</sup> Interview with Swiss Re, 11 February 2013.

<sup>1146</sup> Interview with Swiss Re, 11 February 2013. Again this corresponds with information from OGP, holding that in addition to the Operators Extra Expense insurance (available up to a limit of US\$ 1 billion) third party liability cover would also be available up to US\$ 1 billion (mail of OGP to Michael Faure of 13 May 2013).

<sup>1147</sup> Interview with Phil Bell on 26 February 2013.

<sup>1148</sup> This was mentioned by a representative of the OGP, discussion on 25 February 2013 who held "for large companies it is in fact fairly easy to obtain coverage". This was confirmed in a mail of OGP to Michael Faure of 13 May 2013.

Traditional P&I cover for some disastrous scenarios can be provided with very high cover. Under circumstances even up to 7,6 bio. US\$ in cover could be provided. However, those high amounts would be provided for non-oil related risks and only under a number of very specific conditions:

- high retentions;
- pooling (mutualisation of the risk);
- reinsurance;
- and a complex system consisting of different layers of cover depending upon the amount of cover provided.

Note, however, that this would be exceptionally high coverage and would not be available for offshore-related risks.<sup>1149</sup> For oil pollution cover is de facto limited to 1 bio. US\$.<sup>1150</sup>

The activities of P&I Clubs in the offshore branch (hence not related to maritime risks) are relatively limited. The cover they would provide (hence not as a pool, but as a commercial insurer) is limited to 50-100 mio. US\$. The advantage for an offshore operator to obtain cover via a P&I Club would be the experience with the P&I Club with claims handling and the advice that the Club can provide on prevention matters.<sup>1151</sup>

Insurance experts from Lloyds equally hold that underwriters decide on whether to provide large amount of cover for offshore-related risks based on the situation in the market. The bottom line is that they do not want to put large amounts at risk if there are not substantial profits that could be made. Moreover, this market is very volatile. Hence, it may be possible to get e.g. one billion euros in cover for a very large player in one year, but not for the next. Insurance availability is often decided on a yearly basis.<sup>1152</sup>

Another issue strongly stressed by representatives of the insurance industry is that insurers always consider the total supply of cover for the various types of insurance. As a result of that losses that would for example only affect the well itself and not create any damage to third parties could still limit insurance capacity on the market, also in third party liability cover.<sup>1153</sup> They reported on a large incident with a rig that drifted but where no pollution was caused since the valves apparently worked correctly. However, the costs to put the unit back in place and business interruption costs amounted almost to 1 billion US\$.<sup>1154</sup> Hence, although there was no blowout or damage to third parties such an incident can still substantially limit available insurance cover.<sup>1155</sup>

A recent post-Macondo report of Lloyds holds that pre-Macondo insurance industry commentators estimated that the commercial insurance market was theoretically able to put capacity of between 3,5 and \$4 billion towards offshore energy risks. However, the capacity varies in relation to the type of risk and the pricing.<sup>1156</sup> They hold that before Macondo there was an approximate \$1 billion of capacity for liability insurance in respect of offshore drilling, including pollution related liabilities.<sup>1157</sup>

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<sup>1149</sup> Interview with representatives of the International Group of P&I Clubs on 1 May 2013 in London.

<sup>1150</sup> Ibidem.

<sup>1151</sup> Interview with representatives of the International Group of P&I Clubs on 1 May 2013 in London.

<sup>1152</sup> Interview with representatives of Lloyds on 1 May 2013 in London.

<sup>1153</sup> Ibidem.

<sup>1154</sup> The incident is mentioned in Table 2 in section 2.3.2. *supra*, indicating a loss of more than 1 billion US\$ due to heavy weather.

<sup>1155</sup> Interview with representatives from Lloyds on 1 May 2013 in London.

<sup>1156</sup> Rees and Sharp (2011), 26.

<sup>1157</sup> Rees and Sharp (2011), 35.



It is the mix of various stakeholders providing coverage and the mix of actors that makes the structure of the coverage rather complicated. It should also be stressed that the casualty coverage does not yet include the potential extension of liability under the ELD. More particularly, the requirement under the ELD to restore the environment back to baseline may be difficult to quantify, especially in case of pollution of marine waters.

It is noted by the insurance industry that the available capacity was reduced for offshore installations after Deepwater Horizon. The reason was that many insurers suddenly were confronted with a huge accumulation problem. That accumulation problem is caused by the fact that especially in the offshore market a variety of different contractual relationships exist and different players whereby it is (e.g. for a reinsurer) not always visible who is exactly providing coverage for what. The result may be that in a big event like Deepwater Horizon one is suddenly confronted with large accumulation losses. As a result of that, after Deepwater Horizon, offshore installations were considered as a risky business, leading to a reduction of the capacity. Capacity went hence generally down and obviously prices for coverage went up.<sup>1158</sup> In contrast, for the entire energy downstream (i.e. refinery activities) a capacity of 1 billion would be available.<sup>1159</sup>

However, a post-Macondo report by Lloyds holds that after Macondo the capacity for liability insurance contracted. They also hold that the reason was the greater awareness within the market of the possible accumulation of liability from different parties involved in the drilling operation, namely the oil company, drilling contractor and suppliers of specialised equipment.<sup>1160</sup> However, they equally argued that by 2011 a number of insured have been able to purchase an excess level of liability cover at catastrophe level.

The Deepwater Horizon incident was a shock to many (re)insurers since initially it seemed as if the losses would be totally covered by the self-insurance of BP. However, in many cases BP apparently turned itself in redress actions against other parties involved in the operation or recovery operations surrounding the Deepwater Horizon. With most of those third parties so-called “hold harmless” clauses had been concluded as a result of which BP would not claim against those parties. However, BP apparently exercised pressure upon those parties to pay nevertheless substantial amounts of compensation. Given the commercial importance of BP many gave in and hence compensated (although the legal basis was weak).<sup>1161</sup> In turn those parties that paid BP (often in settlements, precisely to avoid costly litigation before US courts) then turned to their insurers forcing them to follow the settlement and hence to pay as well. Again, for the same commercial reasons insurers often felt forced not to let their clients down and hence provided coverage.<sup>1162</sup> That hence meant that, differently than was thought when the Deepwater Horizon incident occurred in 2010, (re)insurers still largely intervened in paying part of the Deepwater Horizon-related losses, not as insurers of BP, but as insurers of some of the subcontractors of BP who, as a result of pressure exercised by BP were forced to pay BP, notwithstanding the “hold harmless” clauses.<sup>1163</sup> These experiences hence have led to a much more cautious approach by insurers and to a general loss of appetite in covering offshore-related risks.

Onshore accidents are easier to insure in the sense that it is (especially for a reinsurer) more visible who the players involved are. Many different players providing services, e.g. Schumberger, Noble etc. may provide services which makes the situation more fuzzy as a

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<sup>1158</sup> Interview with Swiss Re, 11 February 2013.

<sup>1159</sup> Interview with Swiss Re, 11 February 2013.

<sup>1160</sup> Rees and Sharp (2011), 35.

<sup>1161</sup> So Dr. Philipp Wassenberg, representative of Munich Re Insurance Company, interview on 6 May 2013.

<sup>1162</sup> Ibidem.

<sup>1163</sup> Ibidem.

result of which (re)insurers could more easily be confronted with accumulation problems in case of coverage of an offshore installation.<sup>1164</sup>

#### 5.4.2.4. *Costs estimation (Risk analysis)*

How to estimate the costs of a major offshore accident is a crucial issue since it may influence the insurer's decision on the insurance policy and the premium to be charged to the insured. In this respect, some major insurers/reinsurers e.g. Swiss Re may possess their own database, but a publicly available database is lacking.

In the US, especially in the Gulf of Mexico all losses, even of small releases, have to be declared to the American authorities (environmental protection authorities and the Bureau of Ocean Energy Management). As a result of that, the Americans have a huge data base of more than 40,000 losses, some of them obviously including very small losses. It may hence be interesting to look at that database for estimates of losses. Estimates about costs are often based on information provided by either the insured or the broker. The insured will always be asked to report losses during the past ten-twenty years, which would already provide information.<sup>1165</sup>

Such a database does not exist in Europe, although in countries like UK, Norway and Denmark, they do have a reporting system and hence accidents even of small amount of oil release or near miss situations are recorded by respective national authorities. Moreover, industry organizations like the OGP keep their own records of past accidents. However, lack of harmonized criterion in costs estimation makes it difficult to compare between various databases.

One of the major difficulties in assessing the costs of a major offshore accident is to estimate the costs of clean-up of the oil that was released. Estimates have been made in that respect both in the US and Europe, but the estimates on the costs to clean up one barrel of oil vary from 1,000 to 10,000 US dollar. Clean-up costs may largely depend upon the quality of the oil, the location, weather circumstances, the political nature of the incident (again, US/Europe versus Malaysia or China) but also whether the incident occurs e.g. in an area vulnerable to natural catastrophes.<sup>1166</sup>

To e.g. a release of 250,000 barrels of oil there may be fixed clean-up costs; above that amount of release, a particular marginal cost of clean-up may occur; however, the estimates vary a lot on the precise restoration costs.<sup>1167</sup>

In addition to these clean-up costs, coverage is also provided for liability costs including economic losses and personal injury. In that respect, it is mentioned that a lot of experience can be gained from the database of the International Oil Pollution Compensation Fund and ITOPIF in the US. Even though those pollution cases are based on vessel-based pollution, they have a large loss history and moreover provide detailed information on total amounts of damage and on amounts of oil released. Those estimates from the area of vessel-based pollution are also used and extrapolated to the area of offshore pollution. Moreover, also technically, the issues are obviously linked since oil may be shipped from an offshore installation to a vessel.<sup>1168</sup>

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<sup>1164</sup> Interview with Swiss Re, 11 February 2013.

<sup>1165</sup> Interview with Swiss Re, 11 February 2013.

<sup>1166</sup> Interview with Swiss Re, 11 February 2013.

<sup>1167</sup> Interview with Swiss Re, 11 February 2013.

<sup>1168</sup> Interview with Swiss Re, 11 February 2013.

As far as costs are concerned, rather than working with data from the past (that are largely lacking) Swiss Re has modelled a variety of scenarios. Those scenarios take into account e.g. available US data and past experiences, but also elements that influence the risk (mentioned above) on the basis of which estimates of potential costs of an incident can be made.<sup>1169</sup>

The European Commission at the Impact Assessment for the draft regulation on the safety of offshore oil and gas activities, has made the estimation that the average annual cost of all major offshore accidents is estimated to be between Euro 205 million and 915 million, which is made up of the following:

- the average annual cost of blowout incidents, estimated to between Euro 140 million and 850 million;
- the average annual cost of other major accidents, estimated to be euro 65 million.

This was rebutted in the study carried out by GL Noble Denton, which gave a much lower figure, 62 million euro for total blowouts, plus 65 million for other major accidents costs, which totalled 127 million euro in contrast to the 205-915 million of the European Commission.<sup>1170</sup> Note, however, that even in an estimate by Oil & Gas UK in a worst case scenario the total damage (in case a major incident affecting the shoreline) would occur in the West Shetland at 450 mio. US\$.<sup>1171</sup> Note, moreover, that, as we will discuss in more detail below when discussing the insolvency risk<sup>1172</sup> that some stakeholders, especially reinsurers, argue that a major incident with an offshore installation in European waters will almost inevitably lead to a damage of more than 1 bio. euros.<sup>1173</sup>

It is indeed a complicated issue to decide on the costs of accidents. As far as clean-up costs are concerned, a study in 2000 calculating the costs to clean up each unit of oil which shows the regional differences in per unit cleanup costs. To clean up the same amount of oil in the US would cost a lot more than in a EU country, e.g. Denmark.<sup>1174</sup>

Table 13: Average per-unit marine oil spill cleanup costs by nation (in 1999 USD)<sup>1175</sup>

Region	Cost
Denmark	\$11,180.41
Estonia	\$6,820.62
Finland	\$2,115.29
France	\$2,301.58
Germany	\$10,702.67
Greece	\$8,530.29
Ireland	\$4,807.49
Italy	\$6,541.19
Latvia	\$9,212.35
Lithuania	\$78.12
Netherlands	\$6,655.37
Norway	\$23,118.08
Spain	\$438.68
Sweden	\$15,642.36
UK	\$3,082.80

<sup>1169</sup> Interview with Swiss Re, 11 February 2013.

<sup>1170</sup> GL Noble Denton 2011, p. 7.

<sup>1171</sup> OPOL/Oil & Gas UK, *Oil Spill Cost Study – OPOL Financial Limits*, London, Oil & Gas UK, February 2012, p. 39.

<sup>1172</sup> See *supra* 6.1.5.

<sup>1173</sup> Interview with Dr. Philipp Wassenberg, representative of Munich Re on 6 May 2013.

<sup>1174</sup> GL Noble Denton 2011, p. 12.

<sup>1175</sup> Schmidt Etkin (2000).

Canada	\$6,508.14
United States	\$25,614.63

#### 5.4.2.5. Calculation of premiums

Swiss Re calculates premiums on an experience and exposure basis, and makes a specific risk analysis of the installation involved. Swiss Re has a data set consisting of more than 4,000 accidents that happened in the past. Some 200 of those would be related to accidents involving drilling and the energy sector. Unfortunately, however, there is only a very small part related to offshore installations. The overall risk is modelled with the support of experienced actuaries.<sup>1176</sup>

Some, however, warn that it may be dangerous only to assess the risk on the basis of the past accident history. *De facto* many oil companies are now searching for oil at greater depths and in places that are more difficult to reach. That may also increase the risk as a result of which merely looking on historical data should not be the only proxy to fix premiums.<sup>1177</sup>

The premium is *inter alia* based on the specific situation of each offshore installation. Account is e.g. taken of the specific role that the insured played: is it merely a contractor? Does it do pure exploration or drilling activities or only provide services? A second criterion is the amount of revenues made by the insured and third, in order to assess the risk, the amount of oil involved in the installation is a crucial criterion as well since that may determine the risk exposure. A fourth and very important criterion is the location. The location determines the applicable legal regime. Hence, the costs in e.g. the Gulf of Mexico of an average offshore incident would be ten times higher than e.g. in Malaysia simply because of the application of the US legal system (based on the jury, punitive damages and more generally the way in the US the liability system is used for compensation).<sup>1178</sup> The damage of Deepwater Horizon which occurred in the US presumably gave rise to forty billion losses. If the same event had occurred in Europe, the amount would have been significantly lower.

For the amount of 500 million euro in coverage in casualty mentioned above, yearly premiums could amount to a sum between 2 and 50 million euro, depending upon the size of the company, importance of the activities and risk differentiation criteria.

The premiums should obviously reflect the differing risks of each installation whereby, as mentioned, location is an important criterion. Swiss Re employs many highly skilled engineers with capacity to do risk assessment. In addition to the amount of revenues, type of the well, and the location (and resulting legal regime), also specific criteria for risk assessment are taken into account. One important element is the quality and type of installation (whether it is old or new) but also the risk exposure. For risk exposure, public awareness and public opinion could be crucial. In that respect, damage could e.g. be a lot higher in, say, the US or Europe than in China or Malaysia.<sup>1179</sup>

An additional criterion of importance is whether the offshore drilling only involves oil or gas. Gas is more dangerous in the sense that it may lead to personal injury in case of accidents, but oil may on the other hand lead to larger pollution damage.

Operators, however, often argue that premiums are relatively high. It was already mentioned that some majors hold that for every hundred dollar they would pay in insurance premiums

<sup>1176</sup> Interview with Swiss Re, 11 February 2013.

<sup>1177</sup> So Phil Bell, interview on 26 February 2013.

<sup>1178</sup> Interview with Swiss Re, 11 February 2013.

<sup>1179</sup> Interview with Swiss Re, 11 February 2013.

they would only receive 30 back in compensation for losses. Insurance premiums would thus insufficiently reflect actuarial fair values.<sup>1180</sup> This may of course be due to transaction costs as well as to profit margins charged by insurers. That may be the reason why especially for majors alternatives like captives may be more attractive.<sup>1181</sup>

As far as the risks covered by P&I Clubs are concerned it is mentioned that for the very large vessels (such as large cruise vessels or very large tankers) total premiums paid by the vessel could be substantial and even amount to more than 1 mio. US\$ a year. Those are, however, extreme cases since premiums on a yearly basis would more vary between 10,000 and 100,000 US\$.<sup>1182</sup>

#### 5.4.2.6. *Influence of the Deepwater Horizon incident on the insurance industry*

Following the Deepwater Horizon incident, there claimed to be an upward pressure on premiums from the reinsurance market.<sup>1183</sup>

John Lloyd, chief executive of Lloyd & Partners, in his written testimony to the US Senate on 11 May 2010 said that insurance coverage may decline as much as 30% after the Deepwater Horizon incident.

The Insurance Information Institute believed that the Deepwater Horizon incident would be the second biggest energy insurance loss next to the Piper Alpha incident in 1988. The Piper Alpha was the most expensive property loss for energy insurers and it cost insurers \$3.6 billion in 2009 dollars.

BP, ExxonMobil Corp. and Royal Dutch Shell Plc are the world's three largest non-state oil companies. They are at least partially self-insured through wholly owned units, according to company filings.<sup>1184</sup>

Offshore companies have implemented changes aimed at reducing accident risks and improving safety. However, there is no decline of insurance premiums. Is this due to the increased demand for insurance coverage?<sup>1185</sup>

It may be interesting to notice that prior to the Deepwater Horizon incident, energy underwriting rates in the offshore oil and gas industry were down 10 – 15%. Shortly afterwards, a study carried out in October 2010 showed that premiums for insuring deepwater operations have increased by 25-30% and deepwater drilling by 100% or more.<sup>1186</sup> However, the full impact of the increased insurance premiums was not felt until January 2011 when reinsurance was bought.<sup>1187</sup> Some oil and gas companies immediately purchased more insurance than they had done previously, and in some cases even doubled.<sup>1188</sup> This led to a rather awkward situation that oil and gas companies improved their safety measures but the insurance premium did not decline. This is probably largely due to the increased demand for insurance coverage as a reaction to the Deepwater Horizon incident.

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<sup>1180</sup> Interview with representatives of BP on 13 March 2013.

<sup>1181</sup> Ibid.

<sup>1182</sup> Interview with representatives of the International Group of P&I Clubs on 1 May 2013 in London.

<sup>1183</sup> O'Connor (2012).

<sup>1184</sup> <<http://www.upstreamonline.com/live/article218598.ece>>.

<sup>1185</sup> Hamilton (2010), 5, 14.

<sup>1186</sup> Hamilton (2010), 15. See also "Oil industry set for surge in insurance premiums after Deepwater disaster", <<http://www.guardian.co.uk/business/2010/sep/deepwater-oil-rigs-insurance-costs>>.

<sup>1187</sup> Ibid.

<sup>1188</sup> Ibid.

Some argued that the increased insurance costs for oil and gas companies in the Gulf of Mexico would not be passed on to end users. The purchasers for crude oil and gas may have different sources (e.g. from OPEC countries), therefore, the oil and gas companies would not increase the price to drive out the buyers.<sup>1189</sup> If the company wants to absorb the increasing operating costs, the larger firms may have more assets to do so via the economies of scale.<sup>1190</sup> In turn, increased insurance premiums makes self-insurance a more attractive option for the oil and gas firms. But this is feasible only for a few big firms with sufficient assets to do so.

### 5.4.3. Analysis

As far as an evaluation of insurance is concerned we can be relatively short since we mentioned the pro and con's already when assessing some of the other instruments:

From the operator's perspective insurance may have the advantage that it can protect risk averse operators against risk to a risk transfer mechanism. Moreover, from society's perspective the advantage is that insurers can calculate risk dependant premiums which provide incentives for prevention. Thus the risk differentiation exercised by insurers can contribute to the prevention of risks.

Insurance may, moreover, be cheaper than bank guarantees or letters of credit and more easily to apply, also for risks that may spread over a longer period than capital market instruments. However, compared to self-insurance insurance is obviously costly. The running of an insurance company creates unavoidable transactions costs. Insurance companies are, moreover, profit maximising corporate entities and may thus add a profit margin to premiums. From the operator's perspective the premium charged by insurers may hence be higher than the actuarially fair (objective) value of the risk. That explains why operators, to the extent they can, would use self-insurance.

Insurance is, together with self-insurance, probably the most important instrument to cover offshore related risks.<sup>1191</sup> It is again one of the instruments that can be used to meet the liabilities of participants in OPOL.

### 5.5. Risk pooling schemes

The risk pooling schemes OIL and OCIL were extensively discussed in chapter 4<sup>1192</sup> where also the theoretical advantages of risk pooling schemes were sketched.<sup>1193</sup> Here we will hence suffice to discuss the way in which those risk pooling schemes are used in practice according to stakeholders.

Some of the majors hold that they are not very enthusiastic concerning risk pooling in OIL and OCIL. The reason is that they do not like the mutuality.<sup>1194</sup> They argued that their loss experience is better than the average risk and in that case negative redistribution would arise since they contribute to the higher risks posted by other members. OIL *in fact* does not function as insurance with risk dependent premium. BP considers it as a bank account, even referred to as a clique, on which particular operators will call.

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<sup>1189</sup> Hamilton (2010), 17-18.

<sup>1190</sup> Hamilton (2010), 18.

<sup>1191</sup> Representatives of OPOL held that most operators meet their obligations under OPOL via insurance (interview with representatives of OPOL on 27 March 2013).

<sup>1192</sup> See *supra* 4.3.

<sup>1193</sup> See *supra* 4.1.

<sup>1194</sup> Interview with representatives of BP on 26 March 2013.

OIL has even become insolvent in the late 1980s after the Winston hurricane and had to recapitalize.

The problem BP has with these pools is that they charge standard rates, but the distinction made between the members is too limited. They argue that risk differentiation is better with insurance companies. The current pools mutualize (based on solidarity) but premiums do not sufficiently reflect risk and hence do not award the good risks.

For that reason the pools are *in fact* only attractive for middle size companies: since the majors usually pose better risks they do not find the pools attractive and do not need the pools. For the smaller companies the high deductibles (of 10 million USD) do not make membership attractive. That is why only medium size players will join.<sup>1195</sup>

Moreover, operators also argue that the risk pools do not have a full solidarity since, depending upon the contractual arrangements, in some cases the liable operator will be compensated by OIL or OCIL but will have to repay (a part of) the damage over a specific (usually five years) period.<sup>1196</sup> Also other majors held that OIL and OCIL are not attractive for majors players. The mutualisation in OIL and OCIL could lead to the danger for major players of smaller operators free riding on the majors in which case the majors would *de facto* become the guarantors of small players.<sup>1197</sup> They argue that currently within these pools the risk differentiation is too low.

However, the problem is here that damage can be potentially very high, but the probability is very low. Hence, given low probabilities the difference between e.g. a good risk and a large risk may be that the good risks pays e.g. 30000 dollars in contribution and a large risk 60000. That difference is simply not large enough. The bad risk could simply pay a contribution and still free ride on good risks that have to contribute after an accident. Pools hence provide for smaller players with limited balance sheets some kind of safety net and risk differentiation is simply not sufficient.<sup>1198</sup>

Representatives from insurers also hold that in case of a big claim OIL will try to recoup some of the money they had to pay to the third party. Via retrospective premiums part of the money would have to be paid back which makes such a model less attractive.<sup>1199</sup>

In sum, OIL and OCIL are apparently attractive for some middle size players as the discussion of OIL and OCIL above made clear, for those players they do provide substantial coverage. However, for smaller players they may not be attractive (given large retention) and for major players they may not be attractive either given the danger of a negative redistribution (low risk majors contributing to high risk members in the pool, thus creating adverse selection).

## 5.6. OPOL

Again, OPOL has been extensively presented above<sup>1200</sup> where also on the basis of a preliminary analysis advantages and limits of OPOL were sketched<sup>1201</sup> in order to avoid

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<sup>1195</sup> Ibid.

<sup>1196</sup> Discussion with representatives of OGP on 25 February 2013.

<sup>1197</sup> Interview with representatives of Shell International BV. on 14 March 2013 in Rotterdam.

<sup>1198</sup> Ibid.

<sup>1199</sup> So representatives of Lloyds, interview on 1 May 2013 in London. They argue that these pools were created at a moment when there was less cover available in the market, but that they may be less needed today.

<sup>1200</sup> See *supra* 4.2.

<sup>1201</sup> *Supra* 4.2.8.

repetition we will hear suffice with discussing the use of OPOL in practice according to stakeholders.

The function and goal of OPOL is relatively limited and in that sense not comparable to insurance. The worldwide casualty energy market including Swiss Re excludes OPOL from the casualty coverage and policy. The reason is that not all damage is covered. An important condition is *inter alia* that pollution should be sudden and accidental; gradual pollution is hence excluded. The OPOL coverage is much larger and therefore excluded.<sup>1202</sup>

OPOL is important in the UK where membership of OPOL is mandatory to obtain a licence. Representatives of a large reinsurer held that some risk sharing between operators (thus enlarging OPOL) may be a good idea. This would mean that operators would take a larger part of the risk via e.g. co-insurance. If OPOL would thus be constructed as a full pooling mechanism, operators would take a higher amount of the risk and insurers would only intervene as a second layer.<sup>1203</sup>

Representatives from insurance companies also mention that OPOL only provides coverage up to 250 million USD and only guarantees insolvency. 250 million USD is in fact not considered a high amount compared to what the total damage resulting from a catastrophic blow-out could be.<sup>1204</sup> Moreover, also operators mention that the importance of OPOL is to an important extent limited to the UK and de facto only applies to the North Sea.<sup>1205</sup> Since OPOL in fact only provides a guarantee it is also considered that its role is relatively limited. The duty to compensate is after all still on the operator, not on OPOL.<sup>1206</sup> In one sense it could be held that the cover provided through OPOL worked since it never had to be used.<sup>1207</sup>

The way OPOL works in relation to insurance is that operators in the North Sea who are parties to OPOL can buy an endorsement to their operators extra expense (OEE) cover which will meet the obligations insured under OPOL. This then provides cover on a strict liability basis for compensation to third parties, including local authorities for pollution damage and for clean-up expenses.<sup>1208</sup> The liability under OPOL goes further than traditional insurance wordings since OPOL does not require a pollution event to be on a sudden and accidental basis and OPOL guarantees the payment of sums to claimants in the unlikely event that a party to OPOL fails to meet its obligations. The market has addressed these issues to ensure that the coverage provided under the policies was (via OPOL) not more than intended by the insurers. That is the reason why the OPOL endorsement has been adapted to clarify that insurers will not respond to the OPOL (solvency) guarantee.<sup>1209</sup>

## 5.7. Combinations

In practice it is rare that only one type of instrument would be used. In fact this may only be the case for the majors who effectively only use self-insurance or captives. Others *de facto* often use a combination of different hedging strategies whereby, logically, the comparative benefits of the various instruments are used for an optimal combination.

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<sup>1202</sup> Interview with Swiss Re, 11 February 2013.

<sup>1203</sup> Interview with Swiss Re, 11 February 2013.

<sup>1204</sup> See Phil Bell, interview on 26 February 2013.

<sup>1205</sup> Discussion with representatives of OGP in Brussels on 25 February 2013. In the words of the representative of DECC "OPOL is our thing" (referring to the fact that it is UK-based) (Wendy Kennedy, Head of Offshore Oil & Gas, Department of Energy and Climate Change (DECC) 29 April 2013).

<sup>1206</sup> *Ibid.*

<sup>1207</sup> So representatives of Oil & Gas UK, interview on 1 May 2013 in London.

<sup>1208</sup> Rees and Sharp (2011), 31.

<sup>1209</sup> So Rees and Sharp (2011), 36.



As an example: a middle sized operator may choose a retention (self-insurance) of for example 5 million and choose insurance or a risk pooling scheme to cover the excess risk. Moreover, he could (and in the case of the UK must) also be a member of OPOL in which case he would use the self-insurance and insurance in combination as proof of financial security.

The type of combinations that will be chosen by operators in practice may of course to an important extent depend upon their size, and hence their assets but also the type of risks to which they are exposed on the one hand and on the other hand the relative costs of various strategies to transfer risk like the relative costs of insurance versus risk pooling.

Summarizing, the following instruments are currently used to cover liability following a major offshore accident:

- Self-insurance, largely by the majors, who in some cases create captives as well.
- The capital market, although actually today only to a very limited extent.
- Guarantees are possible in theory, but not that often used in practice. Bank guarantees or letters of credit are simply considered too costly and hence not used.
- (re)Insurance is undoubtedly the most often used mechanism of financial security for offshore related risks.
- Risk pooling schemes like OIL and OCIL are mostly used by middle-size players.
- OPOL is not as such a system of financial security, but OPOL is important in the UK where membership of OPOL is mandatory for offshore operators in order to obtain a licence.
- In practice, depending upon their size, balance sheet, assets and risks to which they are exposed, operators may use a combination of any of the financial instruments mentioned above.



## 6. Potential of Financial and Insurance Instruments to Cover Liability following a Major Offshore Accident<sup>1210</sup>

In this chapter the foundations will be laid for the various scenarios that will be sketched below (chapter 7) and for the recommendations that will be formulated (chapter 8). In order to do so, this chapter will take a forward looking approach by examining what the potential is of various insurance and financial market based instruments to provide coverage for damage caused by offshore installations. This chapter hence follows logically the previous chapter (5) which discussed the available liability cover for offshore accidents. The main difference is that whereas chapter 5 discussed the status quo as far as available liability cover is available, this chapter is rather forward looking and hence analyses the potential of insurance and other financial instruments to provide coverage for a future EU liability regime. To some extent, this chapter is therefore unavoidably speculative. It is partially based on opinions of experts on what amounts would be insurable in a European market. The speculative character is related to the fact that to a large extent such a liability and compensation regime does not yet exist, at least not at EU level, but it is also absent in most EU Member States.<sup>1211</sup> Hence, the question will mainly be asked to what extent a liability and compensation scheme, if it were to be established at EU level, could be covered by insurance and financial instruments. In order to make such an assessment, it may be interesting not only to focus on the offshore liability sector, but also to compare with other sectors. An obvious one is to look at amounts available for vessel based pollution.<sup>1212</sup> Also, developments as far as nuclear liability are concerned are interesting to consider.

This chapter will first provide an estimate of the potential costs of a major incident with an offshore installation. These estimates will of course be based on an analysis of past events, but also on evidence provided by experts from the oil and gas industry and from the insurance industry. The experience with similar accidents in the vessel based pollution area will be included as well. To some extent, experiences outside of Europe will be taken into account. However, we will argue that one has to be careful with taking into account e.g. numbers on damage costs from the US since those could be substantially different (for a variety of reasons) than if a similar incident were to occur in Europe.<sup>1213</sup> Some estimate of costs seems, however, unavoidable as a starting point.

If one wishes indeed to examine the adequacy of particular financial or insurance instruments to cover liabilities, one should at least have some idea of the potential costs of an offshore incident (6.1). Next, the potential of reinsurance and insurance to cover liability caused by offshore incidents will have to be assessed, also taking into account coverage possibilities in vessel based pollution (6.2). In this section a comparison with the coverage in other high risk sectors will also be provided, more particularly the nuclear. Finally, attention will be paid to the potential of regional or international risk pooling (6.3). The most important question that will arise in that respect is whether the current OPOL mechanism<sup>1214</sup> could be expanded or whether a different, more elaborate, risk sharing agreement for damage resulting from offshore installations could be developed. This will of course be based on expert opinions

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<sup>1210</sup> This corresponds to Task 4.2 of the Invitation to Tender.

<sup>1211</sup> See the overview above in section 3.5.

<sup>1212</sup> Representatives of reinsurers (more particularly Swiss Re) explicitly indicated during an interview (on 14 February 2013) that amounts of damage costs and compensation available for vessel-based pollution provide an interesting indication for the offshore sector as well. Even though there may be technical differences in both cases, the basis of liability is constituted by a release of oil and a large part of compensation can be related to clean-up costs.

<sup>1213</sup> This is also reported by experts from Swiss Re (interview on 14 February 2013).

<sup>1214</sup> That has been discussed in more detail above in section 4.2.

from OPOL, but also from insurers and from the stakeholders within the oil and gas industry (6.5). Finally, the question arises to what extent a combination of different insurance and financial instruments (like operator guarantees, insurance and international risk pooling) would be feasible in a type of multi-layered compensation scheme (6.6).

One obvious question (which has to some extent already been answered at EU policy level) is whether there should be a duty for operators to seek insurance coverage. That question will, however, be addressed in more detail in the next chapter (7). Another issue which will be discussed in chapter 7 is whether alternatives to insurance or international risk pooling could be imagined whereby a stronger role of government would be present, for example via a compensation fund. In this chapter the main focus will, however, be on whether there is a possibility of increased coverage via insurance and related instruments like international risk pooling.

### **6.1. Potential costs of an offshore incident**

The attention for the potential damage resulting from offshore installations is of course partially the result of the “hype” after the Deepwater Horizon incident in 2010. The question, however, arises to what extent in European waters there would be really a problem in the sense that there may be a serious insolvency risk, e.g. the danger that particular operators would cause a damage of a magnitude beyond the financial and insurance instruments discussed in Chapter 5.<sup>1215</sup> If that were the case, it would be an important justification for regulatory action. Answering a question like that is obviously highly speculative. The goal of this section is therefore not to speculate on precise amounts of the potential costs of a (major) offshore incident, but rather to attempt, based on interviews with stakeholders, to assess whether the current system of financial coverage (as sketched in chapter 5) would be sufficient. If the answer would be that this not be the case, the subsequent in this chapter will address possibilities of increasing the amounts under the current or alternative schemes. In that respect we will first address the past accident record for offshore incidents (6.1.1), next again ask the question whether a Deepwater Horizon scenario is likely in the EU (6.1.2). Next we will have a look at the data of damage resulting from vessel based pollution where more information is available (6.1.3) and explain that various scenarios are possible in offshore incidents (6.1.4), finally asking the question whether under the current regime there may be a serious insolvency risk (6.1.5).

#### **6.1.1. Past accident record**

One possible way of approaching the potential costs of an offshore incident is of course to look, as we have done in chapter 2, at the available data on the costs of oil spills as they occurred so far in the EU. However, as was indicated in chapter 2 it is in fact not easy to provide an accurate monetary assessment for a variety of reasons. First, data on accidents that occurred in European waters are limited. There are, as we indicated, data with national authorities and with some (in some cases private) databases like WOAD or DNV. However, in addition to the amounts of products spilled they do not always provide clear indications in monetary terms of the costs of oil spills. In general, the data seems to indicate that, although there have been quite a number of incidents, many of those are, at least when they occurred in European waters, not very significant.

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<sup>1215</sup> See in this respect also the discussion in section 2.6 on the likelihood of a Deepwater Horizon-type incident in Europe.

So far no incident has been reported in Europe that would create damage in an amount higher than the limit of OPOL, which is 250 million USD.<sup>1216</sup> At the same time many are quick to state that the mere fact that until now OPOL never had to become active does of course not mean that accidents with a magnitude higher than 250 million USD could never occur in European waters. “Results obtained in the past do not provide any guarantee for the future”, as the disclaimer on information concerning financial products often holds. Therefore, especially regulatory authorities hold that also in the EU an accident risk with a potentially large, even catastrophic loss is possible.<sup>1217</sup> The opinions of stakeholders concerning a potential insolvency risk in European waters will be further discussed below.<sup>1218</sup>

The few data that are available on the costs of past accidents indicate the following: offshore accidents do occur at various scales. Due to the reporting obligations imposed on operators or licensees in many jurisdictions, recording of past accidents is possible at least at national levels, such as in the UK and the Netherlands. However, due to lack of harmonized criteria, it is difficult to systematically analyze the recorded accidents as illustrated in Chapter 2. Another difficulty may exist in approaching accident data since many databases are not publicly available, including that of the industry organizations who may have the best first-hand information.

The most relevant question, asked by many, is whether a major incident like the Deepwater Horizon, could also occur in Europe and how this may affect solvency limits.

## **6.1.2. Again: Deepwater Horizon in the EU?**

### *6.1.2.1. A debated issue*

As was discussed in chapter 2 when discussing the Deepwater Horizon case and the question whether such a dramatic incident could equally happen in the European waters, there are reasons to argue that there are technical and legal differences between the Gulf of Mexico and the application of American law on the one hand and European waters and the European legal system on the other hand.<sup>1219</sup> Various stakeholders have reported on those specific differences but also on the likelihood of a major (catastrophic) blow-out in European waters. The results show, as often, a nuanced picture. Obviously the assessment on the likelihood of a catastrophic incident depends very much on the particular position of the stakeholders that were interviewed. Generalizing, not surprisingly oil and gas producers tended to stress that the occurrence of a Deepwater Horizon in the EU is highly unlikely and if it would occur the damage would be substantially lower than in the Gulf; representatives from government and especially some reinsurers to the contrary hold that a Deepwater Horizon-incident could equally occur in European waters and that there is no reason to assume that if that were so, that the total damage would be substantially lower than in the Gulf. Obviously the particular position taken by the stakeholders may to some extent also be reflected by the different (also economic) interests at stake. The goal of this study is not to decide which of those positions would be correct (which would be clearly beyond our expertise), but rather to show the different opinions of stakeholders, precisely indicating that this question (whether a Deepwater Horizon-type incident is likely to occur in Europe) deserves a nuanced answer.

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<sup>1216</sup> Interview with representatives of OPOL on 27 March 2013.

<sup>1217</sup> Interview with Mr Jan de Jong, inspector-general of the State Mines, on 22 February 2013.

<sup>1218</sup> See 6.1.5.

<sup>1219</sup> See the discussion of the Deepwater Horizon case and the question whether a similar case could occur in Europe as well, *supra* Chapter 2, section 2.6.

#### 6.1.2.2. *Increased safety levels, few incidents*

A first point mentioned by many stakeholders, understandably mostly representatives of industry, but also insurers is that safety levels and standards have spectacularly increased over the years. It is for example stressed that especially the majors have an extensive knowledge and expertise in preventive technology and that their primary interest is the prevention of a blow-out.<sup>1220</sup> That is not only mentioned for reasons of reputational risks, but also for the simple reason that even if there were no damage to the environment surrounding the well, the mere costs of well control can be substantial. Operators will therefore have strong incentives to invest in safety preventing those risks.<sup>1221</sup> “Risks have hence substantially reduced and as a result of this it is not so clear what still could be done additionally”.<sup>1222</sup>

A point also made by many stakeholders is that there is relatively little data on offshore related incidents (for example compared to vessel based pollution) for the simple reason that not that much has happened. The risks are, so it is held especially by the majors<sup>1223</sup> relatively limited, especially for the North Sea area.

#### 6.1.2.3. *Technical differences Gulf-EU waters*

Many stakeholders also point at substantial differences between the technical situation in the Gulf of Mexico and in European waters. One aspect often mentioned is that in European waters, especially in the North Sea there would be more gas drilling than oil. Gas can lead to personal injury, but less to environmental harm, whereas the reverse is true in the case of oil spills: less risk of personal injuries but substantial environmental damage.<sup>1224</sup> The argument is also made that drilling in the Gulf of Mexico is not merely deepwater drilling, but even ultra-deep, 3km and more. Drilling would not be as deep in the North Sea which would be less risky.<sup>1225</sup> Moreover, it is stressed that large losses suffered in the Gulf of Mexico are often related to hurricanes. Most of the largest losses outside of Europe were all caused by hurricanes.<sup>1226</sup> Hurricanes may be a serious problem in the Gulf of Mexico, but not in European waters.

Macondo was moreover a high risk, high temperature well and a new reservoir with a lot of pressure. Some hold that many wells in the North Sea are not under high pressure which would seriously reduce the risk of blow-outs.<sup>1227</sup> The argument is also made that the Gulf of Mexico is more risky as far as hurricanes are concerned whereas Western Europe could have substantially high waves. For example west of the Shetlands, waves could go up to 20-25 meter. The argument was presented to hold that in case of a spill, oil may more easily disperse in water as a result of the high waves. At the same time, it was held that the high waves could also increase risk which is normally taken into account in the construction of the oil rigs.<sup>1228</sup>

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<sup>1220</sup> Interview with Phil Bell in 26 February 2013; interview with Wendy Kennedy, Head of Offshore Oil & Gas, Department of Energy and Climate Change (DECC) 29 April 2013.

<sup>1221</sup> This was also stressed by a representative of ExxonMobil, interview on 19 February 2013.

<sup>1222</sup> See Wendy Kennedy, Head of Offshore Oil & Gas, Department of Energy and Climate Change (DECC) 29 April 2013. See also the mail of the International Association of Oil & Gas Producers (OGP) to Michael Faure of 13 May 2013 stating “Moreover, the global upstream oil and gas industry has dedicated significant time and resources to accident prevention, intervention and oil spill response. ... These cover well design and process safety procedures, and competence assurance for well operations personnel to lesson the risk of further accidents occurring offshore”.

<sup>1223</sup> *Inter alia* an interview with representatives of Shell International on 26 March 2013.

<sup>1224</sup> Interview with Mr Jan de Jong, inspector-general of the State Mines, on 22 February 2013.

<sup>1225</sup> Interview with representatives from Shell on 26 March 2013.

<sup>1226</sup> Mail of International Association of Oil & Gas Producers (OGP) to Michael Faure of 13 May 2013.

<sup>1227</sup> Interviews with representatives from Shell on 26 March 2013 and interview with Wendy Kennedy, Head of Offshore Oil & Gas, Department of Energy and Climate Change (DECC) 29 April 2013.

<sup>1228</sup> Discussion with representatives of OGP on 25 February 2013.

However, others stress that perhaps risks in the North Sea, especially in those areas where wells are old (and hence the pressure is low) and there is no deepwater drilling, may be relatively limited. That increasingly drilling also occurs in other European waters than the North Sea where risks may be substantial.<sup>1229</sup>

It was also held that in case of vessel based pollution, damage would be substantially larger since the amount of oil that comes into the sea when e.g. a vessel breaks down is normally much larger than in case of an incident with an offshore installation where through a variety of technical devices (capping devices or a so-called blow-out preventer) it may be possible to better control the amount of oil leaking into the environment.<sup>1230</sup> However, there again the counterargument was made that with a tanker the total amount of oil that can be spilled is known *ex ante*, whereas with a blowout from an offshore installation the potential amount of product that can come out of an uncontrolled well can be potentially much larger.<sup>1231</sup>

#### 6.1.2.4. Differences in operators

Also, it should be remembered that even in the waters belonging to the Netherlands in the North Sea on a yearly basis still significant and large gas releases take place.<sup>1232</sup> They are not yet disasters, but could potentially give rise to disasters. Moreover, even after the Deepwater Horizon incident in 2010, at least five major incidents with offshore installations on a worldwide basis took place.<sup>1233</sup>

It is also stressed, especially by the majors, that there may be a lot of different players in the market. Majors have a large reputation at stake and would therefore already because of reputational reasons strive for very high safety standards. There are, however, also some smaller and medium-sized operators. They do not as such pose higher risks, but some could engage in a “hit-and-run” strategy, like venture capital players. In theory, they could borrow money to finance the drilling operations. Once they have the license, the oil and gas reservoir would basically be their balance sheet, but the way in which they operate may potentially be very risky.<sup>1234</sup> Also, representatives of Noble Energy held that after Deepwater Horizon there is in fact “unfinished business” for the simple reason that they argue that there is not enough coverage today for offshore installations on the global market especially if a disaster like the Deepwater Horizon were to occur again in the Gulf of Mexico.<sup>1235</sup> They argue that if the Deepwater Horizon did not occur to a company with large assets like BP, the consequences may have been devastating and crippling for the particular enterprise as a result of which they argue that an alternative solution should be drafted to provide higher amounts of coverage.<sup>1236</sup>

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<sup>1229</sup> See Dr. Philipp Wassenberg, representative of Munich Re, interview on 6 May 2013.

<sup>1230</sup> Interview with Mr. Jan de Jong, inspector-general of the State Mines, 22 February 2013 and interview with representatives of the International Group of P&I Clubs on 1 May 2013 in London.

<sup>1231</sup> Interview with Dr. Philipp Wassenberg, representative of Munich Re on 6 May 2013 and interview with representatives of the International Group of P&I Clubs on 1 May 2013 in London (they argued that with an offshore well (contrary than with a tanker) the amount of oil that can be spilled is in principle infinit).

<sup>1232</sup> See the overview *supra* in chapter 2.

<sup>1233</sup> Pictures are provided on the title page of this report.

<sup>1234</sup> Interview with representatives of Shell International BV, 26 March 2013. It was a concern equally expressed by Mr. Jan de Jong, inspector-general State Mines, 22 February 2013 and by representatives of BP (26 March 2013).

<sup>1235</sup> Interview with representatives of Noble Energy Inc. 6 March 2013.

<sup>1236</sup> *Ibid.*

#### 6.1.2.5. *Different legal standards*

Of course, many point to the fact that there are substantial differences between the amounts that were paid by BP for the Deepwater Horizon incident and amounts that would have to be paid if a similar incident were to occur in Europe. Recall that BP not only allocated 20 billion US \$ to the fund, but also had to pay criminal fines and was still in litigation concerning additional civil fines for violation of OPA and the CWA.<sup>1237</sup> As a result of that, the total amount due by BP amounted almost to 40 billion US \$. Obviously, there are particular aspects in the American system of litigation that make any tort action potentially substantially more costly in the US than in Europe.<sup>1238</sup> It is well-known that there are substantial differences between Europe and the US both as far as procedures are concerned (very active role of the plaintiff bar, allowing to use discovery mechanisms and trial by jury) as well as substantial differences (much higher amounts of pain and suffering, punitive damages) in addition to a different remuneration system for lawyers (the contingency pay system for lawyers in the US would attract more claims). Many stakeholders hold that this has led to substantially high damage amounts in the US which would probably be substantially lower if the incident were to occur in Europe.<sup>1239</sup> However, a representative of another reinsurer holds to the contrary that there are in fact no reasons to assume that if a disastrous offshore incident were to occur in Europe, the amounts of compensation claimed by victims should be substantially lower than in the US.<sup>1240</sup> In that respect it is (correctly) pointed out that the GCCF is not paying out punitive damages, but heads of damages, like property losses and compensation for business interruption, which would also be largely recoverable under the law of most European legal systems.<sup>1241</sup>

#### 6.1.2.6. *But significant risks in Europe as well*

There are equally many stakeholders that warn that, even though there may be (some) reasons to hold that the risks of a Deepwater Horizon incident may be less in Europe than in the Gulf of Mexico, one still has to take into account the probability of a catastrophic incident in Europe. The argument is especially made that one cannot generalize that it could be deduced from the fact that major incidents so far did not happen that there would hence not be a major risk in the future either. It is e.g. mentioned that with increasing oil prices operators may now also move to fields that were previously not used because they were too difficult to reach (and hence too costly). That may e.g. explain why operators now also increasingly move to e.g. the Mediterranean or the Black Sea. However, moving to areas at greater depth and in more difficult circumstances could increase risks as well.<sup>1242</sup> Also regulators warn that even the Piper Alpha incident only started with a so-called “significant release” of gas. One has, however, to realize that a significant release of gas can potentially turn to disaster if e.g. some heat source would be present as a result of which an explosion could take place.<sup>1243</sup> Moreover, the mentioned increasing safety standards may all have reduced considerably the probability of a large incident. However, the potential consequences (and hence the damage) in case of a catastrophic blow-out have not changed. The essence of an offshore incident is that even though the probability is low, it can potentially still lead to high damage when it occurs.<sup>1244</sup>

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<sup>1237</sup> See *supra* Chapter 2, section 2.5.2.

<sup>1238</sup> Interview with Wendy Kennedy, Head of Offshore Oil & Gas, Department of Energy and Climate Change (DECC) 29 April 2013.

<sup>1239</sup> See interview with representatives of Swiss Re Insurance Company on 11 February 2013.

<sup>1240</sup> Interview with Dr. Philipp Wassenberg, representative of Munich Re on 6 May 2013.

<sup>1241</sup> *Ibidem*. See on the types of damages paid as civil compensation in the Deepwater Horizon case *supra* 4.9.4.

<sup>1242</sup> So Phil Bell, interview on 26 February 2013.

<sup>1243</sup> Interview with Mr. Jan de Jong, inspector-general of the State Mines, 22 February 2013.

<sup>1244</sup> *Ibid.*



Therefore, notwithstanding some differences between the US and Europe, some hold that potentially catastrophic losses are possible in Europe as well. They provide the example of the recent Elgin incident and argue that if it would not have happened with gas but with oil, it would be very likely that substantial damage would have occurred. Moreover, in this case, the operator was Total as a result of which assets were not a problem, which may, however, have been a different case if it were a smaller operator.<sup>1245</sup> Also, representatives of reinsurance companies hold that even if a Deepwater Horizon-like incident in Europe may not have led to a total damage of almost 40 billion US \$, it is very likely that it would lead to substantial damage<sup>1246</sup> potentially at least larger than 1 billion euro, thus largely exceeding the current limit under OPOL of 250 million USD.<sup>1247</sup>

Also a report by Lloyds post-Macondo deals explicitly with the question whether a Macondo is likely to happen again. They criticize industry commentators arguing that 50,000 wells have been drilled since 1947 with only one occurrence of a Macondo-style event. It is countered that these numbers may be masking reality as the absence of more incidents does not mean that the risk is only a one in 50,000 event. A study found that of the 5,000 wells drilled since 1993 only 43 were as complex as the Macondo well. Hence they raised the question whether the probability of another Macondo-type event is rather 1 in 43 or even higher, given that the rate of wellbore instability in these wells is unusually high.<sup>1248</sup> Interestingly the Lloyds study also points at behavioural biases as a result of which experts were unable to conceive the possible negative consequences of scenarios that were difficult to imagine. As a result, a loss of well-control for 87 days as happened with Macondo, was not even considered possible. The Lloyds study also points at the well-known hindsight bias<sup>1249</sup> by which people conclude that their ability to handle a past event was higher than it really was. Hence it should be warned that the more time that passes without any incidents, the more easily organisations lower their estimates of the probability of an accident occurring.<sup>1250</sup>

### 6.1.3. Vessel-based pollution

It has been argued by various stakeholders that in order to assess the costs of (especially catastrophic) incidents with offshore installations, it may be useful to compare to similar accidents with tankers. They have a large history and moreover provide detailed information on the total amounts of damage and on the amounts of oil released. To some extent, those estimates from the area of vessel-based pollution are also used and extrapolated to the area of offshore pollution. Moreover, also technically, the issues are obviously linked since oil may be shipped from an offshore installation to a vessel.<sup>1251</sup> However, there are differences as well in the sense that with an offshore installation, it may (depending of course upon the circumstances) be easier to control a release from the well than with e.g. a tanker that breaks in two.<sup>1252</sup> The data concerning releases from vessel-based pollution on the one hand come from the International Oil Pollution Compensation Fund<sup>1253</sup> and on the basis of the similar

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<sup>1245</sup> Interview with representatives of Noble Energy Inc. on 18 March 2013.

<sup>1246</sup> Interview with representatives of Swiss Reinsurance Company, 11 February 2013.

<sup>1247</sup> So Dr. Philipp Wassenberg, representative of Munich Re, interview on 6 May 2013.

<sup>1248</sup> Rees and Sharp (2011), 28.

<sup>1249</sup> See on this hindsight bias also Rachlinski (1998), 571-625.

<sup>1250</sup> Rees and Sharp (2011), 28.

<sup>1251</sup> Interview with a representative from Swiss Re on 11 February 2013.

<sup>1252</sup> So Mr. Jan de Jong, inspector-general State Mines, 22 February 2013. But again that is also doubted by others who hold that these new well control measures exist on paper, but have in fact never been tested in reality and can also not be used e.g. in very bad weather conditions where helicopters cannot put a capping device in place (interview with Dr. Philipp Wassenberg, representative of Munich Re, on 6 May 2013).

<sup>1253</sup> Based on the Fund Convention discussed above *supra* 4.4.

fund established under the Oil Pollution Act in the US, referred to as the Oil Spill Liability Trust Fund (OSLTF).<sup>1254</sup> They provide the following data:

Table 14: Overview of major incidents handled by the IOPC Funds

Year of incident/ Year of finalization of all claims settlement <sup>1255</sup>	Name of vessel	Place of incident	Limits of shipowner's liability under the CLC	Estimated amount of oil spilled (tonnes)	Estimated damage caused (million Euro)/available compensation	Amount of compensation by the Funds
1979/1980	Antonio Gramsci	USSR (Ventspils)	RUB2,431,584	5,500		SKR 95,707,157
1980/1988	Tanio	France (Brittany)	FFr 11,833,718	13,500	62.6/43.9	FFr222,140,643 (US\$17,480,028 recovered through recourse)
1981/1982	Globe Asimi	USSR (Klaipeda)	RUB1,350,324	>16,000		Only US\$467,953 in indemnification
1987/1992	Akari	United Arab Emirates (Dubai)	£92,800	1,000		Dhs864,292 or US\$187,165
1988	Amazzone	France	FFr13,860,369 (18325 GT)	2,000		FFr1,286,977 (FFr1,000,000 recovered from the shipowner's insurer)
1988	Kasuga Maru No.1	Japan	¥17,015,040	1,100		¥425,365,167 plus ¥4253,760 in indemnification
1991/1995	Agip Abruzzo	Italy (Livorno)	Lit 22,525 million	2,000		Lit 1,666,031,931 in indemnification
1991/1999	Haven	Italy (Genoa)	Lit23,950,220,000	Unknown	71.6/62.5	Lit71,584,970,783 or FFr 23,510,228 plus £2.5 million in indemnification

<sup>1254</sup> See *supra* 4.5.

<sup>1255</sup> This corresponds to the year that the incident was last featured in the Annual or incident report of the IOPC Fund.

1992/2012?	Aegean Sea	Spain (La Coruna)	Pts1,121,219,450	73,500	115/63.5	Pts6,386,921,613 plus Pts278,197,307 in indemnification
1993/2007	Braer	UK (Shetland)	£4,883,840	84,000	89.2/86.9	£51,938,938
1993	Keumdong No.5	Republic of Korea	KRW 77,417,210	1,280		KRW16,275,151,969 plus 12,857,130 indemnification (KRW 64,560,080 paid by the shipowner's insurer)
1995	Sea Prince	Republic of Korea	KRW18,308,275,906	5,035		KRW 50,227,315,595 plus 7,410,928,540 indemnification (KRW18,308,275,906 paid by the s/o's insurer)
1995	Honam Sapphire	Republic of Korea	14 million SDR	1,800		KRW 10,259,000,000 (US\$13,5 million paid by s/o's insurer)s
1996/2003	Sea Empress	UK (Milford Have, Wales)	£7,395,748	72,360		£36,806,484 plus £1,835,035 in indemnification
1996	unknown	Germany (North Sea coast)	unknown	unknown		€1,284,905 paid by two Funds
1997/2002	Nakhodka	Japan (Oki Islands)	1.588 million SDR	6,200	215.6/196.3	¥ 26,089,893,000 (A global settlement was reached between shipowner/insurer and the Funds whereby insurer paid ¥ 10,956,930,000 and Funds paid ¥15,130,970,000, of which the 1992 Fund paid ¥7,422,192,000 and 1971 Fund paid ¥7,708,778,000.)
1997	Nissos Amorgos	Venezuela	BsF3.5 million	3,600		US\$24,397,612 (Bs359,675,468) plus US\$1,804,893 indemnification
1999/200	Dolly	Martiniqu	3 million SDR	Unknown		€1,457,753

7		e				(1992 Fund paid this amount to French government in full settlement of all its losses as a result of the incident.)
1999/	Erika	France (Brittany)	€12,843,484	19,800	450/200	€16.9 million (2011) € 129.7 million (2012) (TOTAL SA paid the French state €53.9 million, i.e. the amount awarded by criminal court which took into account the compensation amounts received from the Fund. In October 2011 a global settlement was reached between the 1992 Fund, Steamship Mutual, Registro Italiano Navale (RINA) and Total.)
2000/2008	Slops	Greece (Piraeus)	8.2 million SDR	1000-2500		€1,022,099 (The Executive Committee of the Fund decided in 2000 that the Slops should not be considered a “ship” for the purpose of the 1992 Conventions and that therefore the Conventions should not apply to this incident. However, the Greek Supreme Court ultimately decided that the Slops was a “ship” as defined in the 1992 Conventions.)
2002/	Prestige	Spain	€2,777,986	63,200	877/200	€14,484,976 (2011) €19.9 million

						(2012) (Shipowner deposited limitation amount €2,777,986 with competent Spanish court. 1992 Fund has paid €13,920,000 to Spanish government and €23,243 to claimants in Spain, € million to claimants in France and €28,448 to Portuguese government.)
2003/2006	Unknown	Bahrain	Unknown	Unknown		US\$1,231,000 (1992 Fund paid all claims.)
2006/	Solar 1	Philippines (Guimaras Strait)	4.51 million SDR	2,100	/CLC+Fund: 203 million SDR	PHP 986,646,031 (Since STOPIA 2006 applies, 1992 Fund receives regular reimbursements from shipowner's insurer up to 20 million SDR.)
2007/	Volgoneft 139	Strait of Kerch, between Russian Federation and Ukraine	4.51 million according to the Fund/ 3 million SDR according to Russian court	1200-2000	/CLC+Fund: 203 million SDR	nil
2007/	Hebei Spirit	Republic of Korea	KRW186.8 billion	10,900		

The major incidents with vessel-based marine pollution under the Oil Pollution Act in the US and the intervention by the OSLTF can also be found in a report to the US Congress of 18 October 2012.<sup>1256</sup> This report is included in Annex 3 to this report, since it provides a good overview of the incurred costs.

#### 6.1.4. Various scenarios

When discussing the question whether the current amounts of coverage, as sketched in chapter 5, are sufficient to cover for potential future losses resulting from an offshore incident, one has to take into account that usually the debate focuses on the major accidents of a

<sup>1256</sup> <[http://www.uscg.mil/npfc/docs/PDFs/Reports/Liability\\_Limits\\_Report\\_2012.pdf](http://www.uscg.mil/npfc/docs/PDFs/Reports/Liability_Limits_Report_2012.pdf)>.

catastrophic nature with very high damage. However, various stakeholders argue that one should distinguish, also with a view on the necessary coverage, between different types of potential incidents. E.g. in the financial responsibility guidelines for exploration & appraisal wells drafted by Oil & Gas UK,<sup>1257</sup> a distinction is made on the basis of the potential risks posed by an installation (depending upon the combination of various scores). On that basis, the amounts of financial responsibility vary from US \$ 250 million (for band 1) to US \$ 750 million (for band 4). In between are band 2 (US \$ 375 million) and band 3 (US \$ 500 million).<sup>1258</sup> Similar distinctions between the potential risk (and hence the potential damage) potentially caused by an installation are also used by other stakeholders.

The question to be answered next is to what extent a potential insolvency problem may arise. A distinction is in that respect often made between:

- The situation with a maximum damage of 250 million US \$ (band 1 under the Oil and Gas Financial Responsibility Guidelines). They should not be a source of major worry since they are covered under OPOL (of course, to the extent that OPOL applies!);
- The accidents with a damage between the limit of OPOL (250 million) and the total amount of coverage currently available on the commercial insurance market (750 million US \$).<sup>1259</sup>
- The third situation is the one with an accident magnitude above 750 million US \$ or the maximum limit of coverage available on the commercial insurance market. It are obviously especially the latter type of incidents that may cause most worry to policy makers.<sup>1260</sup>

Oil & Gas UK and OPOL have also commissioned a joint study (published in 2010) on oil spill costs and on the adequacy of the financial limits under OPOL.<sup>1261</sup> The report uses various modelling studies and makes particular cost predictions inter alia based on the costs relating to remedial measures. According to their worst case scenario (a high shoreline volume cost occurring west of the Shetland the total damage would amount to 450 mio. US\$<sup>1262</sup>).

In order to address whether regulatory action in that respect is needed, it is first indicated to report how the potential insolvency risk is assessed by various stakeholders.

### 6.1.5. Insolvency risk?

Not surprisingly, the opinions of stakeholders differ, depending on whether they are operators (and even there, opinions may differ between the majors and other operators), insurers or regulators. Moreover, according to stakeholders the question whether there is an insolvency risk may strongly depend on whether one refers to a small, medium-size or large accident;

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<sup>1257</sup> In November 2012; see the discussion above in 3.5.2.9.

<sup>1258</sup> Oil & Gas UK, Financial Responsibility Guidelines - E & A Wells, November 2012, p. 17.

<sup>1259</sup> As we explained above, the estimations of the amount of coverage available on the commercial (re)insurance market vary. Most refer to US \$ 750 million, although some refer to situations where even amounts of 1.5 billion would be insurable (but that assumes very high amounts of retention by the operator).

<sup>1260</sup> Here the banding of potential losses under the UK Oil & Gas financial responsibility guidelines have been taken. We do of course realize that one could debate whether these amounts are relevant, but that is not the crucial issue. The most important issue is that we argue that a distinction can be made between losses covered under OPOL (1); losses higher than the OPOL amount, but still coverable on the market (2) and the situation where losses are not coverable on the international insurance market (3). Of course which losses still are coverable on the market (and hence the distinction between situations 2 and 3) will very much depend upon particular circumstances of the market.

<sup>1261</sup> OPOL and Oil & Gas UK, Oil Spill Cost Study – OPOL Financial Limits, joint study commissioned by OPOL and Oil & Gas UK, London, Oil & Gas UK, February 2012.

<sup>1262</sup> Ibidem, p. 39.

and then again it is held that whether there will be an insolvency risk will strongly depend upon the available assets of the operator.

Some stakeholders strongly argue that one can wonder if there is a real problem today that needs regulating.<sup>1263</sup> This is supported by referring to the fact that so far (since Piper Alpha) no major accident with an offshore installation has happened in European waters during the last 25 years, that the situation in European waters is not comparable to the Gulf of Mexico (as a result of which the catastrophic losses that occurred in Deepwater Horizon would not be likely in Europe) and that safety levels have strongly increased (thus leading to serious reductions of the risk).<sup>1264</sup> It is also held that within Europe there have, since 1972 (the date of the beginning of the Willis Database) not been incidents that would exceed the market capacity. Moreover, even considered globally, with the exception of Macondo all other historic losses did fall well within the insurance market capacity available.<sup>1265</sup> Even some representatives from insurers argue that, especially as far as the majors are concerned, one can wonder whether there is today a serious problem that needs solving.<sup>1266</sup> They especially warn against e.g. regulatory solutions that would force large OGP's to transfer risks to insurance companies that have *de facto* a lower rating than the major OGP's. The latter would simply amount to a mandatory transfer of wealth from stronger to weaker parties, which makes economically little sense.<sup>1267</sup> There is, in other words, large consensus that (as also the Deepwater Horizon case showed) the insolvency risk may not be present with the majors and even if it were, forcing them to transfer risk to lower rated insurance companies would only create additional costs without additional benefits.

However, especially representatives from regulators, but also from some reinsurers,<sup>1268</sup> argue strongly that it would be wrong to argue that there is no problem whatsoever as far as the insolvency risk is concerned. First, it is argued that as a result of increased safety standards the probability of an incident may indeed have reduced, that does not mean that when a major blow-out would occur, that the damage could not be catastrophic.<sup>1269</sup> Second, they also stress that the mere fact that nothing happened (as far as a major incident is concerned) in Europe during the past 25 years, is of course no guarantee that there could be no major accident. "This could easily change tomorrow".<sup>1270</sup> Third, the OPOL guarantee is limited to 250 million. If a Deepwater Horizon type incident would have occurred in Europe, the OPOL coverage would be largely insufficient.<sup>1271</sup> Also representatives from (middle-sized) OGP's warn that the Deepwater Horizon should be considered as a "wake-up call" showing that a potentially large damage incident could still occur which could put smaller and middle-sized operators easily out of business.<sup>1272</sup> Even though this is strongly argued in the US context of the Gulf of Mexico, stakeholders also argue that these dangers equally exist in Europe as far as smaller and medium-sized operators are concerned.<sup>1273</sup>

Representatives of the regulators also argue that in the Netherlands, the UK and Norway, there is a risk that licenses may have been given to smaller operators of which it is realistic to assume that they would not be able to pay for the damage caused by a large incident.<sup>1274</sup>

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<sup>1263</sup> It is an opinion strongly defended by representatives of OGP, discussion in Brussels on 25 February 2013.

<sup>1264</sup> Ibid.

<sup>1265</sup> Mail of International Association of Oil & Gas Producers (OGP) of 13 May 2013 to Michael Faure.

<sup>1266</sup> Interview with Phil Bell on 26 February 2013.

<sup>1267</sup> Ibid.

<sup>1268</sup> Interview with Dr. Philipp Wassenberg, representative of Munich Re on 6 May 2013.

<sup>1269</sup> Interview with Mr. Jan de Jong, inspector-general of the State Mines, 22 February 2013.

<sup>1270</sup> Ibid.

<sup>1271</sup> Ibid.

<sup>1272</sup> Interview with representatives of Noble Energy, 6 March 2013.

<sup>1273</sup> Ibid.

<sup>1274</sup> Interview with Mr. Jan de Jong, inspector-general of the State Mines, 22 February 2013.

Two nuances were mentioned by the stakeholders as well:

Some argue that especially this risk that small stakeholders (with smaller assets) could potentially also create large damage could be taken care of by regulators by requiring smaller stakeholders to engage in joint ventures with majors as a result of which the financial viability would increase. This would *de facto* also occur in which case majors would *de facto* take some of the risk of insolvency of their smaller counter parts.<sup>1275</sup>

Another possibility is to make an accurate risk-assessment (along the lines of the Oil & Gas UK Financial Responsibility Guidelines) as a result of which smaller operators would only be allowed to operate in less risky areas<sup>1276</sup> where the probability of accidents and the magnitude if they were to occur were lower.<sup>1277</sup> Some representatives from middle-sized OGPs, however, argue against this that it may not be desirable from the perspective of competition since it would *de facto* lead to an oligopoly of major oil companies that would self-insure and may drive smaller and independent actors out of the market which may be an undesirable market development.<sup>1278</sup>

How could one, summarizing, assess the insolvency risk?

For smaller incidents (defined as those with a magnitude of damage up to 250 million USD) OPOL coverage would be available. However, one should remind that OPOL is limited to the North Sea and that moreover membership of OPOL is only mandatory in the UK. It therefore *de facto* only covers UK operators.<sup>1279</sup> OPOL hence cannot provide a guarantee against insolvency outside of the North Sea area (like in the Mediterranean where offshore operations are increasing). Moreover, for non-UK operators in the North Sea, it depends on whether the national regulators require membership of OPOL or another type of financial responsibility as guarantee.

For middle-size accidents (defined as having an accident magnitude between 250 million and the maximum insurance coverage available on the market, for these purposes assumed to be 750 million US \$) to the extent that operators took insurance coverage, there should be no problem. However, a problem from a policy perspective is that there may not be a uniform regulation across Europe. Hence, this only works to the extent that regulators *de facto* force operators *ex ante* to take financial coverage (like insurance or membership of OIL or OCIL) to provide coverage up to the maximum amount available. For large accidents, *de facto* only the majors could provide coverage beyond the limits of commercial insurance coverage available on the market via self-insurance.

Summarizing: All stakeholders agree that also in European waters an incident may occur with a magnitude higher than the current OPOL limit of 250 million US \$. Already for that reason, regulatory action may hence be required.

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<sup>1275</sup> Interview with representatives of BP on 13 March 2013; interview with representatives of Shell International BV on 14 March 2013.

<sup>1276</sup> E.g. more remote from the coast, shallow water instead of deep water, less pressurized wells, no high temperature wells etc.

<sup>1277</sup> Interview with representatives from Shell International BV, 14 March 2013.

<sup>1278</sup> Interview with representatives from Noble Energy on 6 March 2013.

<sup>1279</sup> Interview with representatives from OPOL on 27 March 2013. Also DECC will initially rely on OPOL. However, in many cases financial security will be required above the minimum of 250 mio. euros provided by OPOL. That is why in practice DECC often requires a combination of different kinds of financial security (interview with Wendy Kennedy, Head of Offshore Oil & Gas, Department of Energy and Climate Change (DECC) 29 April 2013.



For middle-size potential accidents, coverage should be required beyond the limits of OPOL through other means available in the market (like insurance or pooling arrangements, both of which we will discuss in the following sections).

For operations which could lead to potential accidents with a large damage either licenses should only be provided to majors that can cover for those incidents via self-insurance or joint ventures should be suggested whereby the balance sheet of the major provides a *de facto* coverage in case of the potential insolvency of a small or medium-size operator.

The next question that obviously arises is to what extent current available insurance amounts could be increased in order to provide higher amounts of coverage e.g. to allow smaller or medium-sized operators also to engage in operations that could create potentially large losses.

## **6.2. Expanding possibilities of insurance?**

The question to what extent higher amounts of insurance coverage than available today<sup>1280</sup> will be approached from various angles: first, the opinions of stakeholders concerning the possibility to increase coverage will be sketched (6.2.1); next, a particular proposal launched by the Munich Reinsurance company to cover catastrophic losses especially developed for the Gulf of Mexico will be discussed (6.2.2). Next, the cover available today for vessel-based pollution will be presented (6.2.3) as well as some developments concerning the coverage of the nuclear risk (6.2.4).

### **6.2.1. Increasing coverage?**

As far as the question is concerned whether higher amounts of insurance coverage could be made available for offshore related risks, first, the general principles of insurance as they were sketched above<sup>1281</sup> need to be recalled. An insurance company is only able to provide coverage if a sufficiently large amount of insured joins the risk pool and sufficient premiums can be generated in order to actually create capacity to cover the risk. The problem of insurance capacity is one that is often mentioned as a problem when discussing catastrophic losses.<sup>1282</sup> One problem of supplying catastrophe insurance is the so-called problem of correlation. E.g. when flooding occurs, it usually affects one specified area and the risks are highly correlative which may create an insurability problem.<sup>1283</sup> The problem of correlation is not directly one that may affect offshore related risks. However, there is another problem affecting the supply of catastrophe insurance as well, being the absence of historical data and the imperfect scientific knowledge to predict the risk. That may be a problem in case of offshore related risks, where many argue that objective and reliable information on probabilities and potential damage is often lacking. The third problem may be the most serious one, being that insurance companies simply need sufficient financial reserves to cover the particular catastrophic risks. The capital needed by the insurance firm to be able to cope with catastrophic losses must be high enough to cover 1/ the expected claim costs and other expenses and 2/ the costs of allocating risk capital to underwrite this risk.<sup>1284</sup> Losses due to a catastrophe can be of such a magnitude that they can endanger also the financial viability of insurance companies. Not only can the capacity of individual insurers be too limited for the large amount of the losses caused by a catastrophe; the low probability/high loss character makes the catastrophe inherently difficult to insure. The basic problem is indeed that the level of capital for insuring extreme events is often higher than what can be collected via insurance

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<sup>1280</sup> That was sketched above in section 5.4.2.3.

<sup>1281</sup> See *supra* 5.4.1.

<sup>1282</sup> See in this respect Gollier (2005) and the contributions in Froot (1999).

<sup>1283</sup> See Faure and Bruggeman (2008), 28.

<sup>1284</sup> So Doherty et al. (2008), 149.

premiums.<sup>1285</sup> That may be a serious problem in case of offshore related risks. It is easy to understand that for an insurance company, even in combination with other insurers (co-insurance) or with reinsurance providing a capital of, say, 2 billion € in coverage requires not only high premiums, but also efforts of many partners to put those large amounts at risk. That is why many stakeholders doubt that it is possible to generate substantially higher amounts than what is currently available on the market. It is e.g. held that policy makers often do not correctly understand the precise functioning of insurance and the problems that arise in offshore related risks. One problem is that the pool of insured (who have a demand for coverage) is often relatively small and consists of small players. That also means that they can only generate a relatively limited amount of assets in premium and thus in capital.<sup>1286</sup> Again, this problem is exacerbated by the fact that usually only the small and middle-sized OGP's ask insurance coverage since the majors self-insure.<sup>1287</sup> This is, so stakeholders report, sometimes misunderstood by policy makers. They would e.g. argue that hurricane Sandy led to a damage of 13 billion US \$ which was largely insured as a result of which they would question why similar amounts could not be raised for damage caused by an offshore installation. However, for weather related damage and natural catastrophes not only are there a lot of models and data which make the predictability very high. Moreover, the amount of insured having a demand for coverage may be very large as well, thus creating potentially a large pool of policy holders that pay the premium and thus can generate sufficient capacity. Those features are precisely lacking in the offshore sector which explains the reluctance of insurers to provide higher coverage than is available in the market today.<sup>1288</sup>

In this respect, it should also be recalled what was mentioned above when discussing the effects of the Deepwater Horizon incident on the insurance market, being that *de facto* after Deepwater Horizon the amounts of coverage decreased.<sup>1289</sup> The reason was that insurers suddenly were unexpectedly confronted with an accumulation problem resulting from the fact that in the offshore market through different contractual relationships it is not always visible for the (re)insurer what risks they are actually covering. As a result of that, after Deepwater Horizon offshore installations were considered as an exposed business leading to a reduction of the capacity. Capacity for offshore related risks hence went generally down and obviously prices for coverage went up.<sup>1290</sup>

## 6.2.2. Proposal Munich Re Insurance

### 6.2.2.1. An SOS-cover

Against all those stakeholders just mentioned, all arguing that it is not realistic to increase capacity, Munich Re Insurance Company presented shortly after the Deepwater Horizon a proposal to create a facility that would be able to generate substantial capacity for offshore related risks. The facility is referred to as SOS (Sudden Oil Spill). The model presented by Munich Re would call for annual aggregate limits of 10 billion US \$ to 20 billion US \$ for companies engaged in offshore oil exploration. It would require the participation of multiple insurers and reinsurers and would strongly rely upon improved risk management. There would be three different models under which this facility could work: 1/ a consortium of insurers and reinsurers, each providing uniform prices and conditions and fixed capacity; 2/ traditional insurance or reinsurance on a subscription basis, with flexible pricing, conditions

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<sup>1285</sup> So Courbage and Stahel (2012), 24.

<sup>1286</sup> Interview with Phil Bell on 26 February 2013.

<sup>1287</sup> Ibid.

<sup>1288</sup> Ibid.

<sup>1289</sup> See *supra* section 5.4.2.3.

<sup>1290</sup> Interview with representatives of Swiss Re on 11 February 2013.

and limits; 3/ a pool for oil drilling companies with contributions reflecting market share.<sup>1291</sup> It was added that this would require to raise the current limits under the US Oil Pollution Act above the 75 million US \$ currently stipulated in the Oil Pollution Act.<sup>1292</sup> Coverage would moreover only be provided above a retention of \$ 1 billion to \$ 1.5 billion.<sup>1293</sup> Munich Re itself would commit as much as \$ 2 billion to provide the total cover of \$ 10 billion to \$ 20 billion.<sup>1294</sup> The concept was developed by Munich Re to cover drilling operations in the USA and more particularly in the Gulf of Mexico.<sup>1295</sup>

So far Munich Re has developed two projects. One is for the Gulf of Mexico (the SOS-cover) which could in principle be operational immediately; the second model is the EU oil spill project, showing that a similar model could be developed for the EU as well.

The basic structure of the model that is developed for the Gulf works as follows:

- capacity MR	2,00 billion USD
- another insurer	0,25 billion USD
- another large insurer	7,75 billion USD
Total	10,00 billion USD

In addition to a retention by the oil industry this would already create an amount of 12 billion USD.

Forty other insurers have shown interest in this model and have argued that they will participate if the model works. This would hence lead to an additional 6 billion, with retentions the total coverage available under the new model would already be 20 billion USD.<sup>1296</sup>

The basic reason why much higher amount can be generated is that not, as is the case today, separate coverage would be provided in liability for separate installations. The high amounts can only be provided if the cover is constructed as a natcat (natural catastrophe) cover. Although de facto third party liability would still be covered, the construction of the facility would be different. The cover would still follow the liability but to a modest extent.

The essence of the new facility would be that it provides so called parametric trigger-coverage. This means that coverage is triggered by particular events that have been specified beforehand. This is also the case with natcats where it is for example determined that when a hurricane with scale 5 hits and/or winds of 150 km/power take place, cover will be provided. These types of triggers are binary: either there is trigger or not, it is all or nothing.<sup>1297</sup>

With a normal liability cover for offshore there is indeed on average only one billion in liability coverage available. The reason is that those liability covers are potentially long tail liability risk. After 10 years still claims could be handed in. That creates a lot of uncertainty for shareholders which are considered highly undesirable. Hence the trick in the new facility

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<sup>1291</sup> See <<http://www.businessinsurance.com/article/20100912/NEWS/100919977>>, last accessed on 11 March 2013.

<sup>1292</sup> See *supra* 4.5.2.

<sup>1293</sup> Ibid.

<sup>1294</sup> <<http://www.bloomberg.com/new/2010-12-21/munich-re-brokers-work-on-drilling-cover-after-gu...>>, last accessed on 6 February 2013.

<sup>1295</sup> <<http://reinsurancemagazine.com/article/munich-re-first-create-potential-pollution-liability-solution>>, last accessed 6 February 2013.

<sup>1296</sup> Interview with Dr. Philipp Wassenberg, representative of Munich Re on 6 May 2013.

<sup>1297</sup> Ibidem.

is to transform a long term in a short term risk, just like in the case of the natcats. Today natcats are insured on a worldwide basis for several billions in many countries. These types of natcat coverage hence allow to generate much higher than traditional liability cover.<sup>1298</sup>

Offshore is also potentially a long tail liability risk while it may take too long before a decision is taken. That is bad for insurers. In that respect the phantom of the asbestos liability crises still plays an important role for insurers. That is why they do not want to generate capacity for long term liability risk.

A second reason why the new facility can generate much higher amounts is that not a general liability cover is provided. Traditional liability cover would e.g. cover all installations of BP generally for one billion euro. The new facility works differently. It does not provide general liability cover for a firm but rather liability cover based on different scenarios. These scenarios are ex ante calculable and predictable. A scenario analysis would for example limit the coverage to all BP installations on the North Sea, rather than all liability risks of BP worldwide.

Such a scenario based casualty approach was so far unknown. However, it leads to a better protection of the oil industry, of the consumers an potential victims and hence of society.<sup>1299</sup> Moreover, a large advantage of the scenario cover is that it can on the one hand provide balance sheet protection to the industry and on the other hand (via a claims facility) rapid and certain payment to potential victims. Through such a scenario coverage the insured industry also knows in advance how much they will get and is also more attractive for the third party victims. It is a similar model that is also followed in the Deepwater Horizon fund by Ken Feinberg. Rapid payment takes place, but on the basis of theoretical conditions for liability.<sup>1300</sup>

In the new facility a detailed control of moral hazard during the operation of the drilling activities will not take place. Munich Re is not specialized in oil drilling and cannot e.g. hire 200 engineers to verify e.g. safety on the 1000 oil rigs in the EU or the 5000 in the Gulf. The most important incentives for the prevention of harm should come from two elements: 1.self-interest of the industry to prevent accidents and 2.safety regulation imposed (inter alia via licensing) by government and strict enforcement.<sup>1301</sup>

The way the Munich Re SOS-cover works is that the insured are lessees and operators of federal oil and gas installations. Only operators and lessees are liable under OPA. They will bear the primary responsibility to provide financial security. In that sense SOS is based on economic channelling. The SOS-cover would be available for liability arising out of oil spills of insured activities and for defence costs up to an amount of US\$ 10 billion plus the capacity which is provided by an insurance consortium.

In principle the model as it has been developed for the US could be implemented in a similar manner in the EU as well. The main difference is that for the US detailed data and models are available on the basis of which a calculation could take place and the model could be implemented. That is currently still missing in Europe. However, Munich Re claims that a similar model could be developed for Europe as well and that substantial amounts could then be generated.

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<sup>1298</sup> Ibidem.

<sup>1299</sup> Ibidem.

<sup>1300</sup> Ibidem.

<sup>1301</sup> Ibidem.

#### 6.2.2.2. Stakeholders assessment

Although this sounds like a miracle solution, many stakeholders provide serious criticism.

The product launched by Munich Re would admittedly be able to generate very high amounts of coverage for offshore pollution. This was considered by some insurance experts as a balance sheet protection product rather than traditional insurance. The current problem is that in the market there is no willingness to provide capacity; moreover, the price for providing coverage may be high which is also a factor that shall be taken into account by the buyers.<sup>1302</sup>

Swiss Re does obviously not want to comment on a product developed by a colleague, but mentions that this has been put on the market strongly as a reaction after Deepwater Horizon, but that the real possibilities of providing adequate coverage do not seem very promising. The product offered by Munich Re would have a lot of prerequisites and would moreover not be based on traditional insurance. It also seems that the product would be limited in applicability to the Gulf of Mexico. Also, it would only cover short-tail losses, whereas damage caused by an offshore installation typically leads to long-term losses as well (long tail risk). There may also not be a willingness of insurers and other carriers to provide capacity for this instrument. Moreover, the price may be so high that there may be no willingness to pay by the industry. Due to the severity and the volatility of the energy offshore sector, the risk appetite of insurers/reinsurers is limited.<sup>1303</sup>

The idea that (as mentioned in some marketing devices) 20 billion euro could be made available for losses caused by offshore installations is simply not realistic.<sup>1304</sup> Listening to stakeholders in the London market (that are crucial in this respect) 750 million is the realistic estimate of coverage that could be provided on the casualty market. However, it should be stressed that this 700 million comes in addition to other coverages e.g. provided by OPOL or on the maritime insurance market. The total available amount could hence be slightly higher.<sup>1305</sup>

Similar comments are also heard from other stakeholders, more particularly from the major OGP's. E.g. representatives from BP held that one has to take the credit ratings of companies as a starting point. The number of A-rated insurers in the energy market is relatively limited. That explains why an A-rated company like BP would have no advantage at all in shifting risk to a B-rated insurance company which would have obviously no added value. They mention this since it may explain why the number of insurers that would be willing to join the Munich Re facility may simply be too limited. Hence they argue that it is unclear how Munich Re would ever get the money in for their facility. It could only work if everyone helps, either insurers or operators, but that is not very likely.<sup>1306</sup>

Moreover, BP itself currently has better protection than what the Munich RE facility would offer and the premiums to be paid would be very high. For BP this would hence not be an attractive scheme.<sup>1307</sup>

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<sup>1302</sup> Interview with Swiss Re, 11 February 2013. Although Munich Re holds that this is merely speculative, since the premiums have not been made public and would, moreover, be low for smaller operators (interview with Dr. Philipp Wassenberg, Munich Re, on 3 July 2013).

<sup>1303</sup> Interview with Swiss Re, 11 February 2013.

<sup>1304</sup> So representatives of Lloyds, interview on 1 May 2013 in London. They stress that no one has shown an interest in the Munich Re proposal and it has not been implemented in practice.

<sup>1305</sup> Interview with Swiss Re, 11 February 2013.

<sup>1306</sup> Interview with representatives of BP on 13 March 2013

<sup>1307</sup> Ibid.

Also an American medium-sized OGP held that this Munich Re proposal is simply not realistic. It will only work if all individual operators also participate and are willing to put in assets. Moreover, the costs would be high. Presumably premiums would be between 15 million and 20 million USD for one deepwater well. If an operator would hence have for example 3 production wells premiums for this type of coverage may amount to 50-60 million USD on a yearly basis. Such a system is obviously not economically viable. The system has moreover never worked in practice. For the majors this system would of course not be interesting (since they can self-insure).<sup>1308</sup>

#### 6.2.2.3. *Reaction by Munich Re*

Representatives from Munich Re argue that it may be important to make such a system mandatory for Europe; otherwise the incentives for the industry to join such a facility would be lacking.<sup>1309</sup>

Munich Re also holds that according to them the oil industry is systematically underestimating risks and damages, also in EU waters. They point at the fact that high risk wells also exist in the EU, e.g. in the Northwest Shetland, but also East of Cyprus in the Mediterranean. Moreover, different than in the US, many coasts could potentially be affected in the EU when a spill would occur e.g. resulting from the West Shetlands. Even if one would assume that the damage would e.g. be 30% lower in the EU than in the US the damage would still be substantial. There are for example also wells in Greenland and in the future drilling in West Africa will take place as well.<sup>1310</sup> As a strategy for Europe Munich Re believes that making coverage mandatory would automatically create appetite for coverage. Munich Re holds that a damage in the EU could easily amount to 2-3 billion euros and in a worst case scenario probably even 5-10 billion euros. However, the precise figures in Europe are not known yet. Differently than in the US, where detailed studies could be done, data for the EU are still lacking.<sup>1311</sup>

The industry is also much too optimistic as far as the possibilities of capping devices are concerned. First of all, capping is a theoretical possibility that has never been tested. Sure, in many cases it may help to reduce the damage, but one cannot be sure. Moreover, capping devices have to be brought in place by helicopter or by ship. The helicopter cannot fly in case of bad weather.

#### 6.2.2.4. *Analysis*

On paper the proposal by Munich Re seems to correspond with essential principles of risk distribution. So far a detailed proposal has only been worked out for the Gulf. Munich Re holds that a similar proposal can also be developed for European waters, if additional information is provided. Whether this can constitute a realistic option to cover offshore-related risks is by the end of course not a theoretical question, but will depend on the reaction of the market. The amount of retention to be held is still considerable and majors may therefore probably still prefer (as they apparently argue) to self-insure or look for alternative solutions. For that reason the proposal has, although it already was developed in 2010, never worked in practice. That can of course hardly be blamed to Munich Re, but is due to the fact that operators (for a variety of reasons) have apparently no longer an interest in investing in

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<sup>1308</sup> Interview with representatives of Noble Energy 6 March 2013.

<sup>1309</sup> Interview with Dr. Philipp Wassenberg, representative of Munich Re, on 6 May 2013.

<sup>1310</sup> Interview with Dr. Philipp Wassenberg, representative of Munich Re, on 6 May 2013.

<sup>1311</sup> Ibidem.

this facility. Munich Re therefore holds that developing such a mechanism will de facto only be possible if there is a regulatory solution (i.e. a duty) to join such a mechanism.<sup>1312</sup>

### 6.2.3. Cover for vessel-based pollution

Within the analysis of whether higher amounts of insurance coverage would be available for offshore related damage, it may be interesting as well to compare with the amounts of insurance cover currently available for vessel-based pollution.<sup>1313</sup> In vessel-based pollution the amounts of coverage available are relatively easy to identify for the simple reason (but that then also constitutes the main difference with the case of offshore related risks) that international conventions (or in the US the Oil Pollution Act) not only mandated compulsory insurance, but a limitation on the liability of the tanker owner as well. The amounts currently available in the international regime for a single pollution case<sup>1314</sup> under the (now applicable) CLC 1992 are, for the highest size ship: 103.2 million Euros. In addition to that amount, the compensation from the 1992 Fund makes the maximum compensation available (including the compensation made under the CLC) 233 million Euros. On top of that, the 2003 Supplementary Fund makes the total amount available 862 million Euros, if the state has ratified the Supplementary Fund Protocol.

This hence means that under the international conventions 103.2 million Euro is generated through insurance and almost 130 million Euros and 629 million Euros through the two international funds respectively.

Hence, this does not provide much information as far as the offshore related risks are concerned. First, the amounts of coverage for tanker owners are substantially lower than the amounts of coverage available today for offshore related risks; higher amounts may be available under the international fund and the convention on supplementary compensation. However, this is based on a limit on compensation in the CLC (which is absent for offshore related risks) and on the combination with a fund (equally absent for offshore related risks).

The story is basically the same for the US Oil Pollution Act: the Act caps liability at a maximum of 75 million US dollars, which is then also insured. If the damage is higher, the OSLTF can intervene to a maximum of 1 billion US dollars.<sup>1315</sup> However, the same caveats apply as to the comparison of these amounts with offshore related risks as for the international regime.

### 6.2.4. Developments in the coverage of the nuclear risk

In Chapter 3 we also extensively discussed compensation for the nuclear risk. Recall that today under the international conventions 391 million € in coverage is available of which only 91 million is paid through insurance and the remainder through a state subsidy. After implementation of the modification protocol to the Paris and Brussels conventions, the total amount would raise to 1.5 billion € but still only 700 million would then be based on the operator's liability and coverage through insurance.<sup>1316</sup> Hence, the international regime for nuclear liability today, even after implementation of the international conventions, would not

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<sup>1312</sup> Ibidem.

<sup>1313</sup> Above, we already made a comparison with the potential damage resulting from vessel-based pollution. See *supra* 6.1.3.

<sup>1314</sup> See *supra* 4.4.

<sup>1315</sup> See *supra* 4.5.

<sup>1316</sup> See *supra* 3.6.1.3.4.

generate higher amounts in insurance coverage than what is currently available for offshore related risks.

The conclusion is basically the same for the US Price Anderson Act: there is nuclear liability coverage up to 375 million dollars, covered by insurance.<sup>1317</sup> The remainder is provided through a retrospective premium model that only comes into action *ex post*, after the accident occurred.

Recall that we mentioned that the international nuclear liability regime has been subject to a lot of criticism especially because of the low limits of compensation and because of the large state intervention. For that reason, there have been voices in Europe in favour of a European nuclear liability solution, generating much higher amounts.<sup>1318</sup>

Within the European Commission an expert group has been working on a proposal to generate substantially higher amounts than are currently available in nuclear liability. Again, an important role is played there by the largest reinsurer in the world, Munich Re. They presented a proposal within their working group whereby the nuclear pools (the nuclear insurers) would provide coverage up to 2 billion € Munich Re could create a second layer providing coverage for between 2 and 10 billion € The coverage type would be the same as the one for natural catastrophes (NatCats). This would mean that others could participate in the facility and e.g. provide coverage for e.g. ten million € for one year. Long-tail risks would hence be excluded. It would hence be more like a capital market solution. If during the year nothing happened, the participant could take his benefit and leave the facility.<sup>1319</sup> A condition for intervening through such a facility would hence be that the damage is of a sudden and accidental nature, which hence excludes the long-tail risks. Moreover, Munich Re itself would of course not generate the total capacity, but would invite others to participate in the facility. Risk differentiation via the facility would be minimal. The assumption would hence be that there would be an EU wide regulation of the nuclear risk which would result in stringent mandatory standards for all operators.<sup>1320</sup>

Again, one can notice that also this example may not be very useful to decide whether additional coverage would be possible for offshore related risks. It is still merely a proposal, so it is unknown whether other commercial participants would be willing to participate in this facility. Moreover, the assumption of harmonized safety standards (to be discussed below as well) is currently not met. Finally, the facility typically works like the NatCat type of coverage (via the capital market), hence, excluding long-tail risks. That may be a problem for the pollution related risks in offshore liability, which are often of a long-tail character.

Also, other stakeholders held that it is dangerous to compare the situation in the nuclear sector with offshore polluted risks since the nature of the risk is completely different.<sup>1321</sup>

There is one initiative that should be mentioned in this respect as well. It concerns an initiative developed by the pool of nuclear operators, ELINI.<sup>1322</sup> They have, in order to provide an alternative for the nuclear insurance pools (which constitute a national monopoly and hence ask relatively high premiums according to the nuclear industry) developed an alternative risk pooling scheme, very much along the lines of the Munich Re proposal. The new alternative is referred to as “blue ray” and would consist of a pooling by nuclear

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<sup>1317</sup> See *supra* 3.6.2.

<sup>1318</sup> See for those suggestions *inter alia* Faure and Skogh (1992) and more recent Faure and Fiore (2008). See also Handrlica (2009).

<sup>1319</sup> Interview with Mr. Hermann Kramer, Munich Re Insurance Company, 12 March 2013.

<sup>1320</sup> *Ibid.*

<sup>1321</sup> Interview with Phil Bell 26 February 2013; interview with representatives of Swiss Re on 11 February 2013.

<sup>1322</sup> Discussed above in 4.7.3.



operators as a result of which an amount of 1,2 billion euros could be generated.<sup>1323</sup> However, it was equally held that this initiative will be difficult to implement as long as there is no legal obligation (via increased amounts in the international conventions) to provide for those high amounts.<sup>1324</sup>

### **6.2.5. Summary**

From this brief overview, it seems as if it is not realistic to assume that the commercial insurance market would be able and willing to provide higher amounts of coverage for offshore related risks than the amounts already currently available today. In fact, after the Deepwater Horizon incident, one has noticed the contrary, i.e. that available amounts of coverage even reduced instead of increased. The only indication of increased amounts of insurance coverage was the facility proposed by Munich Re after the Deepwater Horizon incident. Originally the first proposal was especially geared towards the specific situation of the Gulf of Mexico. So far that proposal has largely remained on paper and many stakeholders doubt that it will ever be brought into practice. For Europe a similar facility could be developed as well, but stakeholders will (without a regulatory duty to participate in it) undoubtedly have the same reservations.

An important issue that should be recalled in this respect is that probably full insurance coverage may simply never be available.

Insurance, so it is argued, can never provide full coverage for all liability. First of all, there are risks which are simply uninsurable (e.g. damage which is intentionally caused). Second, insurance coverage will be more limited than liability e.g. because it is limited to sudden and accidental incidents and based on particular exclusions. Those exclusions are also necessary to exclude entrepreneurial risks and to reduce the risk of accumulation. Hence, the coverage provided by the insurance market will necessarily not be the same as a full coverage for all potential liability.<sup>1325</sup>

Hence, the question arises whether it would be possible to expand the potential of regional or international risk pooling.

### **6.3. Potential of expanding risk pooling schemes**

The entire chapter 4 was devoted to the various pooling mechanisms, some of which currently already in place for offshore related risks; others applicable in other high risk sectors (like the nuclear). In this section, these pooling mechanisms will again be examined, but only with respect to their ability to expand those mechanisms, thus providing higher amounts of coverage. We will address the possibilities to make more use of OIL and OCIL (6.3.1), then discuss possibilities to expand OPOL (6.3.2) as well as a particular proposal that has been launched by Noble Energy towards a risk sharing agreement (6.3.3). Finally, the challenges and problems surrounding international risk pooling in the offshore sector will be explained (6.3.4).

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<sup>1323</sup> Interview with Mr. Ludo Veuchelen, Company Lawyer of SCK CEN on 4 June 2013.

<sup>1324</sup> *Ibidem*.

<sup>1325</sup> Interview with representatives of Swiss Re on 11 February 2013.

### 6.3.1. Expanding OIL – OCIL

Above, we have presented the only real risk pooling arrangements currently existing in the offshore sector, OIL and OCIL. However, already at that discussion, we explained that these two models are currently mainly used by middle-sized operators, smaller operators being confronted with the too high retention and larger operators preferring self-insurance. Especially when the opinions of the majors are taken into account, there does not seem to be much scope for expanding the current risk sharing agreements in this area. We already mentioned that a major (like e.g. BP) criticizes the pools for being based on solidarity and mutualization. For them, joining those pools is not attractive out of the fear that they would *de facto* subsidize the presumably higher risk<sup>1326</sup> posed by smaller and medium sized operators.<sup>1327</sup> Also others hold, as was mentioned above, that the risk differentiation in the pools is too small. To some extent, this is unavoidable: since the probability of an event occurring is relatively low, the marginal differences between good and bad risks may be small as a result of which a differentiation of the contributions may not sufficiently incentivize.<sup>1328</sup> That constitutes a major difference with the P&I Clubs: in P&I Clubs, shipowners are gathered together which constitute all more or less similar risks. In the offshore market, the players are of a different nature. That makes the pooling arrangement very difficult, given different risk profiles.<sup>1329</sup>

In sum, although OIL and OCIL undoubtedly play a useful role today, there seems little scope for broadening them e.g. by having major OGP's joining them and thus increasing capacity.

### 6.3.2. Expanding OPOL?

Also the functioning of OPOL was already discussed above<sup>1330</sup> as well as the way in which OPOL is currently used in practice.<sup>1331</sup> Of course, there would be theoretical possibilities to enlarge the scope of OPOL in various ways:

1. One possibility would be to make OPOL membership mandatory in more legal systems. That would hence mean that the OPOL solvency guarantee would expand and e.g. also extend to Norway, Denmark or the Netherlands.<sup>1332</sup> Ultimately, this would obviously be something for the local regulators to decide and is beyond the decision of OPOL. Still, one would have to take into account the limits of OPOL: since it is not a true risk sharing agreement, it only provides a solvency guarantee and moreover only up to 250 million USD which is in our definition only for the smallest incidents.
2. A second possibility is to expand the amount of coverage of OPOL. That would e.g. mean that the current solvency guarantee would be increased from 250 million USD to, say, 500 million USD. Again, the majors are opposed to such a proposal for the same reason as they would not like to join risk pools like OIL or OCIL: it increases the mutualization and hence increases the risk which they would not desire.<sup>1333</sup> Also representatives of OGP were not strongly in favour of increasing the current limit on OPOL.<sup>1334</sup>

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<sup>1326</sup> In the sense that they may more easily suffer from an insolvency risk.

<sup>1327</sup> Interview with representatives of BP, 26 March 2013.

<sup>1328</sup> Interview with representatives of Shell International BV, 14 March 2013.

<sup>1329</sup> Ibid.

<sup>1330</sup> See *supra* 4.2.

<sup>1331</sup> See *supra* 5.6.

<sup>1332</sup> Where OPOL membership is currently not mandatory.

<sup>1333</sup> Interview with representatives of BP, 26 March 2013; interview with representatives of Shell International BV, 26 March 2013.

<sup>1334</sup> Discussion with OGP on 25 February 2013.

3. A third possibility would be to expand the scope of the current OPOL beyond the North Sea (to which its application is currently limited). Not surprisingly, many are opposed against such an idea for the same reasons as why they do not want to increase the amount: increasing the current OPOL to an EU wide model, e.g. including the Mediterranean or the Black Sea, would mean that for the current members (who may not at all be active in the Mediterranean) risks would increase, whereas the members may not have sufficient possibilities to monitor the solvency of operators in those other areas. For that reason, they would be opposed against such a territorial expansion.<sup>1335</sup> Industry is opposed against making OPOL multinational since it could lead to one country having to pay for the risk created by other countries.<sup>1336</sup>
4. A fourth possibility is that different regional agreements, like OPOL, would be created, e.g. for the Baltic, the Black Sea and the Mediterranean. In that case, there would be no risk sharing (as far as insolvency is concerned) between the operators active in the current OPOL (in the North Sea) and e.g. operators active in the Mediterranean. A new OPOL would then be created specifically e.g. for Mediterranean risks. That is a model that all stakeholders seem to subscribe to for the simple reason that the risks of mutualization and cross-subsidization are then limited. Moreover, mutual monitoring (of the insolvency risk) is easier when new regional risk pools would be created.
5. A fifth possibility would be to transform OPOL altogether from the current model (whereby it merely guarantees the solvency of its members) to a truly risk sharing agreement like OIL and OCIL. Again, it may not surprise that for the same reasons why the majors did not want to join OIL and OCIL they would also not be in favour of such a transformation of OPOL from merely guaranteeing the solvency of its members to a true risk sharing agreement. Again, the fear for mutualization and cross-subsidization would inhibit such a model.

It should be added that also some operators point at the limits of OPOL in its current form: it is currently only mandatory in the UK and the amount is too limited. Moreover, the mere fact that OPOL never had to intervene could (wrongly according to some regulators) be interpreted as proof of the fact that it functioned well and that there hence would be no risk for the future. Even with the current OPOL, there is a serious risk that there may be some players that could not meet their obligations in the future.<sup>1337</sup> Moreover, contributions to OPOL are not risk-related and hence once more good risks pay for the bad risks as a result of which a negative redistribution takes place. Since OPOL also only intervenes when the operator would default OPOL in its current form lacks the benefits of mutual monitoring of risk-sharing schemes.<sup>1338</sup>

In sum, the only option to expand OPOL which was positively received by stakeholders, was the fourth option mentioned above, i.e. to create other regional risk pools for other sea areas than the North Sea along the lines of OPOL: a pooling agreement where members share the insolvency risk of their members. Still, it would have to be recalled that this 1/ does not have benefits of mutual monitoring; 2/ would only provide limited amounts of coverage and 3/ would only intervene to guarantee solvency up to the limited OPOL amounts. Still other arrangements would have to be developed to cover for medium and large accidents.

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<sup>1335</sup> Interview with representatives of BP, 26 March 2013; interview with representatives of Shell International BV, 26 March 2013. This was also confirmed in an interview with representatives of OPOL on 27 March 2013 in Brussels.

<sup>1336</sup> So representatives of Oil & Gas UK, interview on 1 May 2013 in London.

<sup>1337</sup> Interview with Mr. Jan de Jong, inspector-general of the State Mines, 22 February 2013.

<sup>1338</sup> Ibid.

### 6.3.3. Noble Energy Proposal

There is, however, one proposal that has been advanced by Noble Energy to come to a truly international risk pooling mechanism.

#### 6.3.3.1. Background

Noble Energy holds that *Post* Macondo incident in the summer of 2010 there was in the US a big uproar and an (almost daily) media visibility concerning offshore pollution. At that moment at the political level a variety of different proposals have been introduced on how to reform the liability regime. Some proposed unlimited liability. However, none of those proposals was finally accepted in both the Senate and in Congress. They, however, argue that there is in that sense still unfinished business for the simple reason that there is not enough coverage today on the global market especially for damage that could occur in the Gulf of Mexico. If the Deepwater Horizon did not occur to BP the consequences may be devastating and crippling for the particular enterprise.

Noble Energy agrees with a polluter pays principle as a starting point, but argues that it needs a practical application. The liability cap under OPA 1990 was 75 million USD. BP bypassed its right to call on the financial cap. BP could easily handle that as one of the major players. However, was the same incident happened with other (smaller) companies they would be out of business.

Noble Energy argues that 75 million is in fact too low a cap.

For that reason they proposed an alternative mechanism. That may still be necessary to cover the largest losses. However, as a starting point it should be noticed that in the past 10 years safety has increased spectacularly. The sense of corporate social responsibility has improved and it has led to increased safety measures, e.g. the use of so called dual stacks. The probability of an incident may therefore have reduced and moreover, given investments in clean-up devices also the spill cost could now be lower. However, major financial damage is still possible. On the normal commercial market between 1-2 billion USD is now available in coverage. In fact before the Macondo incident *de facto* more insurance coverage was available. What often happened was that various players each bought for example 500 million USD in coverage. If four partners would be involved in a drilling operation together the coverage would be 2 billion. However, (re)insurers realized after Macondo the dangers of multiple aggregate insurance coverage. Now available insurance cover has substantially reduced. However, the premiums charged are still largely the same.

Noble Energy therefore has launched a proposal to generate higher amounts of compensation via a system of joint risk sharing between operators, referred to as mutualisation.

#### 6.3.3.2. Contents of the proposal

So far in the US beyond the 75 million USD cap the OSLTF is available, but this is (to a large extent) financed by the tax payers. Moreover, given the financial capacity of BP, it was *de facto* not used in the Macondo case. Noble Energy suggests to increase the fund to a larger amount of 5 billion dollars. Contributions to that fund should, however, be risk dependent.

The structure would be such that the first layer is compensated by the liable operator. That first layer could vary (depending upon risk) between 150 and 750 million. Criteria to determine risk could for example be whether drilling takes place in deep water or shallow

water. In addition to the 750 million OSLTF would intervene with a substantially higher amount of 5 billion USD.

In addition Noble Energy proposes a second vehicle for clean-up and response costs. Again, a first layer would be paid by responsible parties of between 150 and 750 million dollar for which operators would seek insurance coverage. The amount of exposure in the first layer would again depend upon risk.

Importantly, however, for the second layer a model would be used whereby a fund intervenes which is run by the US Treasury. They prefinance (via loans to the fund) compensation if the damage is higher than the first layer. That second fund (of potentially 5 and 10 billion USD) would be based on mutualisation. This specific amount is not known yet. Noble Energy, understandably, does not want to mention immediately a specific amount. It may look scary towards the public opinion if e.g. the signal would be given that drilling operations could lead to damage of, say, 5-10 billion.<sup>1339</sup>

The second pool that Noble Energy proposed would have the major advantage that beyond the 150-750 million USD for which individual operators still would seek insurance coverage a large industry based mutual would be able to generate substantially higher amounts for clean-up and restoration. The advantage of their solution is that it would only be financed via retrospective premiums. Hence *ex-ante* immobilization of capital is not necessary. Moreover, their proposal would only impact on average 1 percent of the revenues that oil companies currently make in the Gulf and can in that sense be considered as reasonable. The retrospective premiums would moreover be risk dependent. Bad risks hence pay higher contributions than good risks. Of course some more detailed aspects need to be worked out like e.g. how such a pool would be managed. That should obviously be done by an organization that has sufficient information to be able to apply risk differentiation (e.g. taking into account differences in safety culture). OGP may be a good candidate, but there may be others as well.

The example that Noble Energy has in mind was that of the Price-Anderson Act which equally has a system of retrospective premiums.<sup>1340</sup> The advantage is that there is on the one hand no unnecessary immobilization of capital *ex-ante* and on the other hand the risk differentiation allows to kick out free riders.

Graphically, the proposal of Noble could be summarized as follows:

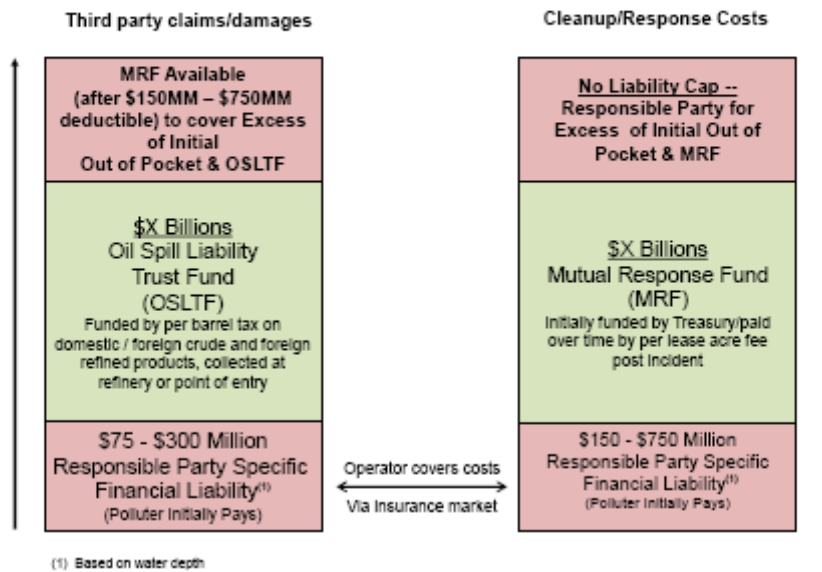
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<sup>1339</sup> Interview with representatives of Noble Energy on 6 March 2013.

<sup>1340</sup> See *supra* 4.7.1.

Figure 14: Proposed Offshore Liability Towers – with “No Caps”

**Proposed Offshore Liability Towers – with “No Caps”**  
*Reform OSLTF and Add Mutual Response Fund*



As the table shows, the proposal of Noble Energy consists of two separate proposals. One proposal is, as far as third party claims and damages are concerned to increase the money available in the second layer of the OSLTF. On the other hand they equally propose to create a second layer (referred to as MRF) for clean-up and response costs. Only for the latter type of costs the industry risk sharing agreement (referred to as MRF) would be created. Discussion on whether the financial limit under OPA of 75 mio. US\$ could be set aside would hence disappear.

6.3.3.3. *Implementation?*

Initially legislative drafts have circulated (among the many) in the US, some of which even wanted to increase liability up to 10-20 billion USD. However, meanwhile risk mitigation measures have seriously increased as a result of which it is doubtful whether these high amounts are actually necessary. However, it is anyway clear that larger amounts are necessary than the current cap of 75 million USD in OPA. That should anyway disappear.

Noble Energy has presented their plans *inter alia* to OGP international. They are interested in the concept of mutualisation, but believe that the numbers presented by Noble Energy are very high.

This may to a large extent have to do with differences between the US and Europe. In the US the plaintiff bar is quite important. That explains why damage amounts that are sought and awarded are often a multitude of damage awards for similar incidents in other places in the world like in Europe. Noble Energy refers to the fact that currently the Deepwater Horizon fund is run by Mr Feinberg, who also managed the 9/11 victim compensation fund. A fund solution for Deepwater Horizon was absolutely necessary to mitigate the effects of the plaintiff bar. In the alternative numerous suits would have been brought by plaintiff lawyers in various state courts which may have led to a legal chaos.

It is more particularly the importance of the plaintiff bar which causes those events to lead to billions of dollars of damage, which may not be same in Europe.

As far as the political feasibility is concerned it is important to mention that no large operator will ever be able (politically) to call on the current cap of 75 million USD. If another big event were to happen and no sufficient compensation were available there is a serious risk that there would be political calls to shut down offshore drilling in the Gulf of Mexico altogether. That is why Noble Energy is in favor of a pro-active approach and hence insists on a regulation of potential future losses even though the political turmoil has now calmed down. However, the problem is that many argue now that it is better not to open Pandora's Box and to stick the head in the sand. Noble Energy, however, argues that is a dangerous strategy since a repeated event is (theoretically) always possible.

After Deepwater Horizon many bills were introduced but so far never made it (as far as a change of the compensation amounts under OPA is concerned).

One political issue is that the interest may be different between smaller operators on the one hand and the majors (like ExxonMobil, Shell, BP, Total). For the majors the current lack of coverage (for disastrous amounts) on the international (re)insurance markets is not necessarily a problem since they can self-insure. However, for smaller operators that is of course not an option. That is why alternatives need to be worked out.

Noble Energy considers Deepwater Horizon as an important wake-up call for industry. It has already had the effect of substantial investments in preventive measures, thus significantly reducing the probability of an incident. Responsible care has greatly increased and this sends an important message to the public. However, the problem remains that there simply is not enough capital available in the market to cover large losses. That is why Noble Energy is strongly in favor of an industry based solution like the risk pool.<sup>1341</sup>

Representatives of Noble Energy made clear that their model could only work if it is mandated via a statute. Given the privity and sanctity of contract, contracting partners can not intervene in contracts with third parties. Of course political pressure can be exercised to convince other operators that such a risk sharing agreement may be in their interest since it can lower their risk exposure.

*De facto* the implementation would mean a change *inter alia* to OPA 1990. The first layer of compensation should go to 150-750 million USD. Moreover it should be indexed to inflation. OPA 1990 was never indexed. The 75 million USD financial cap from 1990 should perhaps today already be *de facto* 200 million USD if inflation were taken into account.

Another problem is that contributions to the OSLTF should be increased as well. Currently OSLTF only compensates a maximum of 1 billion USD per event. This is much too low. Therefore the contributions to the OSLTF have to increase to for example 29 cent per barrel leading to a substantial increase to for example 5 billion. Once that amount is reached of course additional money should not necessarily be asked.

Although OSLTF is paid by the oil industry, people to some extent still consider it tax payers money. After all: if a fund is financed with a levy on oil *de facto* the user at the pump will pay a higher price. That is why (for restoration and clean-up costs) the alternative of a risk sharing agreement between industry is more attractive.

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<sup>1341</sup> Interview with representatives of Noble Energy, 6 March 2013.

#### 6.3.3.4. *Reactions from stakeholders*

As the representatives from Noble made clear, there is quite a bit of criticism on this proposal, especially from the majors. E.g. BP argues that for the same reason that they don't like OIL and OCIL, they do not like the Noble Energy proposal (pooling by industry) either. They (as many of the other majors) do not have a specific demand for this and moreover, they consider themselves having a better risk profile. Hence, such a pool is not attractive for good risks. They moreover, argue that such a pool will be especially attractive for bad risks and thus a serious adverse selection problem could be created.<sup>1342</sup> BP understands that smaller players may not have sufficient balance sheets and for that reason prefer to mutualize, like it is e.g. done in P&I Clubs. However, with P&I clubs that face similar risks and are comparable (shipowners) this may make sense. However, the differences between offshore operators are such that for offshore installations pooling may make less sense.<sup>1343</sup> Operators generally are opposed against mandatory "mutualisation of liabilities" schemes amongst all industry players, arguing that this could lead to complacency and could have a detrimental impact on applied safety standards.<sup>1344</sup> Also representatives from insurers hold that this proposal would amount to a levy for the risk. If operators were forced to participate in such a pool they could subsequently consider to seek insurance to cover their contribution in the pool.<sup>1345</sup>

Munich Re also holds that this Noble Proposal, which amounts to a mutual pooling between operators, will not work because there is a large amount of mutual suspicions between the operators. Every operator will claim that he has the highest safety standards and hence debate will arise on how much anyone does have to contribute to the pool. Munich Re therefore holds that a neutral third party should differentiate risks (and hence financial contributions) based on objective criteria. That may not be possible in case of distress between pool members.<sup>1346</sup>

#### 6.3.3.5. *Evaluation*

Evaluating this proposal of Noble one can argue that it complies largely with the benefits of mutual monitoring which would be inherent in a risk pooling scheme as has been explained above.<sup>1347</sup> However, understandably major operators may feel that the arguments for such a comprehensive risk pooling scheme may be stronger in the US where the plaintiff bar American style leads to much higher amounts of compensation than generally in Europe. Still, Noble Energy rightly mentions that such a risk pooling model could in theory also be attractive for EU operators, especially for small and medium size operators who may be exposed to large risks as well.<sup>1348</sup> However, that is to some extent countered by the argument of the majors that (e.g. differently than with P&I clubs) in the offshore business operators and risks are of a totally different nature which makes risk differentiation very hard and the danger of cross-subsidization and negative redistribution very realistic. Hence, from the perspective of the majors, one can understand that they fear that such a mechanism could be used as an instrument of externalization by (potentially higher risk) smaller and medium size operators who could then (in case of mutualization via a pool) free ride on the balance sheet

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<sup>1342</sup> This was also the opinion of representatives of Oil & Gas UK (interview on 1 May 2013 in London) who were equally arguing that the danger of the Noble Energy Proposal is that it can lead to cross-subsidization and reduce the incentives for prevention.

<sup>1343</sup> Interview with representatives of BP on 13 March 2013; similar arguments were presented by representatives of Shell International BV on 14 March 2013.

<sup>1344</sup> Letter of the International Association of Oil & Gas Producers (OGP) to Michael Faure of 13 May 2013.

<sup>1345</sup> Representative of Lloyds, interview on 1 May 2013 in London.

<sup>1346</sup> Interview with Dr. Philipp Wassenberg, Munich Re Insurance Company on 6 May 2013.

<sup>1347</sup> See *supra*.

<sup>1348</sup> Interview with representatives of Noble Energy, 6 March 2013.



of the majors. This would, also from a social policy perspective, be undesirable since it could reduce incentives for care-taking by higher risk operators.

One potential weakness/point to be addressed is (like in the Price-Anderson Act) how one monitors the solvency risk with individual operators. There needs obviously to be serious monitoring, not only of safety but also of solvency of individual operators since otherwise they could externalize their risk still to the group and simply go out of business. That may, however, not necessarily be a huge problem and could be accounted for.

#### 6.3.4. Challenges

To some extent, one recognizes that the arguments presented by the majors against risk pooling and mutualization are similar to the arguments presented e.g. by French and UK nuclear power plant operators against a EU wide nuclear liability pool, e.g. including Eastern European operators in Bulgaria. We indicated above that the theoretical advantage of risk sharing pools is that they provide incentives for mutual monitoring and could thus, to the extent that this monitoring can be exercised, also provide incentives for improved risk preventive investment by all members in the pool. Theoretically, membership in the pool could thus (via the mutual monitoring) increase safety levels. However, this only works under two important conditions: 1) that risk differentiation is possible to such an extent that real differences in contributions can be made which do provide substantial incentives to operators to invest in risk prevention measures and 2) that the risk posed by the different operators are at least of a similar nature. It may be difficult to meet both conditions in the case of risk pooling for offshore related liabilities.

It was indeed mentioned that the probability of an offshore incident is that low that the difference between the relative contribution of a high risk compared to a low risk may be too small to provide appropriate incentives for investments in risk prevention technologies. If that were the case, risk differentiation would not work and high risk operators would simply prefer to pay the higher contribution to the pool of which the costs may be lower than the investment in risk prevention technologies. Also, the second condition (similar nature of the risks) may not be met in the case of offshore related risks given the largely different nature, not only of operators, but also risks related to different types of wells. Theoretically, technological information is available (as can e.g. be seen from the oil and gas guidelines on financial responsibility) to distinguish risks on objective grounds. This could then also constitute the basis for differing contributions to a pool. However, the problem would still exist that there could be substantial differences between operators as far as their assets and credit rating are concerned. If that is the case, smaller (and potentially insolvent) operators could still free ride on the pool by shifting the risk to other members with higher credit ratings. That may obviously have negative consequences for the incentives to invest in prevention.

Thus one understands that an either international or regional risk pooling scheme for substantial amounts (beyond what is currently done e.g. via OIL or OCIL) is not very likely to emerge, at least on a voluntary basis and when it should include the collaboration of the majors. Their objections against participation in those pools can, given the mentioned problems, be understood. One could then argue that, learning from the Price Anderson Act, a retrospective risk pooling scheme could be mandatorily imposed. The advantages of such a scheme have been explained above when discussing the US Price Anderson Act for nuclear liability:<sup>1349</sup> premiums could in principle be risk related and the contributions would not have to be paid up front, but only retrospectively. The advantage would hence be that there is no large immobilization of capital *ex ante* since the scheme only intervenes *ex post* when an

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<sup>1349</sup> See *supra* 4.7.1.

accident happened. However, a major difference between e.g. nuclear operators in the US and offshore installations in Europe is that nation-wide safety regulation in the US guarantees similar minimum safety standards for the entire territory. That hence reduces the task of mutual monitoring of the members in the pool and moreover reduces the risk of free riding of individual members. However, such an EU-wide safety regulation for offshore installations is still largely lacking as a result of which the risk of free riding would persist. Moreover, it would even be dangerous to argue that policy makers would have to force unwilling operators (presumably majors) into such a European-wide risk pool. Given the substantial difference between operators and risks and the absence of EU-wide high safety standards (those constitute major differences with the nuclear risk in the US) a mandatory pooling could lead to perverse incentives for high risk operators which could externalize their risk to the lower risk members in the pool. In that sense, a mandatory pooling scheme could, if adequate risk differentiation and safety regulation could not sufficiently distinguish good risks from bad risks, even lead to decreased safety levels.

An important lesson is therefore that policy makers should under those circumstances refrain from mandating pooling between operators of offshore installations. The only thing a policy maker could do is to encourage the creation of industry-wide pooling by providing high standards of safety regulation EU wide. Thus safety regulation could facilitate and assist mutual monitoring by operators and encourage pooling arrangements.

#### **6.4. Summary: flexibility**

The analysis in this chapter shows that there are no easy solutions to increase the coverage available for offshore related risks in European waters, compared to the status quo we have described in chapter 5. Various proposals do exist, both using insurance or industry pooling, but all have their disadvantages as well and are therefore understandably opposed by industry. The opposition can, moreover, also be understood taking into account economic principles since a forced mutualization could even lead to increased safety risks which should obviously at all price be avoided. When addressing the question whether there is a need for some regulatory action compared to the status quo, the starting point should be whether there is a problem in the current situation. The answer is that this strongly depends on the type of accident and the solutions that could be envisaged:

1. For the smaller accidents (defined as with a maximum of 250 million USD damage) the current OPOL mechanism may work. However, one has to recall the limits of OPOL:

- Only applicable to the North Sea;
- Only mandatory in the UK;
- Only providing solvency guarantees;
- Never applied in practice and hence no practical experience;
- No risk differentiation and hence no incentives for prevention.

OPOL relies on a variety of instruments (like self-insurance, insurance or guarantees), but a solution will hence be necessary even for this lower category of accidents for the cases and territories where OPOL does not apply.

2. That is certainly also the case for the medium-size accidents (between 250 and 750 million USD). Even though they go beyond the limit provided by OPOL insurance solutions available on the commercial market can still be used as well as pooling arrangements like OIL and OCIL.

3. Only for the category of large accidents insurance may either not or only partially (with large retentions) be available. In those cases, only majors would be able to provide cover based on the balance sheets via either self-insurance or captives.

As was mentioned, this could either lead to a regulatory recommendation (as for example already applied by DECC and following from the UK oil and gas guidelines on financial responsibility) to use risk assessment in order to determine the potential damage resulting from particular operations. This could lead to the consequence of only allowing majors to engage in activities that could lead to large damage or suggesting smaller and medium-size operators to engage in joint ventures with majors.

There only seems scope for developing other regional pools like OPOL (solvency guarantee pools) e.g. for the Mediterranean. However, it should be clear that such pooling schemes will only develop under a regulatory duty to show financial responsibility; otherwise, operators may lack any incentives to develop such a scheme.<sup>1350</sup> That would hence be a strong argument in favour, as we will also argue below,<sup>1351</sup> a regulatory duty to show financial coverage. Moreover, if the government were to stimulate further going risk pooling arrangements between operators (going beyond the solvency guarantees provided in OPOL) an important condition would be to impose high safety standards for offshore installations through regulation, in order to facilitate the mutual monitoring inherent in risk pooling schemes.

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<sup>1350</sup> Interview with representatives from OPOL on 27 March 2013.

<sup>1351</sup> See *infra* 7.4.



## 7. Analysis of Civil Liability Regimes and Financial Security Mechanisms<sup>1352</sup>

In this chapter we will take into account the findings from previous chapters, not only the potential of financial and insurance instruments to cover a future liability regime (chapter 6), but also the analysis of the existing legal regimes (chapter 3) and the analysis of existing risk pooling mechanisms (chapter 4). The ultimate goal of the scenario analysis is obviously to improve the decision making and to inform the recommendations for further action which will be formulated in the next chapter (8). Hence, the insights for the scenarios will be derived from various sources, on the one hand theoretical insights on the ability of various instruments to provide an adequate liability and compensation regime, on the other hand the potential of insurance and financial instruments as this also results from opinions of experts and stakeholders. In order to construct these scenarios themselves in an informed manner, insights from economic analysis of law will be used to critically review a few potential options that will later be analysed in detail in the scenarios. These will on the one hand, as mentioned, be based on economic theory. On the other hand they will take into account best practices (and problems) as they follow e.g. from examples in the compensation regime for vessel-based pollution, but also the liability and compensation regime in other high risk sectors like the nuclear.

Hence, this chapter will first start by sketching a few principles of optimal liability rules and efficient compensation mechanisms which will constitute the methodological basis for the scenarios that will be sketched (7.1). Next, principles of efficient liability rules will be examined and applied to the offshore sector. In this respect, the question will *inter alia* be asked what the optimal liability rule (negligence or strict liability) in case of damage resulting from an offshore incident would be; how liability should be attributed, more particularly in case multiple tortfeasors are involved (channelling of liability, joint and several liability etc.). An important issue in the determination of efficient liability rules also concerns the damages and more particularly the question whether a financial cap or limit on the amount of damages would be indicated (7.2). Attention will equally be paid to the important question of the relationship between liability and regulation. This may to an important extent limit or expand the potential liability and taking into account regulatory requirements could also enlighten the task of the judge in a liability case. Hence, the relationship between safety regulation and liability in case of offshore installations should be carefully reviewed (7.3).

Next, similar questions will be asked concerning the construction of efficient compensation mechanisms. A first question that will be asked is whether the provision of financial security should be made mandatory and if so, how this should be constructed (7.4.). The question also arises how government policy can stimulate the insurability of the offshore liability risk and whether government could take measures e.g. to stimulate the emergence of industry based solutions like a pooling mechanism. The question could equally be asked whether, to the extent that the market would fail, government should intervene in providing compensation, e.g. via a compensation fund or via state intervention of any form (direct financing of compensation or e.g. as reinsurer of last resort) (7.5).

The question also arises whether it is possible to develop a rapid claims management system that can provide a rapid compensation especially to fishermen and hotels/restaurants in coastal areas to cover their losses (7.6). Offshore-related damage can often create harm of a transboundary nature. That justifies the question whether action is needed to deal with

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<sup>1352</sup> This corresponds to Task 5 of the Invitation to Tender.

damage of such a transboundary nature (7.7). At European level an important question relates to the liability for environmental damage more particularly in the light of the Environmental Liability Directive. The question that can be asked is whether it would suffice to bring environmental damage resulting from offshore installations under the scope of the Environmental Liability Directive (7.8). Finally a few scenarios will be sketched, indicating how an efficient liability and compensation regime for offshore-related damage could be structured (7.9). The analysis in this chapter will constitute the basis for the recommendations for action at EU-level that will be formulated in the final chapter (8).

## 7.1. Principles of efficient compensation and liability rules

As a starting point, before looking at efficient liability rules and compensation system in a more normative manner, we need to sketch the principles on which our normative analysis will be based.

As we made clear in the introduction<sup>1353</sup> our normative framework comes from the economic analysis of law. For the economic analysis of accident law, the goal of liability rules is to minimize the total sum of accident costs.<sup>1354</sup> We already briefly discussed the economic analysis of accident law when we assessed various risk pooling schemes and already there stressed that according to Calabresi's framework, the goal of a liability regime is to minimize the total sum of (primary, secondary and tertiary) accident costs. For our purposes, it is hence important to remind that from an economic perspective, the main and primary goal of a compensation regime (whether this is constituted through liability rules, insurance or a fund solution) should be to provide *ex ante* incentives for prevention. Moreover, compensation of victims is in this perspective not seen as the primary goal of accident law, but rather as a means to reach the desirable effect of prevention.

Taking that as a starting point, we should first analyze the question why there should be compensation at all, at least from an economic perspective (7.1.1) and next we should equally examine what the consequences of these economic starting points are for the shape of a compensation regime (7.1.2).

### 7.1.1. Why compensate?

Using an economic perspective, one could argue that compensation of victims is, as such, not the goal of the legal system. Tort law should rather aim at welfare maximization through the minimization of accident cost. The question how victims of offshore related damage can be provided appropriate compensation is, in that strict sense, not interesting from an economic perspective.<sup>1355</sup> However, some have argued with respect to the financial compensation for victims of catastrophes, that providing disaster relief is one of the principle functions of government.<sup>1356</sup> Moreover, leaving victims of a large catastrophe like an offshore installation blow-out without any relief would probably be incompatible with the concept of the welfare state, at least as this is conceived in most EU Member States.<sup>1357</sup>

A disaster like the Deepwater Horizon in the US or the Piper Alpha in Europe showed that major offshore accidents can lead to serious political and economic instability especially for victims and local authorities suffering major damage in coastal areas. This hence justifies thinking about how to structure an efficient compensation system for victims, including which

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<sup>1353</sup> See *supra* 1.3.2.

<sup>1354</sup> This has been made clear in the pioneering work of Calabresi (1970) and in the works of Shavell (1980, 1987).

<sup>1355</sup> See Posner (2003), 167-177.

<sup>1356</sup> Priest (1996), 235.

<sup>1357</sup> So Schwarze and Wagner (2004).

role government should play in that respect. Economics can still be a useful instrument in indicating how a form of compensation can be provided at the lowest possible (administrative) costs and without unnecessary side effects (as far as affecting incentives for prevention is concerned) or negative distributional consequences.<sup>1358</sup> Providing specific compensation for victims of catastrophes is indeed problematic from a distributional perspective for the simple reason that some victims (those that are hit by a catastrophe) may receive preferential treatment compared to other victims (hit by an individual accident). This different treatment is as such difficult to explain from the perspective of the equality principle. Some have indeed argued that it may be problematic if only a compensation would be guaranteed for victims of catastrophes whereas for victims of other accidents this generosity would not apply.<sup>1359</sup>

From this it can be concluded that providing specific attention to victims of offshore-related damage (differently than to other victims) may indeed constitute a discrimination, but may on the other hand not only be unavoidable (given the pressure on politicians to act) but also desirable, given the potentially devastating effects of disasters and other damage resulting from offshore incidents on society. From a policy perspective, there are hence good reasons to analyze how adequate compensation to victims could be provided.

### **7.1.2. Principles of efficient and fair compensation**

In subsequently analyzing the various possible instruments of compensation, a few general rules of thumb could be used to analyze the strength and weaknesses of the various instruments.

A first important principle is that no matter how compensation is organized, the incentives for preventing damage caused by offshore incidents should always remain intact. This means that in principle the duty to compensate should rest upon the party who actually contributed to the risk, but equally that incentives are also provided to potential victims to mitigate the damage.

A second, related, principle is that a duty to contribute should also be related to the amount in which a specific activity or entrepreneur contributed to the risk. This remains important if a collectivisation of the compensation takes place. If such a risk differentiation is respected, the compensation will give incentives for prevention to contributors. This is not only important for a perspective of potential risk creators, but also for potential victims. This hence also means that in principle the individual seeking a particular protection will pay for this protection to the extent that he/she is exposed to the risk. Higher risks do from this perspective pay a higher contribution to a financing solution than lower risks. According to this principle, there should be no shifting of risks and costs to a collectivity.

The reason behind this principle is the idea that making individuals pay according to the risk they pose will make them aware of e.g. their exposure to a hazard and may hence have a positive impact on their behaviour, i.e. provide incentives for prevention. Hence the efficiency reason behind risk differentiation is to provide incentives for prevention, risk reduction and/or mitigation of damage.

Moreover, these principles are not only important from an efficiency point of view (providing optimal incentives for prevention to all stakeholders in the risk), but also include a fairness element. Indeed, if the principles were not followed, it would mean that good risks would have to pay for the bad risks as well and would therefore in fact subsidize bad risks. This negative redistribution should be avoided and therefore a compensation mechanism (no

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<sup>1358</sup> See Posner (2004).

<sup>1359</sup> Magnus (2006) and Zeckhauser (1996), 114.

matter how it is organized) should in principle be financed by the parties actually contributing to the damage. But again, risk differentiation also is important from the victim's perspective. A solidarity on the basis of which all (tax payers) pay for those exposed to risk could imply a redistribution whereby those who accepted risk are rewarded by those who faced no risk.

A third general principle is that, to the extent possible, a solution should be introduced at the lowest administrative cost possible.

Fourth and finally, where possible, a competitive market solution may (if it is less costly) be preferred to a bureaucratic intervention by government. The market will usually be able to provide coverage at lower costs.<sup>1360</sup> However, there may be some (perhaps exceptional) cases where a government monopoly in the provision of disaster insurance could provide better results than competitive markets.<sup>1361</sup>

## 7.2. Efficient liability rules

It is of course not possible to provide a detailed analysis of an efficient liability regime for offshore-related risks. However, using the tools offered by economic analysis of law it is possible to discuss a few essential features from a liability system and to discuss how they work out in the design of a liability regime for offshore-related risks. In this respect the following aspects will be discussed: whether offshore-related risks should correspond to a strict liability or a negligence regime (7.2.1.), how liability for offshore-related risks should be attributed (7.2.2.), and whether there should be a financial limit on the liability for offshore-related risks (7.2.3.). These issues to a large extent correspond with the checklist for country studies<sup>1362</sup> and are hence also issues that received attention in the description of the legal system in particular countries.<sup>1363</sup> To some extent the solutions adopted in some of the countries will hence also be recalled when discussing these efficient liability regimes. In the next section (7.3) the relationship between liability and regulation will be discussed. In that section attention will also be paid to the interdependencies between liability rules and regulation.<sup>1364</sup>

Some of the issues we will discuss also have received specific attention in either nuclear liability or in the international regime with respect to damage caused by vessel-based pollution and are therefore also interesting.

### 7.2.1. Strict liability or negligence?

#### 7.2.1.1. *Economic theory*

A crucial question to be addressed in any liability setting is whether offshore-related risks should be based on strict liability or on negligence.

Assume that the goal of accident law is the minimization of the total sum of accident costs (C) whereby:

A = the victim

B = the injurer

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<sup>1360</sup> See Bruggeman, Faure and Fiore (2010), 381.

<sup>1361</sup> This would more particularly be the case in Switzerland. For a discussion see Emons (2001); Von Ungern-Sternberg (1996; 2004).

<sup>1362</sup> Included in Annex II.

<sup>1363</sup> In section 3.5.

<sup>1364</sup> See 7.3.5.



$p$  = probability of an accident  
 $L$  = total amount of the loss  
 $y$  = care taken by the injurer  
 $x$  = care taken by the victim

Then the social optimum can be found where  $C = A(x) + B(y) + p(x,y)L$  is minimized. This level can be found at efficient care levels  $x^*$ (for A) and  $y^*$ (for B).<sup>1365</sup>

One rule which may give incentives to the injurer to follow the efficient level of care is the negligence rule. The negligence rule is defined as a rule according to which the injurer will only have to bear the loss if he uses less than a legally required level of care, referred to as the due care level. The negligence rule as defined here, means that the injurer will be held liable if he spends less than the due care level required by the legal system, in other words if he acted wrongful. Assuming that the due care level required by the legal system is equal to the optimal level of care ( $y^*$ ), the injurer will always follow the optimal care level. This is indeed the cheapest solution for him. If the injurer would spend less than  $y^*$  on care, his total costs would be equal to

$$p(o,y^\circ)L + B(y^\circ)$$

If, on the other hand, he spends the efficient level of care, he will not have to bear the expected loss. Hence, the expected costs of the injurer are in that case only his costs of taking efficient care:  $B(y^*)$ . The question whether B will take efficient care or not will, therefore, depend upon:

$$p(o,y^\circ)L + B(y^\circ) \stackrel{>}{<} B(y^*)$$

If the sum of expected loss and the actual costs of care are higher than the costs of efficient care ( $y^*$ ) the injurer will take efficient care. If, on the other hand, these costs would be lower than the costs of taking efficient care, it would be cheaper for the injurer not to take efficient care. However, since we defined  $y^*$  as the point where the social costs are as low as possible,  $p(o,y^\circ)L + B(y^\circ)$  will always be higher than the costs of taking  $y^*$ . Hence, the simple conclusion is that under a negligence rule, the injurer will always have an incentive to spend  $y^*$  on care and an efficient outcome will be reached. This is true as long as the legal system defines  $y^*$  as due care.<sup>1366</sup>

According to this economic model, an injurer will be found liable under a negligence rule if he spends less than the due care the legal system required from him ( $y < y^*$ ). The crucial question therefore is, from an economic point of view, how the judge should establish this efficient level of care. Spending more on care will reduce the probability that an accident may occur additionally. Requiring the injurer to spend more on care is efficient as long as the marginal costs of care are lower than the additional benefit in reduction of the expected loss. The efficient level of care  $y^*$  is found where marginal costs of care equal the marginal benefits in reduction of expected loss.<sup>1367</sup>

Economic analysis does, however, not assume that judges make explicit mathematical calculations of marginal costs and marginal benefits to establish the efficient care level. Often such a marginal cost/marginal benefit weighing takes place in a rather implicit manner. Hence, economic scholars often argue that judges act *as if* the goal of their actions were to achieve wealth maximisation, even though their decisions are mostly not formulated in economic

<sup>1365</sup> See Shavell (1980).

<sup>1366</sup> See Shavell (1980), 14.

<sup>1367</sup> See Shavell (1980) and Landes and Posner (1981).

terms<sup>1368</sup>. Sometimes, however, a judge will explicitly argue that the injurer is liable since he could have reduced the likelihood of an accident easily by spending relatively low costs on additional care.

From the above it follows that the negligence rule is in principle able to give a polluter an incentive to spend on care to reach the optimal standard. However, the negligence rule only works optimally if the legal system defines the due care level as the optimal standard. What about strict liability?

Also a strict liability rule will lead to optimal incentives for care taking for the polluter, since taking efficient care will minimise the expected accident costs which the potential polluter has to bear under a strict liability system<sup>1369</sup>. Therefore, the literature generally accepts that both a negligence rule and a strict liability rule will provide a potential polluter with incentives to take the efficient care level. However, this is only valid in a unilateral accident setting, in an accident whereby only the injurer can influence the accident risk. Above we already stressed that if victims were also given incentives for accident reduction a contributory negligence defence should be added to the strict liability rule. Under negligence victims will always have an incentive to take efficient care as well since they will in principle not be compensated by the injurer who, under a negligence rule, will take efficient care to avoid liability.

In the joint care (bilateral) case strict liability with contributory negligence and a negligence rule (with or without contributory negligence) will incite parties to adopt efficient levels of care. However, the accident risk cannot totally be minimised by increasing the levels of care. Accident losses depend also on the extent to which parties participate in the activity which might cause the damage (for instance the miles driven). Therefore, reducing the activity level will also reduce the accident risk<sup>1370</sup>. The activity level can be interpreted as any control variable not taken into account in setting the optimal level of care. Under a negligence rule an injurer has no incentive to adopt an optimal level of activity. This cannot be remedied, because judges cannot easily calculate the optimal activity level into the due care standard<sup>1371</sup>. A strict liability rule has the advantage that the injurer will automatically adopt an optimal activity level. This is also a means to minimise his costs. If the victim's activity has no influence on the accident risk, strict liability might have a slight advantage, because it might also lead to an optimal activity level of the injurer. However, in a joint care case this advantage is cancelled out by the fact that the victim will not adopt an optimal activity level. This is due to the impossibility of calculating the activity level into the due care standard, when considering contributory negligence<sup>1372</sup>.

What is the importance of the activity level for the choice between negligence and strict liability? In a unilateral accident model, whereby only the behaviour of the injurer influences the accident risk, strict liability seems to be the preferred rule since it is the only liability rule which will lead both to efficient care and to an optimal activity level. In a bilateral case the answer is more balanced.

Since activity level changes are not calculated into the due care standard, strict liability (with a defence of contributory negligence) will encourage activity level changes of the injurer. On the other hand, a negligence rule will encourage activity level changes of the victim. Therefore, several authors suggest that in bilateral cases strict liability will be a superior device if it is more important to give injurers an incentive to change the activity level than

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<sup>1368</sup> This claim has especially been made by Landes and Posner (1981), 851.

<sup>1369</sup> Polinsky (1980), 11 and Shavell (1987), 8.

<sup>1370</sup> Diamond (1974), 974; Polinsky (1980), 44 and Shavell (1980).

<sup>1371</sup> It is difficult to determine both the optimal and the actual activity level (for examples, see Polinsky (1980), 47 and Shavell (1980), 2).

<sup>1372</sup> Diamond (1974); Landes and Posner (1981); Polinsky (1980) and Shavell (1980).

that victims be given a similar incentive<sup>1373</sup>. This implies that if the injurer's activity is very dangerous and creates a high accident risk, even if optimal care is taken, it will be more desirable to control the injurer's activity than it is to control the victim's. For instance, if an injurer creates the collapse of an old house with explosives in the middle of a densely populated area, it is more desirable to control his activity than it is to control the victim's. On the other hand, the advantage of a strict liability rule disappears if the injurer's activity is not important enough to be controlled. For instance, if the injurer runs to catch a train and collides with another pedestrian, a negligence rule would be superior, because it is at least as important to control the victim's activity than it is to control the injurer's. If the activity of the injurer is not very dangerous, if exercised with reasonable care, it is desirable to give the victim an incentive to take an optimal activity level as well.

Even though a clear-cut test is therefore difficult to give, Landes and Posner describe several factors which may lead to a preference for a strict liability rule.<sup>1374</sup> These elements are: 1. high expected accident costs; 2. the impossibility that more care by the injurer would reduce the accident risk; 3. the impracticability to constraining the victim's activity in favour of the injurer's and 4. the desirability to reduce the risk by an activity level change of the injurer.

#### 7.2.1.2. *Application to offshore-related risks*

How do these economic arguments in favour of strict liability apply to the case of offshore-related risks? To some extent the analysis of liability for offshore-related risks resembles the analysis of liability for environmental risks and more particularly for vessel-based marine pollution. In that literature it is held that risks created by (vessel-based) pollution can in most cases be considered as a unilateral accident, i.e. an accident whereby only the injurer can influence the accident risk. In that case economic analysis predicts that the advantage of the strict liability rule is that it will give the injurer an incentive both to adopt an optimal activity level and to take efficient care. Since the victim can in most cases not influence the accident risk strict liability seems to be the first best solution to give the potential injurer optimal incentives for accident reduction in those cases. It is, however, important to add that in bilateral cases, even when strict liability remains preferred because the injurer has the largest influence on the accident risk, it remains important to add a defence to take into account the victim's behaviour as well.

These arguments in favour of a strict liability rule correspond largely with the solution for marine pollution resulting from vessels as well. As was made clear above, the CLC in the international regime adopts a principle of strict liability<sup>1375</sup> and the same is the case for the US OPA.<sup>1376</sup> The arguments that have been advanced in economic literature in favour of strict liability for vessel-based marine pollution<sup>1377</sup> apply *mutatis mutandis* to offshore-related liability risks as well. Moreover, as the comparative analysis made clear as well, the countries that have a specific liability rule for offshore-related risks all have taken strict liability as the legal basis.<sup>1378</sup> There are hence good reasons in favour of a strict liability for offshore-related risks. However, it should be taken into account that although the operator undoubtedly has the most important influence on the accident risk, the damage resulting from an offshore-related incident should certainly be considered as bilateral in the sense that also victims can take optimal preventive measures to reduce the extent of the damage. Victims of course cannot influence the occurrence of the incident itself, but they can take measures to mitigate the

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<sup>1373</sup> Landes and Posner (1981), 877 and Shavell (1980), 7 and 19.

<sup>1374</sup> Landes and Posner (1981), 907.

<sup>1375</sup> See 4.4.1.2.

<sup>1376</sup> See 4.5.2.

<sup>1377</sup> See *inter alia* in Faure and Wang (2006).

<sup>1378</sup> See the table *supra* in 3.5.13.2.

damage. In order to provide optimal incentives to take preventive measures to victims as well a comparative negligence rule, taking into accounts the victim's behaviour, should be added to the strict liability rule. This will allow to reduce the compensation due to the victim to the extent that the victim's behaviour (e.g. taking insufficient measures to mitigate the damage) has contributed to the extent of the loss. To that extent the victim's claim on compensation can then be proportionally reduced. This will hence give incentives to potential victims as well to take optimal measures aimed at mitigation of the loss.

## 7.2.2. Attribution of liability

The question of attribution of liability amounts to the question who, in case many parties are involved, should be held liable for risks related to an offshore incident. As for example the Deepwater Horizon incident has shown<sup>1379</sup> there can be a large amount of different parties all contributing to different extents to the risk. The question then arises how liability should be allocated. This question in fact consists of two different subquestions. On the one hand the question arises whether, for example following the example in the nuclear liability conventions and the conventions with respect to marine oil pollution, liability should be channelled to the licensee. Another question is whether in principle, when more parties are involved that contributed to the loss, they should be held jointly and severally liable towards third parties.

### 7.2.2.1. Channelling of liability

Channelling of liability basically means that only one party can be held liable, thus excluding liability of other parties involved. These type of channelling regimes have been defended as facilitating the life of the victims who only had to address the licensee (also in cases where through complicated contractual arrangements more parties could potentially be involved). It is also held that for operators channelling facilitates insurability since only one party would have to carry insurance coverage. However, in law and economics literature channelling is usually considered as inefficient. It negatively affects the incentives to take care more particularly of all other parties who could equally have influenced the accident risk. Channelling of liability to the licensee is therefore generally rejected<sup>1380</sup> and should therefore not be recommended in a future liability regime concerning risks related to offshore activities.

The main reason to reject channelling of liability (thus excluding liability of others than an operator) is that this would dramatically reduce the incentives of others to take preventive measures aiming at a reduction of the accident risk. However, although a legal channelling should hence principally be rejected the same should not necessarily apply to what is sometimes referred to as economic channelling. Economic channelling basically means that one party (e.g. the operator) takes an insurance coverage whereby the insurance coverage taken by the operator also covers potential liability of the subcontractors of the operator. This is for example a type of coverage that is provided by American nuclear insurers (ANI) under the US Price-Anderson Act. Since the insurance provides a so-called omnibus coverage to the operator it de facto also covers contractors of the operator.<sup>1381</sup> The advantage of such an economic channelling from the perspective of subcontractors is obviously that they do not (like the operator) have to take (expensive) insurance coverage themselves as well but could rely on the umbrella coverage of the operator. The advantage of such a construction is that a

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<sup>1379</sup> See the discussion *supra* in 2.5.2.

<sup>1380</sup> See for example Faure and Hartlief (2003), 127-128.

<sup>1381</sup> For details see Faure and Vanden Borre (2008), 251-254 and Vanden Borre (1999), 27: under the omnibus coverage suppliers can be held legally liable (hence there is no legal channelling), but their liability is covered by the omnibus coverage of the nuclear operator.

larger total insurance capacity can be generated than when each subcontractor would equally have to take full liability insurance coverage for the same total amounts as the operator. Such an economic channelling is an issue which can most likely not be mandated through regulation, but can be agreed upon contractually by the parties. It was, moreover a part of the proposal for the facility proposed by Munich Re.<sup>1382</sup> That facility would provide coverage to be financed by the operator but the benefits of coverage would equally extend to subcontractors, thus removing the need for them to buy coverage as well. That is precisely the notion of economic channelling.

Currently also others than the operator/licensee of the offshore installation is liable as well to the extent that damage would be caused through his negligence. This may for example apply to drillers. They can be held contractually liable towards the oil company that contracted them. In that case the conditions for liability will be determined in the contract. If the driller works from a mobile unit liability could be covered under the Bunker Convention or, at national level, in the US for example under OPA. Representatives from drillers, however, stress that they could/should only be held liable when damage would occur as a result of their drilling activity and not for all damage that would result from the well. They argue that most decisions e.g. concerning the planning of the well, the construction etc. are taken by the oil company as a result of which the driller can only control the activities for which he is in charge i.e. drilling.<sup>1383</sup> Extending liability for all damage resulting from the well to the driller would make the driller also liable for damage which may result from activities that they did not control.<sup>1384</sup>

Also other stakeholders mention that in the offshore business often many partners participate. If all of those, each having only a small stake, would be forced to buy full insurance coverage, this would lead to too high amounts of financial responsibility. Preferably one lead operator should be identified on whom a duty to provide financial security should be imposed. Again, the other parties would still remain liable, but the financial responsibility (to show financial security) would only amount to one party, who would obtain security also to the benefit to other parties involved in the risk.<sup>1385</sup> This once more underscores the importance of a so-called economic channelling, i.e. imposing the obligation to seek financial security only on one party, such as the licensee or operator.

In sum, taking into account the serious criticism that has been formulated in the literature on legal channelling both concerning the international regime for nuclear liability as well as the regime for vessel-based marine pollution legal channelling for offshore-related risks should be avoided; however, there may be an argument in favour of economic channelling which can be arranged through contractual solutions.

#### 7.2.2.2. *Joint and several liability*

Under joint and several liability joint tortfeasors are held liable for all the damage to which their behaviour might have contributed. Joint and several liability regimes have been introduced often to relieve the burden of proof from victims. Victims could collect the entire damage from one of the contributing tortfeasors whereas the tortfeasor who compensated could in turn exercise an action in recourse against the other liable tortfeasors. An argument in favour of joint and several liability is that it gives incentives for mutual monitoring by potential injurers.<sup>1386</sup> However, in case of insolvency of one of the actors inefficiencies may

<sup>1382</sup> Interview with Dr. Philipp Wassenberg, representative of Munich Re on 6 May 2013.

<sup>1383</sup> So Mr. Alan Spackman, Vice-President IADC, interview on 5 June 2013.

<sup>1384</sup> Ibidem.

<sup>1385</sup> Representatives of Lloyds, interview on 1 May 2013 in London.

<sup>1386</sup> See Tietenberg (1989).

arise since recourse may become impossible.<sup>1387</sup> Joint and several liability is debated since an injurer could in principle also be held liable for a part of the damage not caused by his activity and could thus potentially increase liability exposure.<sup>1388</sup>

The application of joint and several liability is in fact a general rule in all cases where more than one tortfeasor is involved. It was therefore no surprise to notice that in the country studies many countries have a joint and several liability for the case where more than one party (e.g. an operator and a subcontractor) have contributed to the accident risk.<sup>1389</sup> Joint and several liability has, however, been criticized from an insurance perspective, arguing that it increases the necessity to purchase insurance coverage by all parties involved.<sup>1390</sup> However, these negative effects of joint and several liability on the insurability of the liability risk could be mitigated if an economic channelling, as discussed above, were to be introduced.

### 7.2.3. Financial cap?

A question that could be asked is whether it would be necessary to put a financial limit (a so-called cap) on the amount of compensation to be awarded to the victim. The reason to discuss this is that, as was discussed in detail above, in the international conventions with respect to vessel-based marine pollution and nuclear liability financial caps are concluded. However, it was also mentioned that precisely those financial caps are heavily criticized in the literature.

Economic analysis strongly supports the arguments against financial caps. From an economic perspective it is important for the potential injurer to be fully exposed to the social costs of his activities. Otherwise the desirable internalisation of the negative externality would not take place.

In the literature it has been indicated that there may be good reasons to favour a strict liability rule for hazardous activities, the main reason being that only a strict liability rule would lead to a full internalisation of those highly risky activities<sup>1391</sup>. This strict liability rule is especially put forward in so-called unilateral accident situation, this is where only one party influences the accident risk. Only with strict liability the potential injurer would also have an incentive to adopt an optimal activity level. This full internalisation is obviously only possible if the injurer is effectively exposed to the full costs of the activity he engages in and is therefore in principle held to provide full compensation to a victim. An obvious disadvantage of a system of financial caps is that this will seriously impair the victim's rights to full compensation. But if the cap is indeed set at a much lower amount than the expected damage, this would not only violate the victim's right on compensation, but the above mentioned full internalisation of the externality would not take place either. From an economic point of view a limitation of compensation therefore poses a serious problem since there will be no internalisation of the risky activity.

Indeed, if one believes that the exposure to liability has a deterrent effect, a limitation of the amount of compensation due to victims poses another problem. There is a direct linear relationship between the magnitude of the accident risk and the amount spent on care by the potential wrongdoer. If the liability therefore is limited to a certain amount, the potential injurer will consider the accident as one with a magnitude of the limited amount. Hence, he

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<sup>1387</sup> For an analysis of joint and several liability under full solvency see Kornhauser and Revesz (1989) and for the case of insolvency see Kornhauser and Revesz (1990).

<sup>1388</sup> For this reason joint and several liability in case of environmental harm is for example opposed by Bergkamp (2000).

<sup>1389</sup> See the overview in the table in 3.5.13.2.

<sup>1390</sup> See Faure and Hartlief (2003), 127.

<sup>1391</sup> Shavell (1980), 8 and 11.

will spend on care to avoid that an accident will be caused with a magnitude equal to the limited amount and he will not spend the care necessary to reduce the total accident costs. Obviously, the amount of care spent by the potential injurer will be lower and a problem of underdeterrence arises. The amount of optimal care, reflected in the optimal standard, being the care necessary to reduce the total accident costs efficiently, will be higher than the amount the potential injurer will spend to avoid an accident equal to the statutory limited amount<sup>1392</sup>. Thus, as a result of the cap too little care is taken.<sup>1393</sup>

Moreover, another effect of a financial limit on liability (in addition to providing undercompensation to victims and underdeterrence of operators) is that it would constitute an indirect subsidisation of the industry enjoying a particular limit on liability.<sup>1394</sup>

Interestingly, during the many interviews with stakeholders there has not been one, neither from industry nor from insurers that has argued in favour of a financial cap on the liability related to offshore-related risks. That hence does not seem an issue worth discussing at the policy level. It was also argued by a representative of a large reinsurance company that financial caps should not be imposed since it would allow a “privatization of profits and socialization of losses”.<sup>1395</sup> That should hence be avoided also as a principle matter since the industry should in principle be fully liable for the damage they cause.<sup>1396</sup>

### 7.3. Liability versus regulation

The core of this study deals with liability rules. Economists have stressed that many of the goals of liability law, more particularly prevention and deterrence, can also be achieved through regulation. There are obviously differences in the way in which tort law and regulation work in providing incentives to parties in a potential accident setting to take optimal care.<sup>1397</sup> However, notwithstanding those differences, both tort law and regulation could in principle be employed to provide incentives to operators of offshore installations to take optimal preventive measures in order to reduce the accident risk.<sup>1398</sup> Hence, within the context of this study, it is important not to discuss liability rules completely in isolation, realizing that there are other instruments that can aim at the prevention of offshore related incidents as well, more particularly regulation.

It is therefore important, within the scope of this section, to briefly address the economic criteria for safety regulation and to show why, more particularly in the offshore area, regulation may be the primary instrument to control offshore related risks. It is important to mention this since these economic criteria that favour regulation also coincide with expert opinions from stakeholders. That implies that liability rules may still play a role, but probably a more modest role in supplementing regulation where for a variety of reasons the deterrent effect of regulation may fail. In the end, an optimal combination of liability and regulation will hence have to aim at preventing offshore related incidents.

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<sup>1392</sup> See Faure (1995), 21-43.

<sup>1393</sup> The reason for the underdeterrence is obviously the same as for the underdeterrence which results from the insolvency of the injurer. Underdeterrence arises because the injurer is not exposed to full liability, either as a result of his insolvency or as a result of a cap.

<sup>1394</sup> See also Radetzki and Radetzki (2000).

<sup>1395</sup> Interview with Dr. Philipp Wassenberg, representative of Munich Re Insurance Company on 6 May 2013.

<sup>1396</sup> *Ibidem*.

<sup>1397</sup> See also Cane (2002).

<sup>1398</sup> See Hilton (2002).

### 7.3.1. Criteria for safety regulation

Let us now examine under what kind of circumstances liability rules may not suffice to deter environmental harm and a regulatory intervention may be necessary. The choice between regulation and liability rules has been thoroughly examined by Steven Shavell in 1984, in a paper in which he advances several criteria that influence the choice between safety regulation and liability rules.<sup>1399</sup>

#### 7.3.1.1. *Information Asymmetry as a Criterion for Regulatory Intervention*

Information deficiencies have often been advanced as a cause of market failure and as the justification for government intervention through regulation.<sup>1400</sup> Also, for the proper operation of a liability system, information on e.g. the existing legal rules, the accident risk, and efficient measures to prevent accidents, is a precondition for an efficient deterrence. According to Shavell, the parties in an accident setting generally have much better information on the accident risk than that possessed by the regulatory body.<sup>1401</sup> The parties themselves have, in principle, the best information on the costs and benefits of the activity that they undertake and of the optimal way to prevent accidents. This “assumption of information” will, however, be reversed if it becomes clear that some risks are not readily appreciated by the parties in an accident setting. This may more particularly be a problem if costs are external. These cannot always be easily assessed by the parties involved. Therefore, for every activity the question that will have to be asked is whether either the government or the parties involved can acquire the information at the least cost.

#### 7.3.1.2. *Insolvency Risk*

If the potential damages can be so high that they will exceed the wealth of the individual injurer, liability rules will not provide optimal incentives. The reason is that the costs of care are directly related to the magnitude of the expected damages. If the expected damages are much greater than the individual wealth of the injurer, the injurer will only consider the accident as having a magnitude equal to his wealth. He will take, therefore, only the care necessary to avoid an accident equal to his wealth, which can be lower than the care required to avoid the total accident risk.<sup>1402</sup> This is a simple application of the principle that the deterrent effect of tort liability works only if the injurer has assets to pay for the damages he causes. If an injurer is protected against such liability, the problem of underdeterrence arises.<sup>1403</sup>

Safety regulation can overcome this problem of underdeterrence caused by insolvency.<sup>1404</sup> In that case, the efficient care will be determined ex ante by regulation and will be affected by enforcement instruments which induce the potential injurer to comply with the regulatory standard, irrespective of his wealth.

Therefore, a problem might still arise if the regulation were also enforced by means of monetary sanctions. Again, if these were to exceed the injurer’s wealth, the insolvency

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<sup>1399</sup> Shavell (1980, 1984a and 1984b).

<sup>1400</sup> See the basic article by Stigler (1961) and see Schwartz & Wilde (1979) as well as Mackaay (1982).

<sup>1401</sup> Shavell (1984a).

<sup>1402</sup> Shavell (1984a).

<sup>1403</sup> Shavell (1986).

<sup>1404</sup> If insurance would come into the picture it could overcome the problems of under-deterrence, provided that the moral hazard problem, caused by insurance, can be cured.



problem would remain. Hence, if a safety regulation is introduced because of a potential insolvency problem, the regulation itself should be enforced by non-monetary sanctions.<sup>1405</sup>

### 7.3.1.3. *The Threat of a Liability Suit*

Some activities can cause considerable damage, but even so a law suit to recover these damages may be never brought. If this were the case, there would of course be no deterrent effect of liability rules. Therefore, the absence of a liability suit would again be an argument to enforce the duty of efficient care by means of safety regulations rather than through liability rules.<sup>1406</sup> There can be a number of reasons why a law suit is not brought, even though considerable damage has been caused.

Sometimes an injurer can escape liability because the harm is thinly spread among a number of victims. As a consequence, the damage incurred by every individual victim is so small that he has no incentive to bring a suit. In particular, this problem will arise if the damage is not caused to an individual but to common property, such as the surface waters in which each member of the population has a minor interest. In addition, a long time might have elapsed before the damage becomes apparent; in this case much of the necessary evidence may be either lost or not obtained. Another problem is that if the damage only manifests itself years after the activity, the injurer might have gone out of business.

A related problem is that it is often hard to prove that a causal link exists between an activity and a type of damage.<sup>1407</sup> The burden of proof of a causal relationship becomes more difficult with the increasing passage of time since the damaging incident took place. Often a victim will not recognise that the harm had been caused by a tort, but might think that his particular ailment, e.g. cancer, had a “natural cause”, associated with general ill health. For all these reasons, a liability suit might not be brought and hence safety regulation is necessary to ensure that the potential polluter takes efficient care.<sup>1408</sup>

### 7.3.2. **The need to regulate offshore related risks**

After having discussed these criteria for regulation,<sup>1409</sup> we can now discuss the question of how these criteria relate to offshore related risks. If one takes the criteria for safety regulation discussed above and applies them to the potential risk caused by offshore installations, there is no doubt that liability rules alone cannot suffice to provide sufficient incentives for care to operators.

If one looks at the first criterion, that of information costs, it must be stressed that an assessment of the risks of a certain activity often requires expert knowledge and judgement. Small organisations might lack the incentive or resources to invest in research to find out what the optimal care level would be. Also, there would be little incentive to carry out intensive research if the results were automatically available to competitors in the market: this is the well-known “free rider” problem. This problem can partially be countered by legal instruments granting an intellectual property right to the results of the research. However, the

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<sup>1405</sup> Shavell (1985).

<sup>1406</sup> Shavell (1984a).

<sup>1407</sup> Landes & Posner (1984) and Kunreuther & Freeman (2001).

<sup>1408</sup> For alternatives to liability suits see: Bocken (1987, 1988).

<sup>1409</sup> These are often referred to as “public interest” criteria for regulation to contrast them with “private interest” explanations for regulation, as advanced by public choice scholars. In the latter perspective, regulation is often made, not in the public interest, but to serve particular needs of interest groups who seek economic advantages (referred to as rents) via regulation. Here, we will assume that government makes regulation in the public interest.

problem remains that it may not be possible for small companies to undertake studies on the optimal technology for preventing environmental damage. Therefore, it is often more efficient to allow the government itself to do the research on the optimal technology (e.g. in a governmental environmental research institute). The results of this research can then be passed on to the parties in the market through the regulation. Hence, the setting of safety standards in regulation can be seen as a means of passing on information on the minimal technology required. Obviously, it is more efficient for the government to acquire information on the optimal safety standard for offshore operations than it would be for an individual firm, for instance, to find out what additional reduction in pollution would produce an optimal reduction of the expected damages from the incident. There are undeniable “economy-of-scale” advantages in regulation. In this respect, it is of importance, as was already often stressed, that there are many different operators in the offshore market. Lacking information may not necessarily be a problem for majors, but since also small and medium-size operators are active in this market, for them, the optimal information concerning preventive technologies may indeed be lacking.

Also, the insolvency argument points in the direction of regulation. Pollution can be caused by individuals or firms with assets which are generally lower than the damage they can cause by the pollution. In this respect it should not be forgotten that even a small offshore operator could cause harm to a large number of individuals or to entire ecosystems. The amount of damage caused by this operation can of course largely exceed his individual assets.<sup>1410</sup> Moreover, most firms have been incorporated as a legal entity and therefore benefit from limited liability. Hence, the individual shareholders are not liable to the extent of their personal assets, but a creditor of the firm can only lay claim to part on all of the total assets purchased in the firm by the shareholders. As far as the insolvency risk is concerned, we can also refer to the discussion in chapter 6 above<sup>1411</sup> where it was again stressed that all operators admit that especially for small and medium size operators an insolvency risk is very realistic, i.e. the likelihood that the amount of the damage caused by an offshore related incident could be higher than their personal assets. Again, this points to favouring regulation.

As far as the chance of a liability suit being brought for damage caused by an offshore incident is concerned, a balanced analysis is required. Surely the damage can often be spread over a large number of victims, e.g. fishermen or local businesses suffering harm as a result of pollution. They may in some cases have difficulties in organizing themselves to bring a law suit. Moreover, especially pollution damage can cause long lasting consequences and thus latency problems. On the other hand, the problem of bringing a law suit in case of an offshore related incident may not be as large as e.g. with other pollution problems like air pollution or soil pollution. In those cases, latency problems may even be more serious in the sense that one will often discover only tens of years after an emission that a particular harm occurs and in some cases it may be difficult to find out who the liable injurer was.

Those types of causal uncertainty and multiple injurers-problems are not very likely in the case of an offshore related risk. Usually it will be well-known who the operator was causing the offshore related incident and victims may in many cases suffer a substantial financial loss which should provide them sufficient incentives to bring a suit. Of course, victims of offshore related damage will, like any victim in a tort suit, always face substantial hurdles in bringing law suits, having to do with the costs of funding civil litigation<sup>1412</sup> but the problems in that respect are not necessarily different with respect to offshore related liability risks.

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<sup>1410</sup> This is a point that has been discussed in a detailed way, *supra* in section 6.1.5., which was devoted to the insolvency risk.

<sup>1411</sup> More particularly in section 6.1.5.

<sup>1412</sup> See the contributions to Tuil and Visscher (2010) for a further analysis of this problem.

Summarizing: the information asymmetry may, especially for small and medium size operators, be an important argument in favour of regulation as well as the insolvency risk which again especially plays in the case of small and medium size operators. In those cases, liability rules alone cannot suffice to provide sufficient incentives to operators to prevent offshore related risks. That provides a strong argument not only rely on the liability system for preventing those types of risks but to rely on regulatory solutions as well.

### 7.3.3. Private or public regulation?

The economic criteria we just discussed point strongly in the direction of at least having some regulation of offshore related risks, especially for smaller and medium size operators since liability rules alone may not provide efficient incentives. In that case, there would be serious risks of externalization of the social costs to society. Ex ante standard setting via regulation can prevent this externalization for the simple reason that these standards will have to be complied with irrespective of harm and irrespective of insolvency.

Traditionally, also in the economic analysis on which we rely in this study, regulation was almost implicitly equated with public regulation, i.e. public standards set by government. However, increasingly economic scholars have also pointed at the fact that under particular circumstances there may be strong arguments in favour of private standard setting by industry or to have some form of private standard setting supervised by government. The most important argument in favour of self-regulation<sup>1413</sup> relates again to the often mentioned problem of the information asymmetry.<sup>1414</sup> In this case it refers to the information asymmetry between the industry and the government. In many cases, it are the operators that have much better information than the government e.g. on optimal preventive technologies in the offshore sector. For that reason, self-regulation is advanced in law and economics literature given the larger expertise and technical knowledge of industry. As a result of that, information costs to fix the standards are supposed to be lower than when government would have to set standards.<sup>1415</sup> Two more arguments in favour of self-regulation are presented by Miller.<sup>1416</sup> Industry would be able to organize in a less bureaucratic way than government and would therefore show more flexibility. This would more particularly be important in an area where regulatory standards (as a result of evolutions in research and development) are very volatile and hence change quickly. Government or administrative agencies are often not able to react quickly due to bureaucratic problems and slow decision making processes. The costs of adapting norms to rapidly changing societal circumstances and technical evolutions can hence be relatively low compared to the situation where government intervention would be necessary.<sup>1417</sup> Second, industry would be better able to minimize the costs of regulation since in drafting the standards they would also take into account compliance costs and enforcement costs. Moreover, industry organizations bare their own costs and hence would have incentives for cost minimization. For the government, self-regulation would hence have the advantage that it could save on enforcement costs.

However, against these advantages of safety regulation, there are also many disadvantages mentioned in the literature. One problem, according to Shover,<sup>1418</sup> is that industry does not often show that it really deserves the trust that society puts in them for example by reacting effectively against violations of the standards. Also the private interest theory has warned that interest groups often have an incentive to abuse regulation to create barriers to entry and

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<sup>1413</sup> In some literature it is also referred to as private regulation.

<sup>1414</sup> See Ogus (2000) and Philipsen (2003) 35-41.

<sup>1415</sup> Ogus (1995), 97-98 and Van den Bergh (2008), 793.

<sup>1416</sup> Miller (1985).

<sup>1417</sup> Ogus (1995), 98; Van den Bergh (2008), 794.

<sup>1418</sup> Shover (2008).

hence to limit market entry for newcomers. This would increase the income for the existing industry. Moreover, it is not always sure that the industry group will use the information advantage via self-regulation effectively to promote the public cause.<sup>1419</sup> With self-regulation in some cases industry could serve its own interests and not the public interest.<sup>1420</sup> Enforcement of self-regulation is also often weak and deterrent sanctions may be lacking.<sup>1421</sup> Also more recently questions have been asked with respect to self-regulation and private standards as far as the legitimacy and accountability of self-regulation is concerned.<sup>1422</sup> Increasingly one can also notice that in some situations government will make use of self-regulation but government will delineate the circumstances under which it will rely on self-regulation. Hence, in those cases it is not a pure self-regulation by industry, but rather a “conditional self-regulation” whereby government still monitors self-regulation by industry.<sup>1423</sup>

These arguments may apply to the case of offshore related risks as well: many (especially large) OGPs may have much better information than government concerning offshore related risks. That would hence comply with the economic criteria (information asymmetry) in favour of self-regulation. It is what one can for example notice in the UK where in fact the industry organization (Oil and Gas UK) not only drafts safety standards,<sup>1424</sup> but also rules on financial responsibility. Still the regulator (in the UK case DECC) monitors the self-regulation in the sense that it will not automatically accept the analysis by Oil and Gas UK, but critically monitor this.<sup>1425</sup> Hence, to some extent the practice of “conditional self-regulation” seems to be applied in the offshore area as well.

### **7.3.4. Enforcement through criminal law?**

#### *7.3.4.1. Criteria for criminalization*

As an intermezzo the question can also be asked whether the arguments in favour of regulation of offshore related activities (rather than a control merely through private law and liability rules) is also an argument in favour of criminal law.

So far, we presented the traditional economic arguments to explain why environmental pollution cannot merely be remedied via the private law and why public enforcement is indicated. The main reason is the low probability of detecting environmental crime. However, this does not necessarily explain why one should have to use the criminal law. Indeed: the low probability of detection could well be compensated by imposing a high fine on the polluter. Fines have always been considered the preferred sanction in economic theory for the simple reason that the costs of imposition are low and fines in fact only generate money for the public budget.<sup>1426</sup> Monetary sanctions can in principle have both a criminal and an administrative nature. All things being equal the administrative procedure has the major advantage that it is far less costly than the criminal procedure. Administrative fines can within

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<sup>1419</sup> So Campbell (1999), 717.

<sup>1420</sup> Campbell (1999), 717: “Self-regulators often combine – and sometimes confuse – self-regulation with self-service”.

<sup>1421</sup> See Reader 1995, 182 and 210.

<sup>1422</sup> See *inter alia* Rhodes (1996), Coglianesi and Lazer (2003) and on the concept of transnational private regulation Scott, Cafaggi and Senden (2011) as well as Cafaggi (2011).

<sup>1423</sup> See *inter alia* Baarsma and others (2003), 8.

<sup>1424</sup> See for example Oil & Gas UK, Guidelines on Relief Well Planning Subsea Wells, Oil & Gas UK, London, January 2012.

<sup>1425</sup> Interview with Wendy Kennedy, Head of Offshore Oil & Gas, Department of Energy and Climate Change (DECC) on 29 April 2013.

<sup>1426</sup> See for example Shavell (1985) and Posner (1980).

what is sometimes referred to as ‘administrative penal law’<sup>1427</sup> be imposed by administrative authorities after a relatively simple procedure and require usually a relatively low threshold of proof. Compared with the criminal law, the costs of the administrative procedure are substantially lower.<sup>1428</sup> All things being equal, it can therefore be argued that if optimal deterrence can be achieved through fines, it seems desirable to use the less costly administrative law instead of the relatively more costly criminal procedure. This has led many scholars to argue that the imposition of relatively modest fines through the criminal procedure is inefficient since a similar result could be achieved at lower costs through administrative law. More particularly, Ogus and Abbot have therefore argued that in the U.K. more use should be made of administrative fines (and other administrative sanctions for that matter) to enforce violations of environmental regulations.<sup>1429</sup> A clear normative conclusion from this literature is therefore that in many more instances than is the case today, administrative law could be used to deter environmental pollution, especially when the penalties consist of relatively low fines or other (not too infringing) administrative sanctions.<sup>1430</sup>

However, there are two important reasons why not all efficient penalties necessary to deter offshore-related risks can be imposed through administrative law and why criminal law therefore remains necessary. The first reason is that since the probability of detection of offshore-related risks can in practice often be very low, the optimal sanction to deter pollution may become very high as well. The likelihood that this optimal fine might outweigh the individual wealth of an offender is relatively high. Offshore operators are often organised as corporate entities that benefit from limited liability.<sup>1431</sup> Hence, there is always a risk that offshore activities may cause costs that are higher than the assets of the firm or, in the criminal law context, that the optimal fine (to outweigh a low detection rate) will be much higher than the assets of the firm. Indeed, the optimal monetary sanction required for deterrence so frequently exceeds the offenders’ assets that non-monetary sanctions, such as imprisonment, are necessary. The major advantage of the fine (lower administrative costs) therefore only leads to favouring this type of sanction when the risk of insolvency can be controlled. It should also be recalled that the probability of an administrative fine being imposed will be much higher (given a lower procedural threshold) than that of a criminal fine. As a result the administrative fine should not necessarily be nearly so large as the criminal fine. This can again reduce the insolvency problem.<sup>1432</sup>

It should be recalled that the fact that the detection rate of violations of safety standards is often less than 100% was one of the reasons for introducing criminal law in the first place. This insolvency problem explains why increasing the amount of compensation due by a tortfeasor, for instance by introducing punitive damages (as in American tort law) will not eliminate the need for criminal sanctions. Indeed, the insolvency problem that arises if monetary sanctions are imposed would make the injurer judgment proof. Thus, non-monetary sanctions will often be needed to achieve deterrence.

There is a clear economic reason why society does not want to impose very stringent sanctions, such as imprisonment (but also high fines) through an administrative proceeding. The reason is that the costs of the administrative proceedings may be lower than the costs of

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<sup>1427</sup> This expression ‘administrative penal law’ may be confusing to some who consider ‘penal’ synonymous with ‘criminal’. In the literature this notion is used to refer to a system whereby administrative authorities impose penalties.

<sup>1428</sup> See Faure, Ogus and Philipsen (2009), 173-176.

<sup>1429</sup> See Ogus and Abbot (2002a) and Ogus and Abbot (2002b).

<sup>1430</sup> See on the choice between applying criminal or administrative law to environmental violations Faure and Svatikova (2012).

<sup>1431</sup> See Hansmann and Kraakman (1991) and Cortenraad (1999).

<sup>1432</sup> See further on economic criteria for criminalization Bowles, Faure and Garoupa (2008).

the criminal proceedings, but the accuracy of the latter (where the investigations are often undertaken by professional lawyers) may be a lot higher as well.

This aspect is also important because a task of criminal law is not only to apply optimal sanctions to the guilty, but also to avoid punishing the innocent. This is referred to as the goal of reduction of error costs.<sup>1433</sup> The error cost is obviously a lot higher when very serious sanctions, like imprisonment, may be imposed, rather than monetary sanctions only. It is therefore understandable that less costly administrative proceedings are chosen in all cases where the consequences (and thus the error cost) will not be too high in the event of a wrongful conviction. Arguably also a goal of the administrative procedure is to avoid punishing the innocent as well (and thus reducing error costs), although they operate at a lower standard. That explains why administrative law (and the corresponding administrative procedure) will be reserved for cases where relatively low penalties can suffice to provide deterrence.

The policy lesson from this economic literature is therefore rather straightforward: in cases where optimal deterrence of offshore operators can be achieved through relatively modest sanctions (like not excessively high administrative fines) the use of the less costly administrative penal law may be warranted. However, in cases where the probability of detection is relatively low, social harm and the potential gain to the polluter is high and thus a more severe sanction is needed, it may be warranted to use the more costly criminal procedure in order to reduce error costs. This is certainly the case when the optimal fine would reach the insolvency limit and non-monetary sanctions are thus needed for deterrence, but equally where for the same reason very high administrative fines would have to be imposed.

#### 7.3.4.2. *Incorporation of offshore in the Environmental Crime Directives?*

For some legal systems discussed in Chapter 4<sup>1434</sup> we indicated that the violation of safety standards in the offshore sector is also enforced through the criminal law. This hence shows that to a large extent the current use of the criminal law<sup>1435</sup> seems to be applied to violations of safety standards applicable to the offshore sector.

Environmental criminal law has also become popular at the EU-level. The EU promulgated Directive 2008/99/EC of 19 November 2008 on the protection of the environment through criminal law<sup>1436</sup> and moreover also promulgated a Directive 2009/123/EC explicitly aiming at ship-source pollution and on the introduction of penalties for infringements.<sup>1437</sup> Those directives harmonize and strengthen the role of criminal law in environmental protection and more particularly in the area of ship-source pollution as well, obliging the Member States to enforce a large number of environmental directives through criminal law. Within those directives the type and the level of sanctions are at the discretion of the Member States with one condition: the sanctions implemented into national laws have to be effective, dissuasive and proportional.<sup>1438</sup>

The competences of the EU in the area of criminal law have, moreover, been expanded since the Lisbon Treaty, providing a new legal framework for criminal legislation at EU level. In

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<sup>1433</sup> See Miceli (1990) and Faure, Ogus and Philipsen (2009), 167-168.

<sup>1434</sup> More particularly in section 3.5.

<sup>1435</sup> Although we should be slightly careful with this statement since the criminal provisions were merely mentioned, but a detailed analysis of their scope of application could not be provided.

<sup>1436</sup> *OJ* 2008 L328/28.

<sup>1437</sup> *OJ* 2009 L280/52.

<sup>1438</sup> See Faure (2010), 256.

addition to Article 83(1) Article 83(2) TFEU allows the European Parliament and the Council, on a proposal from the Commission, to establish “minimum rules with regard to the definition of criminal offences and sanctions if the approximation of criminal laws and regulations of the Member States proves essential to ensure the effective implementation of a Union policy in an area which has been subject to a harmonization measure.” The way in which this competence will be used has moreover been specified in a Communication “Towards an EU criminal policy: ensuring the effective implementation of EU policies through criminal law” of 20 September 2011.<sup>1439</sup> According to this Communication the Commission has to carry out an assessment of the national enforcement regimes in place, based on clear factual evidence, and of the added value of common EU minimal criminal law standards, taking into account the principles of necessity, proportionality and subsidiarity.

Given the fact that both for environmental crime as well as for ship-source pollution pre-Lisbon already directives were issued at EU-level it could hence be argued that the new competences with respect to criminal law could also be used to suggest criminalisation of the violation of national legislation implementing the directive which would be issued with respect to offshore safety. It should, moreover, be reminded that under the new competences (differently than under the “old” case law) the EU also now has competence to issue minimum rules both with respect to the offences but also with respect to the sanctions.

### 7.3.5. Liability and regulation combined

It was just mentioned that according to the economic criteria there is a strong argument to control offshore related risks through *ex ante* regulations. However, in individual cases there can again still be damage resulting from an offshore-related incident. For compensation reasons, liability under tort may therefore come in the picture again. Moreover, although many arguments point in the direction of a preference for regulation, regulation may not be perfect in controlling offshore related risks. Regulation (especially government regulation) cannot *ex ante* regulate all types of risks; it may also be outdated fast and not show sufficient flexibility. Regulation is also dependent upon enforcement which may never be 100 %. Given those weaknesses inherent in any regulatory regime, tort rules will still play an important role to back up failures in regulation.<sup>1440</sup> This means that in practice there still is an important role for liability rules, but rather to step in to back up for regulatory failure. As a consequence, most legal systems hold that following a regulatory standard does not automatically exclude an operator from liability in tort. This would amount to a so-called regulatory compliance defense. Since compliance with regulation is usually merely a minimum, a judge in a tort case should still have the possibility to verify whether the optimal care levels were in fact higher than the standard laid down in regulation. If that is the case, an operator can still be held liable notwithstanding he followed a regulatory standard.<sup>1441</sup>

However, regulation can play an important role in liability cases. Indeed, in most legal systems violation of a regulatory standard will automatically be considered a fault, in some cases referred to as negligence *per se*.<sup>1442</sup> the economic logic is that when the safety standard was set because the regulator possesses better information than the judge, regulation passes on information to the parties and to the judge on optimal safety standards. Hence, if the operator violates a safety standard this facilitates the task of the judge since it will normally lead to an automatic finding of wrongfulness in a liability case. To the extent that this wrongful act stood in a causal relationship with the damage suffered by the victim compensation is possible. In that sense, victims will also have an incentive to prove to that a

<sup>1439</sup> COM(2011) 573 of 20 September 2011.

<sup>1440</sup> See Schmitz (2000).

<sup>1441</sup> See Schwarz (2000).

<sup>1442</sup> See Cane (2002), 427-467.

regulatory standard was breached. That makes the victim in fact the enforcer of safety regulation.<sup>1443</sup>

This shows that, although regulation may be the primary instrument to control offshore related risks, liability rules still play an important role, not only in compensation, but also in providing incentives to operators to take optimal preventive measures, especially in those cases where regulation would be suboptimal. That is why compliance with regulation will in most legal systems not excuse a tortfeasor from liability in tort. On the other hand, since a breach of regulatory standard will constitute wrongfulness in a tort case, regulation can assist the judge (and the victim) in liability cases. In that sense, a “smart” combination of both instruments (regulation and liability) is necessary to provide optimal incentives to adopt preventive measures to operators.

### 7.3.6. Stakeholder assessment

It is striking, although perhaps not surprising, that also many stakeholders report that the safety in the offshore sector is to an important extent dependent upon compliance with regulation. Many stress that over the years and especially after the Deepwater Horizon incident in 2010 the safety standards with which offshore operators comply has increased to very high levels. Safety is, so it is especially reported by the majors, their primary concern. Irrespective of legislative duties they would strive for high standards and state-of-the-art technology.<sup>1444</sup> Representatives from a major like Shell also argue that as a result of corporate social responsibility the safety standards they apply e.g. in Europe will also be applied on a world-wide level. Even stronger, majors are in fact strongly in favour of high standards for safety regulation on the condition that these EU standards would also be globally compatible.<sup>1445</sup> The advantage of stringent and clear regulation is that it provides precision and avoids the discomfort that would accompany instability. Moreover, stringent rules would also have the advantage of creating a level playing field.<sup>1446</sup> They especially argue that safety standards for offshore installations may be very high e.g. in the Netherlands, the UK or Norway, but increasingly offshore operations also take place in the Mediterranean, in which case regulations would be drafted in e.g. Italy, Turkey or Greece where standards may not be the same.<sup>1447</sup> Of course, increased safety levels may drive some (smaller) players out of the market, but if that is the result of increased safety, that may be an unavoidable price to pay.<sup>1448</sup>

In that sense, the interests of major OGP seems to coincide with the interests of regulators who (obviously) also plead in favour of stringent regulation of safety.<sup>1449</sup> It is also stressed that the nature of safety regulation has changed over time. Legislation is now (e.g. in the UK and in the Netherlands) more focusing on targets to be reached and less on particular details. Also monitoring and control do not take place at a very detailed level, but consist rather of controlling whether e.g. an environmental management system has been put in place that works adequately. According to regulators, this target based regulatory system has led to an increasing responsabilization of industry and to increasing safety levels, especially in places like the Netherlands and Norway.<sup>1450</sup> Moreover, in the Netherlands there is equally experience

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<sup>1443</sup> See Faure and Van den Bergh (1987), 110-111.

<sup>1444</sup> Interview with representative from ExxonMobil on 19 February 2013 and with representatives from Shell International on 26 March 2013.

<sup>1445</sup> They presented the example of the application of the European Emission Trading Scheme (ETS) to aviation, in which case EU regulation was globally out of context.

<sup>1446</sup> Interview with representatives of Shell of 14 March 2013.

<sup>1447</sup> Ibid.

<sup>1448</sup> Ibid.

<sup>1449</sup> See e.g. the opinion of Mr. Jan de Jong, Inspector-General of the State Mines, interview on 22 February 2013.

<sup>1450</sup> Ibid.



with voluntary agreements. In 1995 a so-called industry-wide agreement was concluded whereby industry bound itself to voluntarily reduce pollution levels. This led to spectacular results since for all parameters on which there was agreement. Since 1995 pollution has indeed decreased. Representatives of regulators hence hold that the covenant worked very well and proved to be able to reduce pollution levels. The only reason it stopped functioning was that the environmental ministry did not want to be engaged in a covenant any longer. The simple reason was that there had been a general policy change as a result of which the environmental ministry in the Netherlands no longer concluded environmental agreements.<sup>1451</sup> At that time, the covenant was signed by all actors and hence not only by the majors. The covenant hence covered the entire market. Although the covenant no longer exists, there still is room for discussions with industry within an “Overlegorgaan Olie en Gas” (OOG) which provides a framework for industry and the regulator to meet and discuss in an open and transparent manner.<sup>1452</sup>

A representative from the regulator in the UK, however, expressed a small concern concerning the role of the European Maritime Safety Agency (EMSA). It was feared that if EMSA would intervene e.g. controlling offshore installations within Member States territory that a lot of expertise within the Member States would be lost whereas there would be no guarantee that inspectors from EMSA would have similar expertise.<sup>1453</sup> They therefore warned against a loss of the experience and expertise within the inspection agencies at the Member States and moreover argued that it is much more important to also invest in collaboration and mutual learning (via networking) between the various inspection agencies at EU-level. This is already taking place to a large extent.<sup>1454</sup>

### 7.3.7. Policy conclusions

- Based on theoretical starting points, safety regulation should play an important role in the prevention of offshore related risks;
- Liability rules remain important to fulfil a complementary role where safety regulation remains suboptimal or is inadequately enforced;
- Given the informational advantages (especially of the natures in the offshore sector) safety regulation could also take the form of self-regulation or private regulation, but should anyway be supervised by government in a kind of “conditional self-regulation”. The covenant that was concluded in the Netherlands between regulators and industry as well as the collaboration in the UK between Oil and Gas UK and DECC may constitute examples of such a public-private partnership in standard setting;
- It is in the interest of industry (especially those willing to comply with high safety standards) and regulators to have high and stringent safety standards; there is still room for improvement in that respect in the EU;
- The question however arises whether setting those standards should be a task for the EU Commission; it seems preferable that e.g. via EU guidance notes agreements on targets and safety standards are promoted to be concluded between industry (given higher technical knowledge) and (a conglomerate of) national regulators. This recommendation of course to a large extent complies with the creation of the European Maritime Safety Agency<sup>1455</sup> which was precisely established for the purpose of ensuring a high, uniform and effective level of maritime safety and prevention of pollution by ships within the Community as well as ensuring a response to marine pollution caused by oil and gas installations. In addition mutual learning and

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<sup>1451</sup> Ibid.

<sup>1452</sup> Ibid.

<sup>1453</sup> Interview with Wendy Kennedy, Head of Offshore Oil & Gas, DECC on 29 April 2013.

<sup>1454</sup> Ibidem.

<sup>1455</sup> Under Regulation (EC) No. 1406/2002.

collaboration (via networking) between national inspection agencies in the Member States should be encouraged as well.<sup>1456</sup>

#### **7.4. Mandatory financial security**

##### **7.4.1. Criteria for mandatory financial security**

In law and economics research several criteria have been advanced to indicate where mandatory financial security may be indicated. The most important reason for introducing compulsory insurance is insolvency. Insolvency may, however, pose a problem of underdeterrence. If the expected damage largely exceeds the injurer's assets, the injurer will only have incentives to purchase insurance up to the amount of his own assets. He is only exposed to the risk of losing his own assets in a liability suit. The judgement proof problem may therefore lead to underinsurance and thus to underdeterrence. Jost has rightly pointed out that, in these circumstances of insolvency, compulsory insurance might provide an optimal outcome.<sup>1457</sup> By introducing a duty to purchase insurance coverage for the amount of the expected loss, better results will be obtained than with insolvency whereby the magnitude of the loss exceeds the injurer's assets.<sup>1458</sup> In the latter case, the injurer will only consider the risk as one where he could at most lose his own assets, and will set his standard of care accordingly. When he is under a duty to insure and exposed to full liability, the insurer will obviously have incentives to control his behaviour. Via the traditional instruments for the control of moral hazard, the insurer can make sure that the injurer will take the necessary care to avoid an accident with the real magnitude of the loss. Thus Jost and Skogh argue that compulsory insurance can, provided that the moral hazard problem can be remedied adequately, yield better results than under the judgement proof scenario.

Indeed, this economic argument shows that insolvency may cause injurers to externalise harm: they may be engaged in activities which may cause harm and which largely exceed their assets. Without financial provisions, these costs would be transferred to society and would hence be externalised instead of internalised. Such internalisation can be achieved if the insurer is able to control the behaviour of the insured. The insurer could set appropriate policy conditions and an adequate premium. This shows that if the moral hazard problem can be dealt with adequately, insurance even leads to a higher deterrence than a situation without liability insurance and with insolvency. Hence, since insolvency can lead operators to externalize risk and social costs, mandating financial security could force them again to internalize these social costs by paying a contribution or insurance premium.

However, the literature has equally formulated a few conditions and warnings when introduction compulsory financial securities.<sup>1459</sup>

One warning is that the moral hazard problem should of course be controlled. If moral hazard cannot be controlled, the regulator should even consider a prohibition of liability insurance.<sup>1460</sup>

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<sup>1456</sup> This was stressed by various regulators, e.g. for the Netherlands (Mr. Jan de Jong, inspector general of the State Mines in an interview on 22 February 2013) and the UK (Ms. Wendy Kennedy, Head of Offshore Oil & Gas, DECC, in an interview on 29 April 2013).

<sup>1457</sup> Jost (1996). A similar argument has recently been formulated by Polborn (1998) and by Skogh (2000). Skogh has also pointed out that compulsory insurance may save on transaction cost.

<sup>1458</sup> See also Kunreuther & Freeman.

<sup>1459</sup> For a summary of those warnings see Faure (2006).

<sup>1460</sup> So Shavell (1986), 43-58.

Second, if one were only to introduce compulsory *insurance* (as compared to mandatory financial security, which is obviously broader) this should only be done when no restrictions on the insurance market exist. If high concentration would exist, premiums would be too high and this could equally reduce the incentives of insurers to control the moral hazard risk.

Third, from a policy perspective, it may not be wise to limit the duty to provide financial security to insurance. If the policy maker were to introduce compulsory insurance, it would become totally dependent on insurance to fulfil the duty to insure. This could create an undesirable situation whereby insurers would become *de facto* licensors of the industry, which could be questionable from a policy perspective.<sup>1461</sup> That may hence be a strong argument towards a flexible approach, i.e. not to limit the provision of mandatory security necessarily to insurance, but to allow the market itself to suggest a wide variety of financial and insurance instruments, as long as they can guarantee compensation when the accident happens.

#### 7.4.2. Application to the offshore related risks

Above, we have discussed in detail<sup>1462</sup> that there may, especially as far as small and medium size operators are concerned, be a serious insolvency risk especially concerning the larger accidents for which no insurance coverage is generally available on the market, but also for medium size risks. It was equally stated that whereas this insolvency risk may emerge for smaller and medium size operators, this is not necessarily the case for the larger operators (the so-called majors).

This hence calls for a balanced approach at the policy level. Obviously it is not possible to impose a duty to show mandatory security only on small and medium size operators and not on majors (where it may not be indicated). However, this flexibility could be awarded to regulators in Member States when assessing whether the obligation to show financial coverage has been met. Moreover, especially as far as the instruments are concerned, it is necessary to adopt a flexible approach as well, i.e. not to limit the duty to seek financial cover to one particular instrument such as insurance.

#### 7.4.3. Stakeholder assessment

Although, as we showed above<sup>1463</sup> almost all stakeholders agree that there may (depending upon the type of operator and the risks involved) be a potential insolvency risk related to offshore liability the opinions concerning mandatory coverage are, to say the least, balanced. Major operators very well recognize the risk that smaller operators may pose an insolvency risk and hence recognize the regulatory need for them to show financial coverage.<sup>1464</sup> They, however, stress that it remains important, also in a model of mandatory coverage, to apply an effective system of risk differentiation to provide incentives for prevention.<sup>1465</sup> As far as the amount for which coverage has to be provided, a distinction should be made according to a variety of elements, i.e. whether the reservoir is old or new (in which case there may be more or less pressure), whether it is (like in Macondo) a high temperature well (which may increase the risk) or not, and whether there is a presence to the shore (which may increase the pollution risk).<sup>1466</sup> On that basis, regulators could make an assessment of the potential damage and

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<sup>1461</sup> See Monti (2001).

<sup>1462</sup> See 6.1.5.

<sup>1463</sup> See *supra* 6.1.5.

<sup>1464</sup> See interview with representatives of BP on 13 March 2013.

<sup>1465</sup> Interview with representatives of Shell International on 14 March 2013.

<sup>1466</sup> *Ibid.*

hence of the amount that should be constituted as security by the operator. To a large extent, the Oil and Gas UK guidelines on financial responsibility, on which DECC to a large extent relies, recognized this.<sup>1467</sup>

Operators also stress that when assessing the financial viability regulators should not merely look at the operator. Often there are a multitude of licensees and the duty to seek financial coverage may apply to all of them if they operate together in a joint venture. According to the joint venture agreement, co-venturers who act as licensees will often be jointly and severally liable. Hence, it is argued that in order to judge the financial capacity, one should not only address the financial capacity of the actual operator, but also of licensees with whom the operator acts in a joint venture for the particular offshore installation.<sup>1468</sup>

Also representatives of regulators argue that it is important that a future EU regulation should definitely guarantee the ability of operators in EU waters to compensate the damage that could emerge from their offshore installation.<sup>1469</sup> It is equally stressed that in that respect there should be flexibility: coverage should hence not necessarily be insurance.<sup>1470</sup> For example if majors would decide to self-insure, that should not be a problem as long as the adequacy of the provided guarantee is adequately controlled. Mandatory solvency guarantees are, however, very important since the insolvency risk related to offshore liability is quite realistic.<sup>1471</sup>

However, it is well-known that, as was also noticed in the preparation to the ELD, (a part of) the insurance sector is strongly opposed against making coverage mandatory. One reason is that each risk should be assessed on its own merits; a second reason is that mandatory security can negatively influence moral hazard. If, however, Member States would like to introduce mandatory security, it is important that traditional insurance principles are adhered to. But the insurance industry generally opposes to a mandatory scheme at a European level.<sup>1472</sup>

In order to decide on whether compulsory insurance is feasible, information is needed from several aspects: an established market with data on claims, a minimum number of insurers for competition, standardized accidents, stable risk profile.<sup>1473</sup>

What is important is not the mandatory insurance itself, but rather how to have in place a supplementary and emergency funding ensuring a response to failures of companies and insurance.<sup>1474</sup>

Also other representatives hold that one should not forget that some of the major oil companies are large financial players. Hence, it would be wrong to force them (via compulsory security) to transfer their risk to an insurer that may potentially be weaker.<sup>1475</sup>

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<sup>1467</sup> Ibid.

<sup>1468</sup> Discussion with OGP on 25 February 2013.

<sup>1469</sup> Interview with Mr. Jan de Jong, Inspector-General of the State Mines, 22 February 2013.

<sup>1470</sup> OGP expressed it as follows: "The key issue for the oil and gas industry is the flexibility for each company to choose how best to demonstrate financial security. A one-size-fits-all approach for meeting financial responsibility does not work for such a diverse industry as the oil and gas sector", letter of the International Association of Oil & Gas Producers (OGP) to Michael Faure of 13 May 2013.

<sup>1471</sup> Ibid.

<sup>1472</sup> Interview with Swiss Re, 11 February 2013.

<sup>1473</sup> ELD Fund Workshop, 7 November 2012, opinion given by Carmen Bell from Insurance Europe, referred to the ELD Fund.

<sup>1474</sup> ELD Fund Workshop, 7 November 2012, opinion given by Alexandra Vakrou from DG Environment in the context of ELD Fund.

<sup>1475</sup> Interview with Phil Bell, 26 February 2013.

Insurers are generally opposed to mandatory financial security. This was especially the case at the time of drafting the ELD when there was only a small number of players in the market. Since 2004, some insurers have developed product aiming at coverage of environmental damage. However, it are mostly US insurance companies providing cover to Western European enterprises. In Central and Eastern European member states, there is *de facto* no (substantial) insurance coverage for environmental damage available. It is argued that those differences would constitute a serious problem since a level playing field would be lacking.<sup>1476</sup> Some cases (especially in Central and Eastern Europe) also showed serious insolvency risks. E.g. after the Hungarian toxic sludge event it appeared that the company had an environmental impairment insurance with a very low limit. Obviously, the amount of personal injury claims in the east may be substantially lower than in the west, but it also shows important differences and the lacking of a playing field in this respect.

Strikingly, the major international reinsurer, Munich Re, argued in fact not to be opposed to mandatory insurance whatsoever. They argue that the traditional opposition of insurers against compulsory insurance is to some extent strange. If one is the producer of toothpaste one should normally be happy if the government were to make the use of toothpaste mandatory. However, insurers often have the fear that compulsory insurance may lead to problems or e.g. the duty to accept bad risks. The advantage of compulsory insurance is that it excludes adverse selection since all have to be included in the pool. Munich Re itself is surely not against compulsory insurance. Some of the opposition of traditional insurers seems, according to them, to some extent to be irrational.<sup>1477</sup> Also Lloyds does not seem opposed against mandatory security on the condition that the amount imposed as security by the regulator can be available in the long term. Regulators often forget that the market is very volatile. For example the fact that through a broker in one year 500 mio. US\$ could be made available in cover does not guarantee that the same amount would still be available the next year.<sup>1478</sup> Unexpected events that seemingly are not related to maritime or offshore risks can still influence the available cover. For example even the Boston bombing affected the maritime insurance market since there was apparently maritime cargo in some warehouses that were hit by the bombing as a result of which maritime insurers had to provide cover. That may lead to a reduction of capacity and a reduction of appetite from insurers to provide cover.<sup>1479</sup>

#### 7.4.4. (European) policy issues

The question of course arises whether one should at the policy level introduce mandatory insurance, also when the market would not be able to provide it. There are two different experiences in that respect. When in Germany the German Environmental Liability Act of 1990 (*Umwelthaftungsgesetz*) required the owner of an installation that can cause significant damage to take out liability insurance or to have sufficient financial guarantees this led to substantial problems since the German insurance market apparently refused to cover this risk.<sup>1480</sup> This is hence an example of where policy makers become dependent upon the insurance market that subsequently refuses to provide coverage. There is, however, also an opposite experience in the US with the introduction of mandatory security in the Oil Pollution Act 1990. The literature holds that this legislative duty had an important influence on the market to develop financial products that could meet the regulatory duty.<sup>1481</sup> This was also

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<sup>1476</sup> Ibid.

<sup>1477</sup> Interview with representatives of Munich Re Insurance Company, 12 March 2013.

<sup>1478</sup> Interview with representatives from Lloyds on 1 May 2013 in London.

<sup>1479</sup> Ibidem.

<sup>1480</sup> So Wagner (1991) and Wagner (1992).

<sup>1481</sup> See Boyd (2003), 276-285. However, representatives of the International Group of P&I Clubs (interview in London on 1 May 2013) also held that in the US P&I Clubs refuse to issue financial guarantees under OPA since

reported by several stakeholders: if there were no regulatory duty mandating financial security, it is not very likely that this market would strongly develop.<sup>1482</sup> Moreover, it was also held that a mechanism like OPOL could only emerge in the wake of a regulatory duty to provide mandatory security.<sup>1483</sup> Otherwise, membership of OPOL would have little added value for operators.

These observations hence warrant a careful approach: mandating mandatory security for offshore related risks is important to internalize the externalities that could emerge in case of insolvency; such a duty may also stimulate the development of more financial and insurance products. Moreover, chapter 5 showed that already today OGP's make use of a large variety of existing systems of coverage that are available in the market. Hence, there is no risk (like in the case of the German Environmental Liability Act) that a duty to provide financial cover would remain a dead letter since industry would not be able to meet the duty.

There are, as far as mandating financial security is concerned, a few more interesting observations that were formulated by stakeholders. A representative of a regulator held that it is crucial that the EU would provide a framework for the mandatory security sketching e.g. which particular elements (location, size of the installation etc.) create a necessity for asking a particular amount of cover. Providing at least such a framework at EU level seems crucial. Otherwise there would be a risk that e.g. regulators in some Member States would merely ask very small amounts whereas other regulators would ask very high amounts. This could clearly endanger the level playing field for operators in Europe.<sup>1484</sup> At the same time, it should of course not be the EU who controls whether a particular operator has sufficient guarantees.<sup>1485</sup> After the EU has provided a framework with guidelines, the regulatory authorities in the Member States can verify what type of cover is needed for a particular offshore installation and whether the cover offered by a particular operator is adequate.<sup>1486</sup> Also representatives of a major operator held that an EU wide framework, very much like the Oil and Gas guidelines in the UK, on which DECC largely relies, could be a good example of an approach to be followed in Europe. This would mean that at EU level particular criteria are developed (e.g. in guidelines) indicating what type of cover needs to be required in which circumstances.<sup>1487</sup>

The recent Directive on Safety of Offshore Oil and Gas Operations (Directive 2013/30/EU) also recognizes that financial capabilities of the licence holders, including financial security, are crucial elements to be considered by licensing authorities. The financial capabilities shall be sufficient to cover potential liabilities arising from offshore activities. However, it is realized in the Directive that the existing financial security instruments cannot accommodate all possible consequences of major accidents.<sup>1488</sup>

These observations are strongly in line with the economic reasoning defended in the study. Taking as a starting point that insolvency is a serious risk, creating the market failure of externalization of social costs, some regulatory action mandating financial security is needed. The EU policy maker has clearly already taken up this advice by prescribing in the draft

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they do not like the potentially wide liability under OPA. P&I Clubs hence only provide cover in an indirect way, thus avoiding direct actions by plaintiffs against the P&I Club and still having the possibility to call on particular exceptions in the policy.

<sup>1482</sup> Interview with a representative of Marsh, 8 February 2013.

<sup>1483</sup> Interview with representatives of OPOL, 27 February 2013.

<sup>1484</sup> Interview with Mr. Jan de Jong, Inspector-General of the State Mines, 22 February 2013.

<sup>1485</sup> Interview with Wendy Kennedy, Head of Offshore Oil & Gas, Department of Energy and Climate Change (DECC) 29 April 2013. Since there are huge differences between the Member States and between the situations of particular offshore installations it is better to let regulatory authorities in the Member States take those varying location specific circumstances into account.

<sup>1486</sup> *Ibid.*

<sup>1487</sup> Interview with representatives of Shell International, 14 March 2013.

<sup>1488</sup> Preamble (63) and Article 4.2 of Directive 2013/30/EU.

Directive on safety of offshore oil and gas operations that Member States shall require the licensee to ensure that any operator has the capacity to meet the requirements for specific operations within the framework of the license. A first step towards mandating financial security has hence already been taken. However, from the Commission's perspective this may not be sufficient. The problem could indeed still arise that e.g. regulators in some Member States would require very low amounts of financial cover and would be very flexible and easy going e.g. in accepting proof of self-insurance by the operator. This could lead to a race-to-the-bottom and again endanger internalization of externalities and the level playing field for operators. Hence, the EU level should probably go one step further by also mandating under what type of circumstances particular amounts should be required in security and what type of securities should be deemed sufficient. However, it may be clear that on the one hand the EU wants to mandate this, but on the other hand it would be unnecessary (and probably not within the competence of the EU) to mandate specific amounts on an EU wide basis, nor to prescribe which security would be sufficient in which circumstances. This may, moreover, also very much depend on location specific circumstances. It is e.g. very well possible that a major incident in the North Sea with major damage in the Netherlands would amount to a different type of damage than when the same incident would e.g. occur in the Mediterranean with major damage on Cyprus. That hence calls for some regulatory framework at EU level still allowing sufficient flexibility to regulators at the Member States. An example of this could be a guidance note. We already referred to a similar guidance note on financial responsibility issued within the framework of the Directive on Carbon Capture and Storage.<sup>1489</sup> This guidance note provides information to regulators in Member States on the type of financial security that would be acceptable. In the case of offshore related risks the policy maker could go one step further by following e.g. the example of the Oil and Gas UK guidelines on financial responsibility or any other system of a risk based assessment of the potential damage. Such a risk assessment could then guide the regulator in Member States on the amounts to be required in financial security. Such a guidance would have the advantage that it does what it says to do, i.e. guide local regulators in Member States and at the same time still leaves sufficient flexibility with those Member States to assess the amount and form of financial security in a particular case, taking into account differing location specific circumstances.

#### 7.4.5. Recommendations

- It seems indicated to mandate financial coverage for offshore related risks, especially for the cases where smaller and medium size operators may create a risk of major damage and hence an insolvency risk would emerge.
- To the extent possible, also at the licensing level it should be avoided that operators would engage in offshore operations of which the risks in case of an accident would outweigh their personal assets.<sup>1490</sup> In that case, a joint venture with OGP's with larger financial capacity may be indicated.
- It seems indicated to issue a guidance note at EU level, guiding local licensing authorities in Member States on the required amount and form of financial security for offshore related risks.
- As far as the amount is concerned, this guidance note should be based on an objective assessment of the risk taking into account technical criteria that relate a specific operation and operator to particular amounts of potential damage.
- The guidance should allow sufficient flexibility as far as the forms of financial security are concerned and not necessarily limit those to insurance. The only condition would be that local regulators accurately verify whether the form and amount of the

<sup>1489</sup> European Commission, implementation of Directive 2009/31/EC on the geological storage of carbon dioxide, Guidance Document 4, 2011.

<sup>1490</sup> Note that for example in Greenland the licensing government specifies that companies must at least have \$10 billion of equity to qualify. Emmerson (2012), 41.

- financial security offered by the operator would be adequate to cover the potential damage emerging from that particular offshore installation.
- The guidance could hence take into account location specific circumstances on which local regulators in Member States can base their assessment of the amount and form of financial security.

Such an approach allows sufficient flexibility, avoids unnecessary costs (e.g. forcing majors to transfer risks to lower rated insurance companies), encourages a level playing field for operators and avoids an externalization of social costs (and thus a market failure) in case of insolvency.

## **7.5. A role for government in providing compensation?**

One important policy conclusion so far is that both liability rules and regulation have an important (complementary) role to play in preventing offshore related risks (7.3) and that a balanced system of mandatory financial security can be worked out for offshore related risks (7.5). However, the question can still be asked whether, to the extent that the market would fail, government should intervene in providing compensation. This could (at least theoretically) take a variety of forms. One possibility, often applied in practice in case of catastrophes, is outright compensation of victims by government on an *ex post* basis (7.5.1). Another possibility, becoming increasingly popular, again in the area of (natural) disasters and terrorism is a role for government as reinsurer of last resort (7.5.2). A role that is most often mentioned in environmental liability is the creation of a compensation fund (7.5.3).

### **7.5.1. Direct compensation by government?**

An option that should briefly be discussed as far as government intervention is concerned is to argue that government should provide (part of the) compensation for damage caused by offshore-related risks.

#### *7.5.1.1. Arguments in favour*

Although there are obvious (economic) criticisms that can be formulated (and have been in literature) on this type of government charity there are some positive aspects as well. A positive aspect of government intervention is that the prospects of large-scale payments in the aftermath of an offshore-related disaster might encourage the government to take cost-benefit justified precautions long before disasters strike.<sup>1491</sup> This argument could be made in the case of damage resulting from an offshore-related disaster. The Deepwater Horizon case showed that offshore incidents may cause substantial damage. Often, this can lead to a total disruption of society. Providing *ex post* relief may then help to restore public trust. Moreover, government may be better able to determine adaptation strategies necessary to react against the disaster, at least when compared to potential victims. Think of the example of large infrastructural works which would be necessary to prevent damage resulting from offshore risks (if it were already possible e.g. to *ex ante* invest in prevention). These are typically the public goods that would not be provided through private action and may hence require government intervention.

A related argument in favour of government intervention would be that government has the capacity to diversify the risks over the entire population and to spread past losses to future generations, thus creating a form of cross time diversification, which the market could not

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<sup>1491</sup> See Levmore and Logue (2003), 310.



achieve. The argument can be made that the government can be in a better position to adapt to disasters than individuals.<sup>1492</sup> Hence, in some cases the government may be in the best position to prevent disasters. Government intervention would from this perspective provide incentives to politicians to invest in preventive measures.

Moreover, one could also make the (too easy) argument that government can (in principle) compensate without limits. If the damage would exceed the current budgetary possibilities of the government the already mentioned cross diversification over time and future generations could in principle take place.

#### 7.5.1.2. *Arguments against*

Notwithstanding those theoretical possibilities of government compensation, the argument against such a compensation are compelling as well. The most convincing argument is a very simple one and is precisely the same argument as has been often advanced in the literature related to the international conventions on nuclear liability against government compensation (via the second and third layer). If government de facto provides compensation to victims it effectively provides a subsidy to industry as a result of which industry will be able to externalize the social costs of its activity. The negative consequences of such a subsidization effect are well-known:

- It is no longer the one who causes the accident and creates the risk (i.e. the offshore operator) who has the burden of compensation, but society at large and ultimately the tax payer; that is undoubtedly an undesirable distributional consequence;
- Since operators are not confronted with the total costs related to their activity their level of prevention will be too low and their activity (in this case production) level will be too high. Liability rules can, if government takes part of the compensation for its account, not have their desirable deterrent effect. A too high accident risk and lower levels of safety can be the result;
- As a consequence operators will invest less in safety measures (not being confronted with the total costs of their activity) and will not bear the total damage that could result from their activities. The consequence will be that relative prices are too low which can be considered as a market failure. In that hypothetical case relative prices of oil and gas (especially compared to e.g. renewable energy) would be relatively low since prices would not reflect through social costs. Again, from a social welfare perspective that would be an undesirable result.

#### 7.5.1.3. *Policy recommendation*

On the basis of this reasoning it is clear that direct compensation by government should never be a preferred option to deal with offshore-related damage. That is not to say that there should be no role whatsoever for government in the aftermath of a disaster caused by an offshore-related incident. Relief measures and coordinating disaster management in the immediate aftermath of the disaster are undoubtedly tasks where the government can play an important role. However, an important condition would be that if steps would be taken, either in clean-up e.g. of polluted beaches or providing immediate relief to victims, that via liability rules the price for those interventions are ultimately allocated to the liable operator. This corresponds to sound economic principles of costs internalization and to the polluter-pays-principle.

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<sup>1492</sup> This argument has been strongly made by Kunreuther and Michel-Kerjan (2004).

It should also be stressed that none of the stakeholders we interviewed held that a (partial) compensation by government would be a desirable option to deal with the compensation of offshore-related damage.

### 7.5.2. Reinsurer of last resort?

In various legal systems an interesting model has been developed whereby the government acts as reinsurer of last resort. Under this approach of government involvement, the State assumes at least part of the risk for losses from catastrophes. Even though government intervention is required (since the private insurance market cannot provide adequate catastrophe insurance coverage), the underlying philosophy of this approach is that private insurance should keep on playing a significant role in allocating compensation for victims of catastrophes. This option then usually takes the form of a multi-layered insurance program. Such a program is normally administered by private insurance companies, meaning that they sell insurance, collect premiums, and pay claims.

#### 7.5.2.1. Arguments in favour

There can indeed be arguments to favour such a reinsurance by government, assuming that capacity on the private insurance market is indeed severely falling behind, it can be held that without State intervention, insurance coverage for disasters would simply not have developed.<sup>1493</sup> Reinsurance by the State can then be considered as an adequate method to resolve the uninsurability problem.<sup>1494</sup> A condition is of course that the government charges an actuarially fair premium for its intervention.<sup>1495</sup> This type of government intervention has, moreover, the advantage that *ex post* relief sponsored through the public purse can be avoided. Where the government acts as reinsurer, this at least has the advantage that a premium can be paid by those who actually cause or run the risk. It can thus facilitate market solutions, still provide incentives for prevention to potential victims and avoid the negative redistribution discussed above.<sup>1496</sup> Thus a State intervention as reinsurer may avoid the “catastrophic responses to catastrophic risks”.<sup>1497</sup>

Kunreuther and Michel-Kerjan also argue in favour of this type of government provided reinsurance. They argue that one advantage is that the government has the capacity to diversify the risks over the entire population and to spread past losses to future generations, thus creating a form of cross-time diversification which the private market could not achieve.<sup>1498</sup> On the other hand, they argue that, especially as far as terrorism is concerned, government participation in insurance programs is crucial since the risk of terrorist attacks is partly in the government’s control and the government can have more information on ongoing terrorist groups’ activities through intelligence services.<sup>1499</sup>

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<sup>1493</sup> This is a point strongly made by Kunreuther (1996), 180-183; Harrington (2000); as well as by Schwarze and Wagner (2004).

<sup>1494</sup> These public-private initiatives to cover extreme risks are also supported by OECD recommendations. See Monti (2012).

<sup>1495</sup> Faure (2007), 358.

<sup>1496</sup> See *supra* section 7.1.2.

<sup>1497</sup> Epstein (1996). See in this respect also Kunreuther and Pauly (2006), 113 (arguing that this government’s role in assisting the supply side allows avoiding the inefficiencies and inequities associated with disaster assistance).

<sup>1498</sup> See Kunreuther and Michel-Kerjan (2004), 210.

<sup>1499</sup> Kunreuther and Michel-Kerjan (2005).

### 7.5.2.2. *Arguments against*

Both in law and economics as well as in legal scholarship criticisms have been formulated on the facilitative role of a government stimulating insurance markets. For example, Gron and Sykes argue in several papers that it would be unjust for the government to provide (re)insurance at a lower price than the market price.<sup>1500</sup> This would give a wrong signal to the market as far as stimulating insurability is concerned. The authors would prefer *ad hoc* solutions whereby compensation is provided to accident victims on an *ex post* basis. This would avoid the situation that market participants are aware that the government will anyway guarantee compensation.

It is striking that most of this criticism is not addressed against the intervention of the government as such, but is based on the assumption that the government will not ask premiums that reflect market prices. It is a criticism shared by Levmore and Logue, who argue that such a regime (of acting as reinsurer of last resort) only has its desired effect of encouraging the purchase of commercially provided terrorism coverage when it involves a substantial subsidy.<sup>1501</sup> They are sceptical of these types of interventions in the market (for terrorism insurance) arguing that, also without government intervention, “the market would likely have been able to provide the necessary coverage”.<sup>1502</sup>

Apparently, the arguments against government intervention are based on the assumption that the government will not ask competitive reinsurance premiums, hereby subsidizing catastrophe insurance. Moreover, without this government support, insurance coverage could have probably developed anyway (at least for terrorism events). Those points can of course only be validated on the basis of empirical research.

A role of government as reinsurer of last resort can in practice in fact only be observed in situations where normal third party (liability) insurance is not available. Usually it concerns cases where there is no liable injurer at all (typically the case of natural hazards) or where an injurer typically has no insurance or will be judgment proof (the case of terrorism). Models of government acting as reinsurer of last resort can therefore mostly be found in the domains of terrorism and insurance of natural hazards.

The current schemes for terrorism insurance in France (GAREAT), Germany (Extremus), the UK (Pool Re), the Netherlands (the Dutch Terrorism Risk Reinsurance Company, NHT) and the US (the Terrorism Risk Insurance Act, TRIA) all have features of a government acting as a reinsurer of last resort, at least in general terms.<sup>1503</sup> For natural hazards a well-known example is the Caisse Centrale de Réassurance or CCR as it functions in France. Insurers can reinsure the risk of natural hazards with this CCR which benefits from a state guarantee in the event that the CCR exhausts its resources.

### 7.5.2.3. *Policy recommendation*

However, for the case of offshore-related damage the arguments in favour of such an intervention by government as reinsurer of last resort do not seem very compelling. One important condition for such an intervention would be that a market solution is largely failing. That may be the case for terrorism and natural hazards<sup>1504</sup> but it is doubtful that this is the case for third party liability risks created by industry generally and related to offshore

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<sup>1500</sup> See Gron and Sykes (2002) and Gron and Sykes (2003).

<sup>1501</sup> Levmore and Logue (2003), 304 (arguing that otherwise disaster insurance would still not be “available”).

<sup>1502</sup> Levmore and Logue (2003), 311.

<sup>1503</sup> See Jaffee (2004).

<sup>1504</sup> For further details see Bruggeman, Faure and Heldt (2012).

activities more specifically. Uninsurability on traditional insurance markets may only arise for the third category of incidents (with a damage above 750 mio. Euros) which may not or be difficult to insure on the traditional commercial insurance market. However, as we have explained above, various proposals have been formulated by commercial entities to create market solutions which would enable coverage also for these disastrous types of offshore-related incidents. In this respect we can refer both to the proposal formulated by Noble Energy<sup>1505</sup> as well as to the proposal formulated by Munich Re.<sup>1506</sup> Even though these proposals may not have materialized yet the regulatory answer to that would obviously not be an intervention of government as reinsurer of last resort but rather a duty imposed on industry to provide adequate coverage<sup>1507</sup> as a result of which industry will and shall develop market solutions to provide appropriate coverage. Also stakeholders reported that they hold that providing reinsurance is a task of the commercial market and not of government.<sup>1508</sup> There is also criticism on the fact that these public-private partnerships in practice do not always work in the way they should, more particularly because government may have the tendency to shift too much of the costs to private insurers.<sup>1509</sup> Hence, notwithstanding the advantages of this model in the area of terrorism and natural hazards, for offshore-related risks there is no reason yet to discuss the option of an intervention of government as reinsurer of last resort since it has not been shown that market solutions providing adequate coverage could not be developed.

### **7.5.3. A compensation fund?**

#### *7.5.3.1. Funds versus insurance*

If one applies the general principles of efficient and fair compensation mentioned above,<sup>1510</sup> the two main criteria to distinguish whether a fund would do a better job than insurance relate to the capacity to apply risk differentiation and to the costs.

Applying the principles discussed above, there are not many reasons why, if both are – in theory – available, a compensation fund would provide better protection against insolvency than the private insurance markets. One can assume that an insurer is better able to differentiate risks since it is specialized in risk differentiation and risk-spreading. Insurers therefore possess techniques for determining in what way insured parties contribute to the risk. Obviously this assumes that insurance markets are competitive. In the absence of competition on insurance markets, either the supply of insurance coverage could be too limited or premiums could be excessively high, which could justify a preference for a compensation fund.<sup>1511</sup> But if insurance markets are competitive, insurers can be assumed to be better able to deal with classic insurance problems such as moral hazard and adverse selection than the administrators of a compensation fund. One cannot see as a matter of principle why a government agency running a compensation fund would have better information on risks than an insurer. This might, however, be different if highly technical systemic risks are involved where operators of certain facilities are in a much better position than the insurance company to monitor each other. Some examples have been given above. This point has been made for instance concerning the compensation for nuclear damage and for offshore-related risks as

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<sup>1505</sup> See *supra* 6.3.3.

<sup>1506</sup> See *supra* 6.2.2.

<sup>1507</sup> As we have equally argued in 7.4.

<sup>1508</sup> Not surprisingly this was formulated by the largest reinsurer in the World: Munich Re (interview with representatives of Munich Re in Munich on 12 March 2013).

<sup>1509</sup> So Dr. Anselm Smolka of Munich Re at a conference on regulating disasters through private and public law, Haifa 16 June 2013.

<sup>1510</sup> See 7.1.

<sup>1511</sup> Faure and Van den Bergh (1995).

well. One could argue that a risk-sharing agreement between offshore operators could lead to optimal monitoring between the operators since they would possess much better information on prevention, good and bad risks than an insurance company would.<sup>1512</sup> In maritime insurance too, the Protection and Indemnity Clubs already discussed, which are based on mutual risk-sharing between tanker owners, play a crucial role.<sup>1513</sup> With respect to these highly specialized matters, one could therefore argue that the operators themselves might in some cases be better equipped than an insurance company to control moral hazard since they are better able to process information on the particular risk. However, the examples given show that these risk-sharing agreements do not involve the use of a government-run compensation fund.

In sum, if both insurance and compensation funds are available, there are no clear reasons why a fund would be the preferred solution. There may, however, be reasons why insurance may not provide coverage for certain risks. In that case, funds cannot be compared with insurance since insurance is not an alternative. However, as we have shown in chapter 3, one should not conclude too quickly that offshore related risks are uninsurable. In fact, we showed that they are insurable to relatively high amounts.<sup>1514</sup>

Comparing insurance with compensation funds one should also address the comparative costs of both instruments. Insurance will generally be cheaper because liability insurance policies are not concluded for one activity, but for a whole set of risks. There is hence one insurance policy with transaction costs that are incurred once and an administrative structure within an insurance company that will be forced to an adequate cost reduction by competitive pressures. The costs of risk spreading might also be lower with an insurance company than with a compensation fund. Insurers are specialized in acquiring information on differentiation of risks. In addition, it has been argued in the literature that insurance make possible a reduction in transaction costs between contracting parties because they can *ex ante* agree on a distribution of risks and losses in case of an incident.<sup>1515</sup> The comparison will obviously also depend upon the type of compensation fund under discussion. In most cases one immediately thinks of a compensation fund run by a regulatory authority. But then one can of course refer to the literature on the negative effects of bureaucracies to argue that such a publicly-operated compensation fund would not necessarily provide compensation at lower costs than the private insurance market. This can be reduced if the fund is administered privately, but in that case competition with other funds has to be organized in order to provide incentives for cost reduction.

Hence, if a fund were to replace the liability and insurance system, it is not so clear that it would have cost advantages. It could only play a role in an upper layer, e.g. when insurance would not be available. In our case that would be for the third layer, with expected damage above the insurable amount of 750 mio. Euros.

#### 7.5.3.2. *Economic principles to shape a fund*

If one were to create a fund, there are a few general principles, strongly in line with the principles mentioned above<sup>1516</sup> that should be followed for the fund still to create efficient incentives for prevention.

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<sup>1512</sup> See Faure and Skogh (1992) and Faure (1995). See also the arguments formulated above in section 4.1.

<sup>1513</sup> See Coghlin (1984). See also *supra* section 4.6.

<sup>1514</sup> See *supra* 5.4.2.3.

<sup>1515</sup> This argument has been made by Skogh (1989).

<sup>1516</sup> See *supra* 7.1.

*First* of all, it seems important that a fund should have a subsidiary character, meaning that whenever other solutions are available (tort law or insurance), victims should be forced to use these first. Thus at least some guarantee can be given that incentives for victims to look for other solutions will be maintained and that they will not merely free ride on the fund. Obviously such a “subsidiary character” will be more important where a third party can be held liable (as with technological disasters) than where no liable party can be indicated (in the case of natural disasters). Moreover, the mere existence of the fund can, as was rightly indicated by Epstein,<sup>1517</sup> dilute the incentives to develop insurance solutions. Therefore, the requirement that if insurance is available this must be used first may not mean a lot in practice where structural funds exist. Indeed, why should the potential victim pay a premium for insurance coverage if there is certainty of an *ex post* payment through the public purse?

*Second*, if nevertheless a payment is made through a compensation fund, that fund should be subrogated in the rights of the victim against potentially liable third parties. Indeed, it may be that for political reasons (or out of sympathy for the victim), the fund manager does not consider it reasonable to expect the victim first to use the liability system.<sup>1518</sup> If in those cases compensation is paid notwithstanding the potential of a claim in tort, the fund should be subrogated in the rights of the victim in order to provide adequate incentives for prevention for the wrongdoer.

*Third*, as far as the financing of the fund is concerned, this should ideally be organized in such a way that those who contributed to the risk also finance the compensation fund. If one were to organize a fund for offshore-related damage the way it would be realized would for example be through a tax on the oil and gas produced via offshore platforms. The problem with a tax, however, is that this is often merely related to the amount of oil or gas extracted from a particular well and not related to the investments in preventive technologies taken by particular operators. A flat tax would thus not include any risk differentiation and hence not provide sufficient incentives for prevention of risks. For a tax to provide accurate incentives the tax should normally be differentiated in such a way that those operators adopting high safety standards contribute less to the fund than those operators creating higher risks. However, for the manager of a fund to differentiate risks in such a way may be very complicated. In practice fund solutions are usually financed on a flat rate basis, as a result of which they lack any positive incentive effect.

Finally, in order to keep at least some incentives with potential victims of an offshore related incident, it would be important that the compensation fund does not provide full coverage so that victims themselves are still partially exposed to the risks. This is – as well-known – one of the classic remedies against moral hazard.<sup>1519</sup> This could be reached either by applying a deductible, or by applying standardized forms of compensation (which are usually lower than full compensation). However, insurers are generally better able to control moral hazard than a government-operated fund.<sup>1520</sup>

#### 7.5.3.3. *Experiences with environmental funds*

This shows that there are many conditions that need to be fulfilled in order to construct a fund in accordance with economic principles. Insurance is often better able to apply principles of risk differentiation and cost minimization and moreover it may be difficult in practice to ask risk related contributions to the fund. That may explain why in practice in Europe there is not

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<sup>1517</sup> Epstein (1996).

<sup>1518</sup> Using tort law to obtain compensation can indeed be very costly and take a long time.

<sup>1519</sup> Shavell (1979).

<sup>1520</sup> Priest (1996) and Zeckhauser (1996).

much experience with compensation funds. However, recently the Environmental Fund has been again put on the political agenda.

#### 7.5.3.3.1. The Hungarian proposal

Indeed, in 2011, Hungary proposed the establishment of a European Union Industrial Disaster Risk-Sharing Facility to be funded by an annual contribution from targeted industries and companies. This proposal was partly in response to a major industrial accident near Kolontár, Hungary in 2010.

Based on the proposal of the Hungarian government, the Commission published a consultation paper through Bio Intelligence Services at the end of October 2012.<sup>1521</sup> It seeks to examine the feasibility of establishing a fund to address liabilities to resulting from major industrial accidents involving pollution.

The main purposes of this fund would be to respond quickly in the event of a major industrial accident in order to relieve the suffering of persons harmed by a disaster, to remediate environmental and/or traditional damage, and to prevent further damage. In the Hungarian proposal, the facility would respond if traditional and environmental damage from a major industrial accident exceeds €100 million, that is, above a level for which funding is not otherwise available.<sup>1522</sup>

A secondary purpose of the facility would be to limit the financial exposure of each company in any of the targeted industrial sectors to €100 million. It is argued that this limit of liability would not only benefit the operator/company that caused the accident; it would benefit employees who might otherwise lose their jobs due to the company becoming insolvent due to its inability to pay all the costs of the traditional and environmental damage. Member States would also benefit because they would not be called on to bear costs that the company could not pay due to insolvency.<sup>1523</sup>

In the Hungarian proposal, the fund would integrate three functions:

1. Pre-financing tool to give immediate access to funding and relief to communities;
2. Second tier of insurance (private insurance up to a point, then the facility would intervene);
3. Unspent resources to support companies, particularly SMEs, to invest in safety and prevention.

As such, proponents anticipate a positive economic impact on national budget and citizens, a provision for improved safety and enhanced prevention measures in companies, a wide range of damages covered (besides economic activity also human health and property) and a complement to private insurance, which could reduce costs for industry.<sup>1524</sup>

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<sup>1521</sup> Bio Intelligence Service et al., Study to explore the feasibility of creating a fund to cover environmental liability and losses occurring from industrial accidents, Final Report prepared for the European Commission, DG ENV, 25 March 2013.

<sup>1522</sup> Bio Intelligence Service et al., Study to explore the feasibility of creating a fund to cover environmental liability and losses occurring from industrial accidents, Final Report prepared for the European Commission, DG ENV, 25 March 2013, executive summary.

<sup>1523</sup> Bio Intelligence Service et al., Study to explore the feasibility of creating a fund to cover environmental liability and losses occurring from industrial accidents, Final Report prepared for the European Commission, DG ENV, 25 March 2013, executive summary.

<sup>1524</sup> Bio Intelligence Service et al., Study to explore the feasibility of creating a fund to cover environmental liability and losses occurring from industrial accidents, Final Report prepared for the European Commission, DG ENV, 25 March 2013, executive summary.

The idea is inspired by Sweden's and Finland's Environmental Damage Insurance which aims to guarantee full compensation for environmental damage, including the costs of measures taken to prevent or limit the damage and to restore the environment to its previous state, in cases where those liable for compensation are insolvent, or the liable party cannot be identified.

#### 7.5.3.3.2. Environmental funds in Sweden and Finland

Both Sweden and Finland have established pollution clean-up funds financed by compulsory insurance payments for high risk activities to finance the restoration of orphaned sites and compensate personal and property damage where the liable party is unknown or insolvent.<sup>1525</sup> The scheme is financed by special premiums which are compulsory for operators of high-risk activities subject to environmental permits. In practice, the schemes amount to a levy, partially calibrated to reflect the risk of the activities engaged (e.g. type and scale of the hazardous activity). The Finnish and the Swedish example are thus a safety net to address those circumstances where ordinary liability and insurance mechanisms will not work. The Swedish and Finnish Environmental Damage Insurance are an example of a direct insurance against pollution damages for the benefit of a third party.<sup>1526</sup> In practice, these funds have not played an important role. In its first 10 years of operation, no claims were indemnified by the Swedish insurance fund.<sup>1527</sup>

#### 7.5.3.3.3. Stakeholders opinions on an environmental fund

Stakeholders were consulted to determine if and how operators and the financial/insurance sector could be engaged in the development and implementation of a potential scheme. Yet, it appears that most stakeholders and certainly the insurance industry appears is not keen of the idea.<sup>1528</sup>

Major objections and concerns with respect to the creation of a Fund are<sup>1529</sup>:

- Concerns that the fund or scheme would not include risk assessment and mitigation;
- Potential to hinder the development of the environmental insurance market;
- Implications of the interaction between existing national funds and a new EU fund;
- Legal clarity on the definition of the baseline condition;
- Ensuring that a fund or scheme does not hinder the polluter-pays principle;
- Moral hazard concerns connected with the creation of an EU fund;
- Operation in Member States with widely differing economies, industries, legal liability regimes, history of environmental claims and approaches to such risks;
- Lack of a suitable impact assessment or case having been made;
- General concerns about possible over-regulation of industry.

The insurance industry fears that the creation of a fund would be a backward step in terms of risk management. The insurance industry fears that such funds do not encourage operators to take measures to reduce environmental risks beyond what is legally required.

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<sup>1525</sup> For Sweden, see Swedish Environmental Code, Chapter 33. Environmental damage insurance and environmental clean-up insurance. For Finland, see Environmental Damage Insurance Act, 81/1998.

<sup>1526</sup> Bocken (2002), 38-39.

<sup>1527</sup> Richardson (2002), 370-371.

<sup>1528</sup> Insurance insight at <[www.insuranceinsight.com](http://www.insuranceinsight.com)>, Barrett, S., *European environmental liability options*, 10 January 2013, accessed on 23/04/2013.

<sup>1529</sup> Bio Intelligence Service et al., Study to explore the feasibility of creating a fund to cover environmental liability and losses occurring from industrial accidents, Final Report prepared for the European Commission, DG ENV, 25 March 2013, executive summary.



A fund could reduce the incentives for business to take responsibility for the consequences of their activities, as the mechanism proposed for the fund would give no credit for prevention efforts or a good claims history. As such it is contrary to the polluter pays principle established in the ELD.<sup>1530</sup>

Next, logistic issues in the organization of such a fund may arise. Not only the administration of the fund and how it will operate might cause problems, but also with respect to the claims problems might be expected. What if there are multiple events in a year? Or several close together? In such case, there might be not enough money.<sup>1531</sup>

An important point of concern is the start-off point of the fund. The Hungarian proposal sets the attachment point at €100m euro but insurers are not happy with this idea. It is anticipated that 99% of the claims fall below €100m euro. However the insurance industry points to the danger that this figure might drop to a point where companies don't take risk management seriously anymore.<sup>1532</sup>

Moreover, with this attachment point, some companies might benefit more than others. It might bring unfair advantage to companies with particularly large exposures which could, in theory, derive far more benefit from a fund than those with smaller exposure. For example, it would not be feasible to require SMEs to obtain financial security that exceeded their total assets. That is, it would not make sense for an operator with assets of €10 million to pay a levy into a fund or scheme that was not triggered until €100 million. Such an operator would never benefit from the fund or scheme. Instead, only the largest companies would benefit, which has clear fairness implications. There is, therefore, an issue of the limited number of companies that would be required to pay into the fund. A threshold of €100 million suggests that this number would be very limited.<sup>1533</sup> On the other hand, lowering this figure might cause problems of moral hazard, less preventive precaution and measures by the industry and would be against the polluter pays principle.

The last proposed function of the fund (supporting companies with unspent resources for safety investments) furthermore seems to trigger moral hazard problems and companies might postpone safety investments as they might get a subsidy for it. At the same time, it would penalise companies that have already invested in such improvements.

According to the insurance industry, it is better to raise awareness of insurance. A fund should only exist where there is no insurance market. The insurance market or environmental damage is developing in the EU, and the creation of a fund risks to undo the progress in this field. A fund would interfere with the development of the insurance market.<sup>1534</sup>

The Bios report therefore concludes that the purpose of the fund or scheme must be clearly identified and agreed. It must be clarified whether its purpose is to compensate victims of a major accident for bodily injury, property damage or economic loss suffered by them; to provide emergency funding to respond to an industrial accident; and/or to remediate environmental damage. The fund or scheme is only likely to gain acceptance subject to

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<sup>1530</sup> Insurance insight, at <www.insuranceinsight.com>, F. Nyman, *Ferma opposes environmental liability fund*, 30 November 2012, accessed on 23/04/2012.

<sup>1531</sup> Insurance insight at <www.insuranceinsight.com>, Barrett, S., *European environmental liability options*, 10 January 2013 accessed on 23/04/2013.

<sup>1532</sup> Insurance insight at <www.insuranceinsight.com>, Barrett, S., *European environmental liability options*, 10 January 2013 accessed on 23/04/2013.

<sup>1533</sup> Bio Intelligence Service et al., Study to explore the feasibility of creating a fund to cover environmental liability and losses occurring from industrial accidents, Final Report prepared for the European Commission, DG ENV, 25 March 2013, p. 57.

<sup>1534</sup> Insurance insight at <www.insuranceinsight.com>, Barrett, S., *European environmental liability options*, 10 January 2013 accessed on 23/04/2013.

agreement on whether a fund or scheme needs to be established for such purposes and, if so, industrial sectors to be covered by it, the level of the threshold for the fund or scheme, and many other details concerning its design.<sup>1535</sup>

Stakeholders' reactions indicate that the creation of a fund or scheme to limit the financial exposure of a liable operator is not very likely to be accepted by stakeholders for reasons such as the potential for moral hazard, conflict with the polluter-pays principle or practical reasons such as feasibility of a (€100 million or other) threshold. On the other hand, using the fund to pay for orphaned sites is more likely to be acceptable. The ELD does not require Member States to remediate environmental damage if the liable operator does not do so. Depending on the nature or location of the damage, however, a Member State may consider that it has no option but to remediate the damage. The fund could provide useful financial help in such circumstances. The compensation of victims of the disaster in the event that the liable operator cannot do so would also seem likely to be supported. Stakeholders also indicated that the use of a fund or scheme to provide grants to operators to pay for measures to improve pollution control equipment or safety at their installations is also much less likely to be acceptable due to various implications of such grants, such as a perceived potential to penalise companies that have already invested in such improvements.<sup>1536</sup>

Therefore, the necessity and desirability of such a fund, and its purposes would have to be carefully examined. If the purposes and functions of the fund are not well defined, the fund could have negative effects, rather than contributing to the protection of the environment. If there would be a political agreement to create an environmental compensation fund, the design, management and implementation of the fund would therefore also need to be given careful consideration in order to ensure that the fund operates effectively and efficiently. Hence, also as far as the creation of an environmental fund is concerned many stakeholders raise important objections as a result of which the environmental fund does not really constitute an example on which one could draw as far as offshore-related damage is concerned.

#### 7.5.3.4. *A fund for offshore-related risks? Stakeholder opinions*

Not surprisingly most stakeholders, whether they are operators, regulators or insurers, are strongly opposed against any type of fund solution. Operators hold that all problems that are currently experienced in OIL/OCIL and OPOL (insufficient risk differentiation and too much mutualization according to the majors) would only be exacerbated. Probably the contributions to the fund would be based on a flat rate tax and would hence miss any element of risk differentiation and thus of incentives for prevention.<sup>1537</sup> Not surprisingly, this is also the opinion of representatives of OGPs.<sup>1538</sup> Also representatives of regulators are opposed against a compensation fund for the simple reason that it *de facto* creates negative redistribution: bad risks benefit more and good risks contribute more relative to the risk they pose.<sup>1539</sup> Where available, they would be in favour of insurance, since insurance allows risk differentiated premiums, thus providing incentives for prevention and avoiding negative redistribution. A

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<sup>1535</sup> Bio Intelligence Service et al., Study to explore the feasibility of creating a fund to cover environmental liability and losses occurring from industrial accidents, Final Report prepared for the European Commission, DG ENV, 25 March 2013, executive summary.

<sup>1536</sup> Bio Intelligence Service et al., Study to explore the feasibility of creating a fund to cover environmental liability and losses occurring from industrial accidents, Final Report prepared for the European Commission, DG ENV, 25 March 2013, executive summary.

<sup>1537</sup> Interview with representatives of BP, 13 March 2013.

<sup>1538</sup> Discussion with OGP on 25 February 2013.

<sup>1539</sup> Interview with Mr. Jan de Jong, Inspector-General State Mines, 22 February 2013.

fund solution without risk differentiation would not provide correct psychological incentives.<sup>1540</sup>

Similar opinions are heard from insurers. When referring to an environmental fund, they quickly recall the example of Superfund in the US where 40% of the Superfund money went to lawyers involved in litigation.<sup>1541</sup> Moreover, an environmental fund in the EU would undermine the polluter-pays principle. Politically, it is therefore not a wise idea. Moreover, insurers may, if a fund were to exist, be inclined to refer insured or victims to the fund and argue that they first have to try and obtain compensation from the fund. The result may hence be (like in the US) that the fund would give rise to a huge amount of litigation. Moreover, a fund will usually be financed by a levy on e.g. all OGP's. In that case, it would amount to a tax on the good risks that are compensating bad risks since risk differentiation would be absent. Also the examples in the EU of environmental funds, more particularly Sweden and Finland, were, as we just discussed, not considered a success. They were both extremely costly and only led to substantial transfers of money without any claims. As a result of that, the Swedish fund even closed down.<sup>1542</sup>

With respect to environmental funds for offshore liability, it is also mentioned by stakeholders that one cannot compare with the compensation funds that do exist, both at the international level<sup>1543</sup> and in the US<sup>1544</sup> for vessel induced pollution. A major difference with the fund solution for vessel-based pollution is that in that case the fund only intervenes on top of the limited liability of the tanker owner under the CLC.<sup>1545</sup> Moreover, the way the compensation is structured (both in the international regime and under the US OPA) is that two parties contribute: the shipping industry (tanker owners) contribute a limited amount according to their liability and oil receivers contribute (via a flat tax) on oil received to the compensation fund. The compensation regime for vessel-based solution is hence typically the result of a compromise whereby two parties (shipping industry and oil industry) contribute.<sup>1546</sup> Such a compromise is impossible in the case of offshore related risks because there is only one party involved, i.e. oil and gas producers.<sup>1547</sup>

It is feared that, also differently than in the case of vessel-based pollution, the number of companies engaged in offshore installations is relatively small as a result of which the number of contributors would be small as well. Moreover, with a generalized offshore pollution fund the moral hazard that would be created through such a *de facto* tax would be huge.<sup>1548</sup>

These arguments seem rather compelling as a result of which we do not see a lot of scope for introducing a fund solution for offshore related risks. It seems preferable, given the necessity of a compensation mechanism to provide incentives for prevention, to rely on insurance and other mechanisms where contributions can reflect risk. The only role one could imagine for a compensation fund would be as an upper layer e.g. beyond 750 million euro or any limit on the insurance amount available in the market. However, not only would this create a very complicated system to administer. In the second layer, there would be no risk related contributions and hence no positive effect on incentives. Moreover, it would *de facto* mean that operators would have to pay twice: first for insurance or contributions to a guarantee or

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<sup>1540</sup> Ibid.

<sup>1541</sup> Interview with Phil Bell on 26 February 2013.

<sup>1542</sup> Ibid.

<sup>1543</sup> Discussed *supra* in 4.4.2.

<sup>1544</sup> See *supra* 4.5.

<sup>1545</sup> Interview with representatives of BP, 13 March 2013.

<sup>1546</sup> See for the history of the international regime of marine oil pollution compensation Wang (2007), 197-241 and for a discussion of the US regime see Wang (2011), 189-224.

<sup>1547</sup> Interview with representatives of the International Group of P&I Clubs on 1 May 2013 in London.

<sup>1548</sup> Representatives of BP, 13 March 2013.

pooling system and second a tax for the fund that would constitute the second layer. Moreover, (this constitutes again a major difference with vessel-based pollution) given the large differences in the offshore market, for some operators contributing to such a (costly) fund would be meaningless since they could easily take charge of the costs above the insurance limit through self-insurance. For them, a duty to contribute to a fund would hence only create additional costs without compensating benefit. This would then amount to a situation whereby the duty to compensate to the fund would only be imposed on some (presumably smaller) operators (since they may be exposed to an insolvency risk) and not to others. That would obviously be politically unfeasible. For those reasons, we argue that the difficulties that prevent the creation of a compensation fund in the area of environmental liability may also inhibit the creation of a compensation fund for offshore related risks.

## **7.6. Rapid claims management**

### **7.6.1. Need for a mechanism**

When discussing the existing pooling mechanisms in Chapter 4 we also paid attention to the existence of so-called rapid claims management schemes.<sup>1549</sup> At that stage it was made clear that within the CLC/Fund convention-regime there is a principle of making speedy payments by the IOPC Fund on the basis of the Claims Manual. Moreover, in case the damage exceeds the CLC limits (and hence the IOPC Fund has to intervene) a joint claims handling committee by the P&I Club (providing coverage under the CLC) and the IOPC Fund will be created.<sup>1550</sup> However, this facility only applies to the vessel-based marine pollution to which the CLC/Fund Convention-regime applies and hence not to damage resulting from offshore-related risks. As we equally made clear there are some legal systems, like for example Norway, that have a specific compensation scheme aimed at compensating fishermen, but a general rapid claims facility for offshore-related risks is lacking and is also not foreseen, for example within the context of OPOL since OPOL de facto only becomes active and intervenes in case of insolvency of one of its members. OPOL members are in principle forced to compensate on the basis of the strict liability to which they agreed under OPOL, but whether this implies rapid payment is not supervised by OPOL.<sup>1551</sup>

As we already made clear, rapid payment can be of extreme importance especially for fishermen and hotel/restaurant owners in coastal areas whose income may be interrupted as a consequence of the disaster. Late payment could lead to their bankruptcy (especially in cases where their facilities are externally financed) and thus the losses could even become larger.

The problem is that compensation via the normal liability rules may (unless a case is settled or the insurer decides to pay on the claim of the victim) lead to litigation which could potentially take many years. Even if the nightmare of the decennia-long litigation of Exxon Valdez is not a scenario that would necessarily be followed in Europe.<sup>1552</sup> Litigation could still take a considerable time. This should, moreover, not always necessarily be viewed as merely negative. After all, the fact that a civil procedure related to a liability case may take a substantial time can also be important in order to review whether the goals of tort law (adequate deterrence and compensation) are actually served in this particular case. Hence to an important extent the procedure will need to verify whether the amounts claimed by the victim are indeed correctly representing the loss suffered by the victim (in order to avoid

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<sup>1549</sup> See *supra* section 4.9.

<sup>1550</sup> In this way a prompt security and payment of compensation to victims can be guaranteed, according to the representatives of the International Group of P&I Clubs, interview on 1 May 2013 in London.

<sup>1551</sup> *Supra* 4.9.1.

<sup>1552</sup> More particularly because most of the Exxon Valdez litigation related to punitive damages which would not be compensated under most European legal systems.

moral hazard on the victim's side) and whether it is indeed the tortfeasor (in this particular case the liable offshore operator) who caused the loss (in order to obtain a correct risk allocation to that operator).

The alternative could obviously be that payment would not take place via liability law, but rapidly e.g. through a government commission, facility or fund which would not apply the conditions of liability law in the same way as it would be done under the court procedure. The advantage is that in that particular case payment can take place rapidly; the disadvantage may be that moral hazard on the side of the victim could play (if fraudulent claims will still lead to payment) or that risks are not correctly allocated to the offshore operator (if damages are either assessed too high or too low). Representatives of the International Group of P&I Clubs<sup>1553</sup> pointed at various problems in that respect. For example in the case of the Hebei Spirit<sup>1554</sup> some 120,000 claims were launched according to the CLC/Fund Convention, but 80,000 were deemed inadmissible, which could show that many claims are brought which do not necessarily meet the requirements of proof to be effectively compensated. A similar problem occurred in the case of the Prestige: the Spanish government felt guilty because they had refused a port of rescue to the Prestige.<sup>1555</sup> When the spill afterwards occurred the Spanish government generously offered compensation to every victim, at least to everyone who claimed to have suffered damage related to the Prestige incident. Later these advanced payments were claimed back from CLC (hence from the P&I Clubs) and from the Fund. The problem is that in such a case disaster relief payments may have been made by governments (in some cases for political reasons) which often do not meet the admissibility criteria of the CLC (or the Fund) under liability law.<sup>1556</sup>

These examples show that there are particular policy considerations to be taken into account when attempting to develop a rapid claims management system for particular victims (more particularly fishermen and hotel/restaurant owners in coastal areas) are the following:

- the offshore operators (and others who contributed to the risk) should still be exposed to the costs they created;
- only those victims who really suffered losses due to the offshore incident should be compensated and only for those damages resulting from the incident;
- a fully correct appraisal via civil procedure may take too long;
- hence, an alternative claims settlement (via alternative dispute resolution or an administrative procedure) may have the advantages of speed and can avoid disastrous consequences for this particular category of victims.

In this respect we can also recall the experience with the Deepwater Horizon GCCF where it was also held that the main advantage of the creation of this GCCF was that it removed distrust from the victims and provided a clear signal that money was available within a fund (thus reducing an insolvency risk) and that compensation would be paid speedily on the basis of clear criteria.

### **7.6.2. Compensation Funds**

One alternative, providing rapid settlements of claims, is obviously to decide for this particular category of victims to create a fund and to (particularly) bypass liability law. The disadvantages of such a radical solution have already been discussed when referring to the

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<sup>1553</sup> Interview in London on 1 May 2013.

<sup>1554</sup> See further on this case also Hu (2010).

<sup>1555</sup> See on the right of entry in maritime port for ships in distress Somers (2010).

<sup>1556</sup> So representatives of the International Group of P&I Clubs, interview in London on 1 May 2013.

option of a compensation fund for offshore related damage.<sup>1557</sup> There are some experiences with compensation funds for disasters. They usually follow an administrative procedure of claims handling whereby an administrative authority or commission verifies claims and arranges payment. Compensation is, however, in the cases where a compensation fund completely replaces liability law (like for example in Belgium<sup>1558</sup> and Austria<sup>1559</sup>) not necessarily speedier than liability law. Moreover, the major disadvantage of such a construction would be that the operator who created the risk would no longer be confronted with the costs of the incident and hence a correct risk allocation would fail (unless the fund would later take recourse against the liable operator).

There are some alternatives whereby no full compensation is provided to victims, but rapid disaster relief is provided e.g. to support victims in the immediate aftermath of a disaster. Those payments (often by government) are often aimed at emergency measures that government should carry out after a disaster occurs. Many countries have those systems. For example in Japan a Disaster Relief Act provides “for government emergency measures to protect victims of disaster and maintain social order by causing the central government to provide needed relief services on an emergency basis in cooperation with local public entities and the Red Cross, other entities, and the people of Japan”.<sup>1560</sup> These types of relief measures after a disaster are, however, not the type of compensation needed to avoid bankruptcy e.g. of fishermen and local restaurant/hotel owners in coastal areas. The reason is that relief measures are often just aimed at providing minimal help to restore social order, e.g. by providing shelter to victims; the goal of immediate relief is not to provide recovery or compensation of all losses to victims.

To some extent such a fund was also created in the US with the 9/11 Victim Compensation Fund. However, there has been quite a bit of criticism on that particular fund, arguing that the authorities failed to consider the psychology of justice and compensation for harm when establishing the fund. The fund would have violated people’s perceptions of procedural fairness and violated the victims’ ideas of satisfaction.<sup>1561</sup> The 9/11 Fund has therefore not been seen as a model that should be followed in the future.<sup>1562</sup>

### **7.6.3. Stimulate rapid payment within liability law**

Another alternative is not to replace liability law with a fund solution, but rather to provide within liability law a duty to provide rapid payment to victims. An interesting example of this is provided in Directive 2009/103/EC of 19 September 2009 relating to insurance against civil liability in respect of the use of motor vehicles, and the enforcement of the obligation to insure against such liability.<sup>1563</sup> Article 22 of this Directive provides in a compensation procedure forcing the insurance company of the person who caused the accident or its claims representative to make a reasoned offer of compensation in cases where liability is not contested and the damages have been qualified within three months of the date when the victim presented his claim for compensation to the insurer. This duty is typically inserted in the Directive in relation to the mandatory motor vehicle insurance. Obviously the assessment of claims after a major disaster caused by an offshore related incident may be much more complicated than in case of a traffic accident. But the Directive provides an interesting

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<sup>1557</sup> See 7.5.3.

<sup>1558</sup> See Durant (2006), 72-73.

<sup>1559</sup> See Hinghofer-Szalkay and Koch (2006), 12-26.

<sup>1560</sup> See Faure and Liu (2012b), 154.

<sup>1561</sup> See Tyler and Thorisdottir (2003), 355-392.

<sup>1562</sup> So Bruggeman (2010), 474.

<sup>1563</sup> OJ L263/11 of 7 October 2009.

example of a model where, in combination with mandatory security<sup>1564</sup> the regulator could also oblige the institution providing the financial security to make an offer of payment within a reasonable time to the victim. Whether three months is a realistic period in case of an offshore-related incident seems doubtful. The precise time could be subject of further study, but could at least allow rapid payment to this particular category of victims.

#### 7.6.4. Combinations

There are also examples of interesting combinations of liability law and administrative claims handling. An obvious example is the GCCF which handled compensation after the Deepwater Horizon incident.<sup>1565</sup> But that fund was basically created on the initiative of the operator concerned (BP) and therefore has no precedent value or specific legal basis since it cannot be assumed that operators in a similar situation would equally move to the creation of a similar facility in the absence of a regulatory framework.

There are some examples as well of a regulatory framework. For example in Japan in response to nuclear damage Japan choose an administrative system rather than a judicial system as the primary compensation instrument. Compensation for nuclear damage in Japan is awarded according to categories of geographic areas and government orders. The standards to identify compensable losses are also set by the administrative authority. It is held that this approach can avoid the substantial hurdles in the tort system in awarding compensation for nuclear damage.<sup>1566</sup> Although an administrative compensation system is followed, also compensating the victims of the Fukushima incident financing still takes (at least partially) place via the liable operator.<sup>1567</sup>

Another model that is worth examining is created by a recent Belgian act of 13 November 2011 concerning the compensation for victims of technological accidents.<sup>1568</sup> The reason for this new act was related to the disaster with an exploding gas pipeline that happened on 30 July 2004 in Ghislenghien. As a result of this accident 24 people died and more than 130 were injured. Since in Belgium the civil procedure is linked to the criminal procedure<sup>1569</sup> most of the victims were only compensated seven years after the incident. That created the need for a new act which has precisely as aim to accelerate the compensation to the victim. The act applies to technological disasters of great extent. It has to concern an incident affecting at least five persons (through death or hospitalization) and a specific committee has to declare the incident as an exceptional disaster. In that case the specific procedure applies and victims can ask for compensation to the Belgian Motor Insurance Guarantee Fund. The Fund will be subrogated in the rights of the victim and can hence later claim against the liable tortfeasor. If the victim disagreed with the decision of the Fund he can appeal to the court. Private insurers active in Belgium are supposed to finance the fund on the basis of their market share.

Although many criticisms could be formulated on the structure of this particular Belgian solution,<sup>1570</sup> this Belgian solution (if one disregards a few imperfections) shows an interesting example of a model where an administrative agency provides (in principle speedy) compensation to victims and subsequently still recovers from the tortfeasors. Such a model

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<sup>1564</sup> See *supra* 7.4.

<sup>1565</sup> See 4.9.4.

<sup>1566</sup> See further Faure and Liu (2012b), 195-196.

<sup>1567</sup> See Faure and Liu (2012b), 199-200.

<sup>1568</sup> *Moniteur Belge*, 24 February 2012. For commentaries see *inter alia* Coune (2012) and Verjans (2012-2013).

<sup>1569</sup> Meaning that the victims cannot be compensated via civil liability as long as the criminal procedure is not finished.

<sup>1570</sup> For example concerning the fact that it is not clear on which basis the fund will compensate the victims; whether contributory negligence on the side of the victim will be taken into account and why unrelated insurers would have to compensate to the fund etc.

could in principle serve 1. the goal of rapid compensation of victims and 2. the goal of a correct risk allocation to the injurer. If the system would work perfectly it would mean that the victims would be compensated as if liability were applicable (which would imply the application of a contributory negligence defence) and the fund would in that particular case only prefinance compensation and later recover this from the liable injurer and his insurer.

### 7.6.5. Evaluation

Starting point should be that there is a strong argument in favour of designing some mechanism guaranteeing rapid payment of claims of a particular sensitive category of victims on the basis that without rapid payment the damage could be disproportionately larger.<sup>1571</sup> Thus the nightmare of lengthy procedures (either Exxon Valdez in the US or Ghislenghien in Belgium) via civil procedure in tort law could be avoided. The importance of such a mechanism is also recognized at the EU policy level where in the proposal for a directive the need to establish procedures for ensuring prompt and adequate handling of compensation claims is equally stressed.

The subsequent trade off in the policy issues<sup>1572</sup> is that there is some time necessary to evaluate claims and that there is hence always an inherent danger in being too speedy which could either lead to moral hazard on the side of the victims or an insufficient allocation of risk to the operator. Still it seems possible to follow three different routes to realise the best of both worlds (obtaining speedy compensation for a special category of victims and still having a correct allocation of risk):

- A first possibility would be simply to follow the model of Article 22 of the Motor Vehicle Insurance Directive and to provide simply that those constituting financial security for operators should make an offer of compensation to the victim within several months (to be specified) of the date when the victim presented his claim for compensation.
- A second possibility is that one would develop, following the example of the CLC-Fund regime a Claims Manual guaranteeing rapid payment also within the compensation to victims for offshore-related risks. A formal legal basis for that may currently be lacking. For example in the UK it could be linked to OPOL where OPOL could e.g. develop a procedure for (speedy) claims handling. Representatives of Oil & Gas UK already indicated that this may be an interesting possibility to explore<sup>1573</sup> and this was confirmed by representatives of Lloyds as well.<sup>1574</sup> Although this undoubtedly is an attractive solution as well, we have to keep in mind the limits of OPOL, i.e. being essentially limited to the North Sea and within the North Sea mostly to the UK. This would hence only be a European-wide solution if other regional pooling arrangements were to emerge which would adopt a similar Claims Manual.
- The third possibility (and the most far-reaching) would be to create a possible construct (also learning from Belgium's mistakes and taking economic principles into account) whereby a facility would be created that rapidly prepays the damage of this specific category of victims, taking into account a few principles:

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<sup>1571</sup> This argument was also made by Dr. Philipp Wassenberg, representative of Munich Re, interview on 6 May 2013.

<sup>1572</sup> Already referred to above in 7.6.1.

<sup>1573</sup> Interview with representatives of Oil & Gas UK in London on 1 May 2013.

<sup>1574</sup> Interview with representatives of Lloyds on 1 May 2013 in London. They moreover added that it would make sense to arrange compensation via an independent third party administrator who would pay out the available funds. The advantage of such a system would be that all victims would be forced to present their claim within a particular period to cut off the time bar. It would then become rapidly clear how much the total claims are after which the available funds can be paid out.



- A claims verification takes place, verifying that under normal rules of tort law those claims would be compensable (in order to avoid moral hazard);
- A subrogation of the facility in the rights of the victim whereby the facility subsequently claims back the compensation from the person(s) liable for the offshore-related damage in order to create a correct allocation of the risk.

### 7.7. Transboundary harm

A point we can unfortunately not develop at detail within the scope of this study<sup>1575</sup> relates to the fact that many offshore-related incidents could have and have a transboundary character. The nature of offshore exploration is such that easily several different legal systems and jurisdictions could be affected. This was already made clear when discussing the Montara case.<sup>1576</sup> Although the incident occurred formally in Australian exclusive economic zone also Indonesia was affected as well. It led to complaints under international law (and more particularly UNCLOS) for not having informed the Indonesian government of the Montara incident.

Stakeholders also report that it is very likely that a major offshore incident in Europe would have transboundary effects as well. These effects could still be confined to Europe e.g. if a major incident were to occur in the Northern North Sea which could potentially affect the coasts of England, Norway and potentially the Netherlands and Belgium.<sup>1577</sup> However, in the Mediterranean transboundary effects i.e. offshore-exploration in European waters affecting other states or the other way around (exploration outside of European waters affecting European territory) is very likely as well. Offshore exploration is increasingly taking place in the Eastern Mediterranean as well *inter alia* before the coast of Lebanon.

The sovereign rights of states to explore the exclusive economic zone and the continental shelf has been regulated in UNCLOS and UNCLOS equally regulates a duty of the state to notify another state that would likely be affected by damage to the marine environment.<sup>1578</sup> However, there is no international regulation of the liability in case of transboundary incidents since, differently than for vessel-based pollution, there is not yet any international convention regulating liability in case of a transboundary damage resulting from an offshore installation. From an economic perspective it is not difficult to make the argument that especially as far as transboundary damage is concerned it would make sense to shift powers to a higher legal order and hence to create an international convention dealing with transboundary pollution resulting from offshore-related risks.<sup>1579</sup> However, the problem is that there currently is no international organisation that this considered to have competences with respect to regulating damage resulting from offshore exploration. As we made clear above<sup>1580</sup> the International Maritime Organization (IMO), which would be the logical institution to address, has considered that it is in fact not the most ideal institution to create such an international convention. Stakeholders also hold that this can be understood for the simple reason that the IMO is especially created to regulate maritime issues. Offshore installations are not primarily concerned with maritime issues, although damage resulting from an offshore installation can of course affect the marine ecosystem. It is therefore held that the IMO rightly refrained from taking action in this respect.<sup>1581</sup> The legal committee of IMO, however, recommended to make bilateral or regional arrangements between various

<sup>1575</sup> Because it effectively may need a totally separate treatment in a separate study.

<sup>1576</sup> See *supra* 2.5.1.2.

<sup>1577</sup> Interview with Dr. Philipp Wassenberg, representative of Munich Re, 6 May 2013 and interview with Wendy Kennedy, Head of the Offshore Oil & Gas Department at DECC, 29 April 2013.

<sup>1578</sup> See Art. 198 of UNCLOS.

<sup>1579</sup> Cf. Faure and Betlem (2008), 129-132.

<sup>1580</sup> See *supra* 3.2.4.

<sup>1581</sup> See the opinion of the representatives from the International Group of P&I Clubs, interview on 1 May 2013.

states to deal with transboundary damage. This was especially announced after an initiative of Indonesia following the Montara incident.

Now that no action will be taken at international level the question arises whether any specific rules should be issued at the EU-level. It can certainly be argued that in case of offshore-related incidents with a transboundary character there is a large danger that serious problems would arise e.g. when litigation is brought in different courts of different jurisdictions at the same time. This would undoubtedly lead to an accumulation of legal procedures and questions concerning the claims handling.

Fortunately in Directive 2013/30/EU, the transboundary effect of offshore activities is specifically addressed.<sup>1582</sup> However, the provisions in the Directive mainly focus on the exchange of information between Member States in order to facilitate joint action of various Member States that might be affected by particular offshore operations, in prevention and responses to offshore accidents.

In this respect again the example of the CLC-Fund Convention can be illuminating. The CLC Convention has explicitly provided for an exclusive liability of the courts within the jurisdiction where the incident occurred. In that respect Article 9 of the CLC provides:

- “1. Where an incident has caused pollution damage in the territory including the territorial sea or an area referred to in Article II, of one or more Contracting States, or preventive measures have been taken to prevent or minimize pollution damage in such territory including the territorial sea or area, actions for compensation may only be brought in the Courts of any such Contracting State or States. Reasonable notice of any such action shall be given to the defendant.
2. Each Contracting State shall ensure that its Courts possess the necessary jurisdiction to entertain such actions for compensation.
3. After the fund has been constituted in accordance with Article V the Courts of the State in which the fund is constituted shall be exclusively competent to determine all matters relating to the appointment and distribution of the fund.”

The fund referred to as established under Article V is the limitation fund.

Article V.3 states that in order for the shipowner to benefit from the limitation right, “the owner shall constitute a fund for the total sum representing the limit of his liability with the Court or other competent authority in any one of the Contracting States in which an action can be brought under Article IX.”

The advantage of such an arrangement is that it creates clarity for all victims who immediately know where the claim can be brought. Moreover, also for claims handling by insurers or other parties that provided financial security the concentration of litigation before one court is obviously necessary in order to effectively distribute the available insurance proceeds. Also representatives from insurers held that in order to effectively deal with mass claims resulting from an offshore incident it would be important to have rules e.g. indicating that victims have to hand in their claim within specified time limits and that moreover claims have to be brought before one single court in one particular jurisdiction in order to avoid an accumulation of procedures.<sup>1583</sup> However, one has to keep in mind that what may be an advantage from the perspective of the offshore operator and his financial guarantors (concentrating the claims in one jurisdiction and one court) may not always be beneficial for

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<sup>1582</sup> This issue is addressed in Chapter VIII of Directive 2013/30/EU.

<sup>1583</sup> That was held by representatives of Lloyds, interview in London on 1 May 2013 and interview with representatives of the International Group of P&I Clubs on 1 May 2013 in London (holding that a large spill in European waters could easily affect many Member States as a result of which it is important to have clear rules on jurisdiction).

victims, since it could force them to bring a case in a court outside of their own jurisdiction. The desirability of focusing claims in one particular jurisdiction hence definitely needs further attention.

In sum, although this issue undoubtedly deserves further research (as far as the specific technical implementation is concerned) it may be interesting to examine whether one could introduce, also for offshore-related damage, a similar procedural rule as in the CLC-Fund Convention aiming at the competence of one single jurisdiction and court.<sup>1584</sup> However, attention should also be paid to the question to what extent this corresponds with legitimate interests of the victims as well.

## 7.8. Integrating offshore into the ELD?

### 7.8.1. Policy background

An important question, at least from a legal-technical perspective (less so from an economic) is whether the ecological damage that results from offshore-related incidents should be brought under the Environmental Liability Directive. It is an option of legislative technique which would be understandable from a EU-policy perspective. After all, in 2004 the EU enacted the Environmental Liability Directive, aiming at the prevention and remediation of particular environmental damage.<sup>1585</sup> So from that policy perspective it would be understandable that when a new EU initiative is taken, also focusing on potential environmental damage, that the scope of the Environmental Liability Directive would be enlarged to that type of damage. This seems to be an option which was seriously considered by the European Commission, as the proposal for an offshore directive suggests to bring environmental damage caused by offshore oil and gas operations carried out by, or on behalf of, the licensee or the operator, under the application of the Environmental Liability Directive.

As a response to the BP Deepwater Horizon oil spill in 2010, the European Parliament issued a resolution calling on the Commission to develop a proposal for a legal framework ensuring high safety standards for offshore facilities in the EU.<sup>1586</sup> The Commission started a public consultation round, which was closed in May 2011. The initial proposal did foresee a regulation on uniform offshore standards.<sup>1587</sup>

On 21 February 2013, Members of Parliament (MEPs) and Member States reached a provisional agreement on a Directive to improve the safety of offshore oil and gas activities in the EU. It was agreed that a directive, rather than a regulation was the best legal instrument to address the risks posed by offshore installations. The Directive was finalized and published in June 2013.<sup>1588</sup>

Under the Directive, operators must show they have sufficient financial guarantees to cover potential liabilities. Moreover, new offshore drilling activities will not start until risk analyses and emergency plans have been conducted. The EMSA will supervise the emergency plans as well as response operations in case of an accident. However, EMSA will not be put in charge

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<sup>1584</sup> It should also be noticed that also the proposed directive on offshore safety shares this concern for incidents with a transboundary element, prescribing *inter alia* that a procedure for adequate handling of compensation claims should include compensation payments for transboundary incidents.

<sup>1585</sup> For a detailed discussion of the Environmental Liability Directive 2004/35/EC see Winter, Jans, Macrory and Krämer (2008), 163-191.

<sup>1586</sup> EP Resolution on EU action on oil exploration and extracted in Europe, on 7 October 2010.

<sup>1587</sup> Commission Proposal for a Regulation of the European Parliament and of the Council on safety of offshore oil and gas prospection, exploration and production activities, 27.10.2011, COM(2011) 688 final.

<sup>1588</sup> Directive 2013/30/EU. For further details of the Directive, see 3.4.2.6.

of inspections at the rigs, contrary to what Green MEPs and environmental NGO's had hoped. To avoid any conflict between economic and safety interests, member states will have to set up independent bodies in charge of granting licenses to operators. Member States will have two years to transpose the Directive into national law.<sup>1589</sup>

### 7.8.2. Applicability of the ELD to offshore oil and gas activities

With respect to environmental liability, according to Commission, the Environmental Liability Directive (ELD) is already applicable to offshore drilling activities.<sup>1590</sup> The Commission refers to Annex III.7 (a), on the 'Manufacture (...) of dangerous substances'.<sup>1591</sup> Directive 2013/30/EU specifies that licence holder for offshore activities are also "operator" as defined under the ELD, and shall be liable for the environmental damage.<sup>1592</sup>

Currently, the ELD only covers waters to which the Water Framework Directive applies (and consequently an area which is a relatively small distance from the coast which can vary from Member State to Member State).<sup>1593</sup> Moreover, soil damage is only covered if there is a significant risk of human health being adversely affected through the relevant soil contamination, so this is very unlikely to apply in the marine context. Biodiversity damage could be a relevant consideration in relation to a potential offshore spill if the incident caused serious damage to protected species or habitats. Such damage would need to have a significant adverse effect on a range of protected species or habitats (under certain articles and annexes of the Wild Birds (Directive 2009/147 on the conservation of wild birds) and Habitats Directives (Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora)) as regards their reaching or maintaining a favourable conservation status (see Article 2(1)(a), ELD).<sup>1594</sup>

In order to be applicable to offshore oil spills, the Commission proposed to extend the scope of environmental liability within the ELD to cover all marine waters according to the Marine Strategy Framework Directive, including the Exclusive Economic Zone (200 nautical miles or 370km), thereby covering all installations in the North Sea.<sup>1595</sup>

Consideration 46 (a) of the proposal foresees that the definition of water damage in Directive 2004/35/EC should be amended to ensure that the liability of licensees under the Directive applies to marine waters of Member States as defined in the Marine Strategy Framework Directive (Directive 2008/56/EC).<sup>1596</sup>

As such, the new proposal itself is applicable to all installations in waters of Member States, including their Exclusive Economic Zone and continental shelves.<sup>1597</sup> It is also clearly

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<sup>1589</sup> <<http://www.endseurope.com/30735/eu-strikes-provisional-deal-on-offshore-gas-safety?referrer=search>>, 21 February 2013, retrieved 22 February 2013.

<sup>1590</sup> European Commission, Commission staff working document, Accompanying the document to the Communication from the Commission to the European Parliament and the Council, 'Facing the challenge of the safety of offshore oil and gas activities', SEC(2010) 1993 final, 12/12/2010, p. 15.

<sup>1591</sup> Dangerous substances as is defined on article 2(2) of Council Directive 67/548/EEC of 27/6/1967 on the approximation of laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous substances (Annex III.7 (a) ELD).

<sup>1592</sup> Article 7 of Directive 2013/30/EU.

<sup>1593</sup> Water Framework Directive, Article 2 (7).

<sup>1594</sup> Sandy Luk – Senior Lawyer, Marine Programme, ClientEarth; Rowan Rylie – Marine Biodiversity Lawyer, ClientEarth, Legal background paper: Environmental Regulation of Oil Rigs in EU Waters and Potential Accidents <<http://www.clientearth.org/reports/marine-protection-clientearth-briefing-on-legal-implications-of-oil-rigs.pdf>>, accessed 30 April 2013.

<sup>1595</sup> Art.37 COM proposal.

<sup>1596</sup> Consideration 46 (a) COM Proposal.

<sup>1597</sup> Art.1(3) COM proposal.

reiterated that licensees of offshore facilities are liable for the prevention and remediation of environmental damage pursuant to the ELD.<sup>1598</sup>

In the final version of the Directive, the application of ELD to offshore activities is simplified.

Moreover, on the basis of Articles 5 and 6 ELD operators will be required to take both the necessary preventive measures in case of an imminent threat to environmental damage; and the necessary remedial measures to “control, contain, remove or otherwise manage the relevant contaminants and/or any other damage factors”.<sup>1599</sup> If operators fail to take such measures, the competent authorities may at any time require them to take such measures, or as a means of last resort, take the measures themselves if an operator cannot be identified.<sup>1600</sup> If the authorities have to take measures because an operator fails to take action, then all costs shall be recovered from the operator.<sup>1601</sup>

### 7.8.3. Applying the ELD to offshore: a few questions

The application of the ELD to environmental damage has raised various concerns and criticisms. Some of the general problems relating to the application of the ELD would also be relevant to the offshore safety Directive.

First of all, environmental damage that is covered by the ELD is not damage to biodiversity, water or soil in general. Rather it only relates to areas of protection in relation to which the EU has made specific rules (e.g. water status and protected species and habitats). This stands in contrast to other generally applicable directives, such as the EIA and SEA Directives and, importantly, also the Mining Waste Directive, which apply to risks to the ‘environment’ in general (see for example Article 4(1), Mining Waste Directive).

Secondly, the damage thresholds that trigger liability under the ELD are set at a very high level, which is incredibly hard to establish (the ELD has been in force since 2007 and has not been applied very often). On the other hand, the Mining Waste Directive, which has aims closely connected to those of the ELD (and is listed in Annex III of the ELD), sets a much lower damage threshold in its general requirements: danger to human health, harm to the environment, in particular risks to water, air, soil and fauna and flora (Article 4).

Hence, the strict liability system as set out by the ELD contains a ‘minimum requirement’ for the damages, as only ‘significant’ damages lead to liability (article 2 of the ELD: environmental damage is defined as “damage (...) that has significant adverse effects [for] habitats and species”, “damage that significantly adversely affects (...) waters” and “contamination that creates a significant risk”).

Article 18b of the proposal states that ‘a major environmental incident’ means an incident which results, or is likely to result, in significant adverse changes to the environment, having regard to significance under Directive 2004/35/EC.

Moreover, while Annex I ELD lists a number of measurable data, they do not offer conclusive criteria to measure damages. In a report on the implementation of the ELD and the competent authorities in the Netherlands, it was concluded that the minimum requirement is difficult to

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<sup>1598</sup> Art. 7 COM proposal.

<sup>1599</sup> Art. 6(1)(a) ELD.

<sup>1600</sup> Art. 6(2) ELD.

<sup>1601</sup> Art. 8(a) ELD.

establish, especially for the different areas of water, land and biodiversity.<sup>1602</sup> It is hence a task of the courts to further define the scope.

Third, the ELD requires a causal link between the damage and the activities of individual operators in order to be applicable.<sup>1603</sup> It can be imagined that sometimes it might not be easy to establish that causal link for example for damage to biodiversity at a certain distance from the oils spill.

Hence, in practise, it might be difficult to establish liability under the ELD. As a solution to the practical applicability of the ELD, the Waste Framework Directive could be applicable in case of offshore oil spills as well as the Waste Framework Directive is applicable to soil and waters in the EEZ as well. The Waste Framework Directive does not set out a liability scheme per se, but does require any producer of waste to undo any contamination to soil or water.<sup>1604</sup> No demonstration of fault is required, as the mere leaking of oil into the marine environment may lead to clean-up obligations.<sup>1605</sup>

Obviously, a necessary combination of the ELD and the Waste framework Directive to trigger liability would be at odds with the announced ambitious all-encompassing approach to offshore drilling activities. Yet, if the line of interpretation of the Court of Justice in the *Texaco* or *Erika*-case is followed, where the court took a very proactive approach, giving a broad interpretation to the Waste Framework Directive, it could be that most of the damage would be covered, either under the ELD or under the Waste Framework Directive.<sup>1606</sup>

Nevertheless, it might be very difficult to establish the baseline condition and to restore to baseline condition.

Fourth, the ELD does not cover social and economic damages, and also the proposal does not extend the scope of the liability regime to cover traditional (social and economic) damages. According to the Commission's impact assessment, there is wide support between Parliament and the public to include civil liability and establish effective and rapid mechanisms for payout to affected businesses or individuals, such as through compensation funds fed by operators. However, regulators differ in their opinions whether such arrangements are needed, while NGO's have proposed criminalizing oil spills. Due to the divide of the stakeholders and the complexity of the national systems –under which civil liability is currently dealt with-, the Commission will continue the analysis and impact assessment of a possible inclusion of civil liability at a later stage.<sup>1607</sup>

Fifth, with respect to financial responsibility and security, Article 7 of the proposal addresses liability for environmental damage. It states that “without prejudice to the existing scope of liability relating to the prevention and remediation of environmental damage pursuant to Directive 2004/35/EC, Member States shall ensure that the licensee is financially liable for the prevention and remediation of environmental damage, as defined in that Directive, caused by offshore oil and gas operations carried out by, or on behalf of the licensee or the operator”.<sup>1608</sup>

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<sup>1602</sup> M. Peeters et al., ‘Implementatie van de richtlijn milieuaansprakelijkheid. Een verkenning naar de bevoegde instantie(s) in Nederland’, VROM, report nr 2005/1, March 2005, p.16, at <[www.evaluatiewetgeving.nl](http://www.evaluatiewetgeving.nl)>.

<sup>1603</sup> Art. 4(5) ELD.

<sup>1604</sup> Case C-1/03 Paul Van de Walle and others v Texaco Belgium SA.

<sup>1605</sup> Case C-188/07 Commune de Mesquer v Total France SA.

<sup>1606</sup> Cooreman, B., “The Macondo Oil Spill: blessing in disguise for an environmental- friendly future of European waters? Environmental Liability for Offshore Oil Drilling in the EU”, Publication forthcoming in *Environmental Law and Management*, p. 10, accessible at <<http://ssrn.com/abstract=2215642>>.

<sup>1607</sup> Impact assessment to Commission proposal, p. 43.

<sup>1608</sup> Art. 7 COM Proposal.

Article 4(2) of the proposal addresses the technical and financial capacity of operators, stating that when granting authorizations and licenses due account shall be taken of any financial security and capacity to cover liabilities potentially deriving from offshore oil and gas activities in question, in particular liability for environmental damages. This shall include liability for potential economic damages where such liability is provided for by national law. Article 4(4) states that risks and hazards related to the location shall be taken into account when establishing such liability. Article 4(2a) moreover foresees that Member States shall ensure that the licencing authority does not grant a license unless it is satisfied that the applicant has provided evidence that adequate provisions have been made to cover liabilities potentially deriving from its offshore oil and gas activities.

A major problem in the ELD is that there is no further elaboration of financial security requirements though. The Commission indicated in its impact assessment that further research needs to be carried out with regard to financial capacity and security due to the complexity of financial security and the question whether or not civil liability is included.

According to the Commission, no existing financial security instrument, including risk pooling arrangements, can at this point “accommodate all possible consequences of extreme accidents”.<sup>1609</sup> An additional difficulty for insurers and operators is the lack of knowledge on the precise level of biodiversity in marine environments, which makes it difficult to assess the appropriate insurance and establish the necessary amount of financial security. The Commission will therefore continue the analysis of appropriate measures to ensure an adequate liability regime with financial capacity and financial security instruments.<sup>1610</sup> No deadline is given, however, for a new proposal on the matter.

Yet, although the idea is that a license will not be granted unless the applicant can prove that adequate provision has been or will be made to cover liabilities potentially arising from its offshore oil and gas activity, the Commission at the same time acknowledges that at this point, no existing financial security instrument can cover all possible consequences of extreme accidents.

#### **7.8.4. Stakeholder responses to the proposal**

Initial reactions of environmental NGO’s show disappointment. Greenpeace and Oceana regret that no financial compensation for oil spill damages is foreseen for fishermen and tourism operators. Greenpeace also regrets that the EMSA will not be given greater powers of supervision and control. The text does not give this authority the possibility to carry out inspections on platforms. Oceania also criticizes that the EU only encourages EU companies conducting offshore operations outside of EU waters to respect the provisions laid down in the future Directive. This move not only recognizes that oil companies can apply lower standards in developing countries for instance, but also creates a dangerous precedent for legitimizing future moral hazards.<sup>1611</sup> The non-governmental organizations also criticize the absence of provision for a moratorium for drilling in sensitive areas, particularly the North Pole. The safety of offshore drilling will be entrusted to the Arctic Council, since the EU has no rights over these waters.<sup>1612</sup>

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<sup>1609</sup> Impact assessment to Commission proposal , p. 44.

<sup>1610</sup> Preamble (48), COM proposal.

<sup>1611</sup> <<http://oceana.org/en/eu/media-reports/press-releases/disappointing-agreement-on-new-eu-offshore-drilling-safety-directive>>, retrieved 22 February 2013.

<sup>1612</sup> <<http://www.europolitics.info/sectorial-policies/stricter-rules-for-offshore-platform-safety-art348557-15.html>>, retrieved 22 February 2013.

On the other hand, Oceana applauds the addition of a new risk calculation tool in the prevention system, namely the oil spill response effectiveness tool. This tool was adopted to objectively quantify the time when emergency plans are impeded because of environmental conditions, such as wind, waves, ice or low temperatures. In certain locations, harsh weather conditions can severely reduce response effectiveness to less than 40%, meaning that six times out of ten no intervention would be possible for cleanup and recovery.<sup>1613</sup>

### 7.8.5. Evaluation

The text of the final proposal is less stringent than the Commission's initial proposal - the Commission suggested a regulation but the text will be a directive, as demanded by the UK in particular. Moreover, sensitive complex issues are not addressed, as civil liability for social and economic damages or more concrete guidelines on how to establish financial capacity and financial security. On the other hand, certain interesting new provisions have been added, for instance with regard to compulsory third party verification<sup>1614</sup> of operations and more stringent control by the national authorities. Yet, as Cooreman points out, if those provisions would be taken out in the final decision-making process, the *de facto* impact of the proposal could be minimal.<sup>1615</sup>

Hence, the question obviously arises whether the current Commission proposal will prevent and remedy any major oil spills. Above, the weaknesses with regard to the environmental liability regime have been indicated, which could risk the incentive given to operators to exercise due care. From a political point of view, it is not surprising that the more complex issues are not yet included, as civil liability was already taken out of the scope of the ELD and stakeholders differ considerably in their opinions on financial security.

There are, as we indicated, undoubtedly advantages and disadvantages in including offshore-related damage into the ELD. The advantage of such an approach is undoubtedly that it brings unity as far as environmental damage (as defined in the Environmental Liability Directive) is concerned. In other words: whether the environmental damage is caused by one of the other activities listed in the Environmental Liability Directive or by an offshore-related risk, the same regime would apply which would hence create a unity in the handling of environmental damage.

There are, however, some drawbacks against this approach as well. The most important drawback is precisely the flip side from the advantage of creating all environmental damage in a uniform manner: it will lead to a separate treatment of offshore-related damage, depending on whether the ELD is applicable or not. In this report we have proposed an integrated system aiming at an efficient compensation for all offshore-related damage, including efficient liability rules<sup>1616</sup> and a compulsory financial guarantee.<sup>1617</sup> If environmental damage would now be excluded from the application of the system we have proposed here this would have the disadvantage that that attempt at providing an integrated treatment of offshore-related damage is lost. It may have several consequences, for example:

- for offshore-related damage it would be clearly provided that compliance with regulatory standard does not necessarily exclude liability rules<sup>1618</sup> whereas under the ELD this point is left to the Member States;

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<sup>1613</sup> Art. 12, COM proposal.

<sup>1614</sup> Art. 15, COM proposal; whereby third parties shall verify safety management systems and critical risk control.

<sup>1615</sup> Cooreman (forthcoming), 17, accessible at <<http://ssrn.com/abstract=2215642>>.

<sup>1616</sup> See *supra* 7.2.

<sup>1617</sup> See 7.4.

<sup>1618</sup> See 7.3.5.



- for offshore-related damage mandatory financial security would apply, whereas this is clearly not the case in the ELD. The ELD only requires the Member State to promote the development of financial security instruments and the Commission to present a report on the availability of such instruments by 2010.<sup>1619</sup>
- More generally, from the perspective of victim protection the ELD has been criticized in the literature because of its restrictions and limits, *inter alia* following from the definitions and the fact that many issues are still left to the Member States.<sup>1620</sup> From the perspective of aiming at an adequate protection of victims of offshore-related incidents it would hence be inconsistent to on the one hand award a large protection, with mandatory financial security as far as all offshore-related damage is concerned, but that for environmental damage (as defined under the ELD) the ELD without mandatory financial security would apply. Also from the perspective of the provider of the financial security (like the insurer) that does not seem to be a desirable evolution. It is well-known that the ELD has been much criticized by insurers, often arguing that the liability under the ELD is uninsurable precisely given its long-tail character and the duty to restore to the (according to insurers often unknown) baseline situation.<sup>1621</sup> Also stakeholders held that bringing offshore-related risks (partially under the ELD) would not be a good idea: a claim system must be clear and simple for claimants. If different regimes apply at the same time (the ELD for environmental damage; national tort law for other damage) the regime would be made needlessly complicated for claimants.<sup>1622</sup> Also other stakeholders do not show a lot of enthusiasm for the ELD and are therefore not in favour of bringing offshore under the ELD.<sup>1623</sup>

Hence, the proposal to bring part of the offshore-related damage under the scope of application of the ELD may lead to harmony with the ELD, but can create disharmony as far as an integrated treatment of offshore-related risks is concerned. This policy idea may hence need reconsideration.

## 7.9. Scenarios

As we explained above in Chapter 6<sup>1624</sup> three possible scenarios could be worked out with different solutions, depending on whether OPOL (or a similar regime for other areas than the North Sea could be developed) is applicable (1), for situations where the damage is higher than the OPOL-limit (250 mio.), but still insurable on the commercial market (2) and finally the situation where no financial cover via the regular commercial can be obtained (3).

Starting point for each scenario is that mandatory financial security should in each case be provided, but that the instruments used can differ. We will here merely suffice by sketching the scenarios in a table; the conditions for the specific instruments to work have been discussed in detail and will therefore be merely referred to in footnotes:

<sup>1619</sup> See Art. 14 of the ELD and see De Smedt (2009), 11.

<sup>1620</sup> See De Smedt and Faure (2010), 783-808.

<sup>1621</sup> See interview with Phil Bell on 26 February 2013.

<sup>1622</sup> Interview with representatives from the International Group of P&I Clubs on 1 May 2013 in London.

<sup>1623</sup> Interview with representatives of BP, 13 March 2013.

<sup>1624</sup> See more particularly sections 6.1.4 and 6.4.

**7.9.1. Scenario 1: damage max. 250 mio.**

UK/North Sea OPOL	Other areas: Other regional arrangements (to be developed) <sup>1625</sup>
Mandatory financial security via: self insurance <sup>1626</sup> insurance industry pooling (like OIL/OCIL or comparable pooling mechanisms) <sup>1627</sup> (guarantees) <sup>1628</sup> other	

**7.9.2. Scenario 2: damage between 250 mio. and 750 mio.<sup>1629</sup>**

UK/North Sea OPOL	Other areas: Other regional arrangements (to be developed) <sup>1630</sup>
Mandatory financial security via: self insurance insurance industry pooling (like OIL/OCIL or comparable pooling mechanisms) (guarantees) other	

<sup>1625</sup> See 5.6.

<sup>1626</sup> Under the conditions mentioned in 5.1.3.

<sup>1627</sup> On the condition that risk dependant contribution schemes can be developed – see 5.5.

<sup>1628</sup> Stakeholders held that these are seldom used in practice and therefore will not play a major role. See 5.3.3.

<sup>1629</sup> As can be noticed this scenario is basically the same, as far as the instruments to be used are concerned, as scenario 1 with the difference that the OPOL limits do not apply.

<sup>1630</sup> See 5.6.

### 7.9.3. Scenario 3: damage above 750 mio. euros

Mandatory financial security until risk related amount <sup>1631</sup>
First best:  Majors: self-insurance/captives <sup>1632</sup> Others: less risky activities <sup>1633</sup>
Second best: <sup>1634</sup>  Possibly: Munich Re facility <sup>1635</sup> Noble Proposal (generally: industry pooling) <sup>1636</sup> Fund with risk-related contributions <sup>1637</sup> A retrospective pooling scheme <sup>1638</sup> Government as reinsurer of last resort <sup>1639</sup>

<sup>1631</sup> As argued above (7.4.5.) in principle mandatory security should be provided to the amounts of the expected damage. The damage expectation can depend upon the nature and type of the offshore exploration and should hence be based on objective risk-related criteria, to be decided by the licencing authority.

<sup>1632</sup> Majors, i.e. those oil and gas producers that can in principle cover also disastrous losses through their balance sheet should remain the flexibility to choose their own hedging strategies to finance future losses, but of course to be supervised by licencing authorities.

<sup>1633</sup> To the extent possible smaller OGP's should be licenced less risky activities i.e. drilling activities with less potential damage (i.e. drilling of wells with less pressure, no deepwater drilling, not close to the coast etc.). Thus it is avoided that they create risks of causing damage above 750 mio. euros and hence externalize a risk to society.

<sup>1634</sup> All these possibilities are in fact "second best" since they all have (considerable) disadvantages and are also largely rejected by the stakeholders involved, which may make implementation (politically) impossible.

<sup>1635</sup> See 6.2.2.

<sup>1636</sup> See 6.3.3.

<sup>1637</sup> To the extent risk-related contributions can be charged a fund should not be problematic. However, in practice such a fund is often financed through a flat tax, which leads to negative effects for prevention and to negative redistribution. See 7.5.3.

<sup>1638</sup> The advantages of such a (government mandated) retrospective pooling scheme have been discussed at many places (following the model of the US Price-Anderson Act) *inter alia* in 4.10.1.

<sup>1639</sup> Also this is generally not a viable solution since it may (if government does not charge market conform premiums) lead to a subsidization. For man-made (technological) disasters this hence does not seem like an ideal solution. See 7.5.2.



## 8. Recommendations for action at EU level<sup>1640</sup>

The recommendations that will follow now in fact constitute more of a summary of the recommendations already presented in the previous chapters. Hence, in order to avoid repetition we will now summarize the recommendations formulated earlier and refer in footnotes to the specific places where the motivation for those recommendations has been provided. In this way the advantage is that all recommendations are brought together, whereas the reader can consult the text referred to in footnotes to obtain the detailed motivation for the specific recommendations.

The recommendations we will formulate do to an important extent follow the order of the chapters in this report.

### 8.1. General

- Data on incidents related to damage resulting from offshore oil and gas activities are either difficult to obtain or not publically disclosed. It would be recommendable that an institution at EU-level would centrally collect those data, also in order to increase the insurability of offshore-related damage.
- It would be recommendable to urge Member States to invite the offshore oil and gas producers within their jurisdiction to collaborate in the provision of those data to the central European institution.
- It would be recommendable that the EU takes initiative (eventually via a specialised UN agency or other institutions) to come to an international agreement especially focusing on the offshore-related incidents with a transboundary character.
- In order to promote (international) risk pooling by industry, mandatory safety standards should be implemented guaranteeing a minimum level of offshore safety in the EU.<sup>1641</sup> Safety regulation should play a more important role than liability rules in the prevention of offshore-related risks.
- Given higher technical knowledge of industry on optimal safety standards the EU could promote (inter alia via guidance notes) industry agreements (eventually with national regulators) on targets and safety standards, but striving for high harmonized EU-wide safety standards).

### 8.2. Efficient liability rules

An EU-wide regime for damage caused by offshore-related risks could be shaped along the following lines.<sup>1642</sup>

- Liability for damage caused by offshore-related risk should be strict.<sup>1643</sup>
- Liability should take into account the behaviour of the victim as well, meaning that the claim on compensation should in principle be reduced to the extent that the victim has contributed to the loss.
- A legal channelling of liability should be avoided.<sup>1644</sup>

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<sup>1640</sup> This corresponds to Task 6 of the Invitation to Tender.

<sup>1641</sup> See 7.3.7.

<sup>1642</sup> We did not discuss in this study whether there is any reason for action at EU-level from an economic perspective (although it is relatively easy to argue that there is, given the transboundary character of the damage – see Faure (2002), 40-42), nor did we discuss the question of formal EU competence in this area. Since various initiatives have already been taken in this domain we assumed EU competence in this domain to be a given.

<sup>1643</sup> See supra 7.2.1.

<sup>1644</sup> See supra 7.2.2.

- A joint and several liability of various parties who contributed to the offshore-related risk can be installed.
- Systems of so-called “economic channelling”, implying that the financial security of a licensee or operator also covers the liability of subcontractors should be promoted.
- Financial caps on liability should be avoided in order to expose operators and others who contribute to offshore-related risks fully to the social costs created through their activity.
- Compliance with a regulatory standard should not automatically exclude liability for damage resulting from offshore-related risks.
- It is recommendable to provide an integrated liability regime for damage caused by offshore-related risks. The proposal to integrate damage caused by offshore-related risks into the ELD could hence be reconsidered.<sup>1645</sup>

### 8.3. Mandatory financial security

- It seems indicated to mandate financial coverage for offshore related risks, especially for the cases where smaller and medium size operators may create a risk of major damage and hence an insolvency risk would emerge.<sup>1646</sup>
- To the extent possible, also at the licensing level it should be avoided that operators would engage in offshore operations of which the risks in case of an accident would outweigh their personal assets. In that case, a joint venture with OGPs with larger financial capacity may be indicated.
- It seems indicated to issue a guidance note at EU level, guiding local licensing authorities in Member States on the required amount and form of financial security for offshore related risks.<sup>1647</sup>
- As far as the amount is concerned, this guidance note should be based on an objective assessment of the risk, taking into account technical criteria that relate a specific operation and operator to particular amounts of potential damage.
- The guidance should allow sufficient flexibility as far as the forms of financial security are concerned and not necessarily limit those to insurance. The only condition would be that local regulators accurately verify whether the form and amount of the financial security offered by the operator would be adequate to cover the potential damage emerging from that particular offshore installation.
- The guidance could hence take into account location-specific circumstances on which local regulators in Member States can base their assessment of the amount and form of financial security.<sup>1648</sup>
- Such an approach allows sufficient flexibility, avoids unnecessary costs (e.g. forcing majors to transfer risks to lower rated insurance companies), encourages a level playing field for operators and avoids an externalization of social costs (and thus a market failure) in case of insolvency.
- The EU could promote the development of regional pools like OPOL (solventy guarantee pools) for other areas than the North Sea, e.g. the Mediterranean. The imposition of a regulatory duty to show financial responsibility, as recommended here, should also promote the development of those regional pools.

### 8.4. A role for government?

The EU could consider either initiating itself or suggesting the Member States particular initiatives to facilitate the provision of compensation for offshore-related risks where the

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<sup>1645</sup> See supra 7.8.5.

<sup>1646</sup> See supra 7.4.2.

<sup>1647</sup> See supra 7.4.5.

<sup>1648</sup> Ibidem.

damage would be higher than an amount which is insurable on the commercial market.<sup>1649</sup> However, such a role for government should correspond with a few fundamental principles:

- Government intervention would only be indicated for those risks for which none of the financial market solutions<sup>1650</sup> are available.
- To the extent that market solutions (such as self-insurance or captives) are available a government intervention should be absent.
- Government should hence only intervene as a last resort in the hypothetical situation that catastrophic losses<sup>1651</sup> could not be covered by any mechanism available on the market.
- Even then the government intervention should be based on premiums or contributions that reflect the actual risk in order to provide adequate incentives for prevention.

When these (exceptional) conditions would be met the following types of government intervention would be envisable:

- The creation of a compensation fund for offshore-related risk, only providing an upper layer for catastrophic damage and financed with risk-related contributions.<sup>1652</sup>
- A retrospective pooling scheme, whereby a government institution (agency) prefinances the loss and *ex post* (after the accident) claims back the money paid to the victims on the basis of retrospective contributions to be paid by operators.<sup>1653</sup> The retrospective contributions should be risk-dependent.
- A reinsurance by government as last resort.<sup>1654</sup> Again, risk-dependant (re)insurance premiums should be charged by government.

### 8.5. Rapid claims mechanism

The EU should invite Member States to develop a mechanism allowing to make early compensation payments to particular vulnerable groups of victims (more particularly fishermen and hotel/restaurant owners in coastal areas) that may be negatively affected by an offshore-related incident. The following mechanisms could be envisaged:

- An obligation imposed on the provider of the financial security or the liable person to formulate an offer for payment to the victim within a fixed period of time after the victim has presented his claim.
- The development of a (rapid) claims settlement mechanism via OPOL or similar regional pooling schemes.
- The potential construction of a facility allowing the prepayment to the particular vulnerable group of victims on the basis of a rapid evaluation of the validity of the claim and subsequent recourse of the facility against the person (as) liable for the damage caused by the offshore-related incident.

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<sup>1649</sup> It would consider scenario 3 of section 7.9.3. above.

<sup>1650</sup> Described in Chapters 5 and 6.

<sup>1651</sup> Scenario 3 from section 7.9.3.

<sup>1652</sup> See 7.5.3.2.

<sup>1653</sup> Based on the example of the retrospective pooling under the US Price-Anderson Act. See *supra* 4.7.1.

<sup>1654</sup> See 7.5.2.





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## **Annex 1: Overview of interviews with stakeholders**

1. 8 February 2013, Marsh, in Antwerp, Belgium.  
Mr. Karl Moens, Vice President Marsh Belgium, Claims Liability Manager Marine Practice
2. 11 February 2013, Swiss Re.  
Mr. Bernard Tettamanti: leader of environmental expert group concerning ELD for Insurance Europe  
Mr. Peirre Henri Francfort: expert on energy issues within Swiss Re
3. 19 February 2013, Company Lawyer of ExxonMobil, in Brussels, Belgium.
4. 22 February 2013, Staatstoezicht op de Mijnen (State Supervision of Mines), The Netherlands (in The Hague, Netherlands).  
Mr. Jan de Jong: Inspector General
5. 25 February 2013, International Association of Oil and Gas Producers (OGP), in Brussels, Belgium. Industry representatives from OGP:  
Ms. Rachel Bonfante (OGP), Interim Director of EU Affairs  
Mr. Ben Dillon (Noble Energy)  
Mr. Barry Heagin (BG Group)  
Mr. Alexander Kerst (BP)  
Mr. Barry King (Conoco Philips)  
Mr. Paul Lawson (BP)  
Mr. Steve Regulski (Nexen)  
Mr. Daniel Riesen (Shell)  
Mrs. Marijke Schurmans (ExxonMobil)  
Mr. Arjiane Waayer (Shell)
6. 26 February 2013, interview with Mr. Phil Bell, Group Casualty Director for RSA Insurance Group, London (skype meeting)
7. 5 March 2013, Interview with Prof. Kent D. Syverud, independent trustee of the Deep Water Horizon Fund (Gulf Coast Claims Facility GCCF) in Saint-Louis, USA
8. 6 March 2013, Noble Energy, Houston, United States (skype meeting)  
Mr. Gary Maddock, Director of Risk and Insurance  
Mr. Gerald Stevenson, Vice President and Treasurer
9. 12 March 2013, Munich Re, in Munich, Germany.  
Prof. Dr. Ina Ebert  
Mr. Christian Lahnstein  
Mr. Hermann Kramer, executive manager corporate underwriting casualty Munich Re  
Rechtsanwältin Kristina Meyer-Rutkowski, governmental affairs Munich Re  
Mr. Nicolas Rönneberg
10. 13 March 2013, BP, in Brussels, Belgium.  
Mr. Alexander Kerst, Advisor European Government Affairs  
Mr. Paul Lawson, BP Exploration Operating Company (Aberdeen)  
Mr. Patrick Daniel  
Mr. Collin Wannell (equally board member of OPOL)

11. 14 March 2013, Shell in Rotterdam (the Netherlands)  
Mr. Daniel Riesen  
Mr. Gerald W. Kok, corporate treasury
12. 20 March 2013, IMO  
Email exchange with Mr. Richard Mason, accredited representative of the European Commission (EC) to the International Maritime Organisation (IMO)
13. 27 March 2013, OPOL (Brussels, Belgium)  
Mr. Niall Scott, Managing Director OPOL  
Mr. Collin Wannell, Chairman of the Board of OPOL
14. 29 April 2013, Department of Energy and Climate Change (DECC) (UK)  
Mrs. Wendy Kennedy: Head of Offshore Oil and Gas at the Department of Trade and Industry
15. 1 May 2013, International Group of P&I Clubs, London (UK)  
Mr. David Baker
16. 1 May 2013, Oil and Gas UK, London (UK)  
Mr. Paul Dymond, Consultant  
Mr. David Petrie, External Affairs Officer  
Mr. John Rintoul, Environmental Issues Manager
17. 1 May 2013, Lloyds, London (UK)  
Ms. Lindsey Donnithorn, Government Policy and Affairs General Council's Division, Lloyds  
Mr. Philip Sandle, Beazley Group, Head of Liability, Marine  
Mr. Tim Taylor, Partner, Clyde & Co.  
Mr. Neil Roberts, Senior Executive Underwriting Lloyds Market Association  
Mr. James Walmsley, Senior Manager Government Policy and Affairs, Lloyds
18. 6 May 2013, Munich Re Insurance Company, Brussels (Belgium)  
Dr. Philipp Wassenberg, Munich Re Insurance Company
19. 4 June 2013, Study Centre for Nuclear Energy (SCK/CEN, Mol (Belgium))  
Mr. Ludo Veuchelen, Company Lawyer
20. 5 June 2013, International Association of Drilling Contractors (IADC)  
Mr. Alan Spackman, Vice-President Offshore Division, Texas
21. 16 June 2013  
Mr. Kenneth Feinberg, special administrator of the Gulf Coast Claims Facility (GCCF), interview in Haifa (Israel)

## **Annex 2: Checklist for country studies**

### Checklist

#### 1. Basis of liability

A first issue to be addressed is obviously whether the liability is based on either fault (negligence) or strict liability. A faultless liability can potentially reach much further than a liability based on negligence. Moreover, there can be many grey zones between fault and strict liability, i.e. a tightened version of the fault liability. This is in many countries applied in case of liability for environmental damages and also corresponds to an international tendency towards introducing stricter liabilities for high risk activities. In relation to this also the question how the behaviour of the victim and third parties are taken into account and other defences (like force majeure) will have to be addressed.

#### 2. Relationship with regulation

A second crucial issue determining the scope of liability is the relationship with a regulatory framework. This could be authorisations, licenses or permits or particular conditions contained in those authorisations or simply regulatory prescriptions. Currently, there is no international or EU regime dealing particularly with the liability arising from offshore oil and gas exploration activities, but a large amount of (detailed) regulations already exist on safety standards for the offshore industry. In this respect the question arises whether compliance with a regulatory norm would lead to an exclusion of liability or vice versa whether a breach of regulation would lead to liability. Is e.g. insurance a precondition in issuing a license for offshore facility? As for example the experience with the Environmental Liability Directive has shown, the relationship with regulation can have an important bearing on the scope of liability. If compliance with a regulatory standard would exclude liability this could seriously limit the scope of liability of the offshore industry, whereas this scope would potentially be much larger to the extent that liability would remain possible also when regulatory standards are complied with. Hence, attention will have to be paid to the question how the regulation of the offshore industry fits into a consistent integrated system of liability.

#### 3. Causation

Also the way in which the law deals with causation can to an important extent determine the scope of liability. Again this had been made clear in environmental liability, but also in cases of liability for pharmaceutical products. A major problem, especially with new technologies is that in many cases there is uncertainty concerning the extent to which a particular activity caused the harm. The way in which the law deals with this issue of so-called causal uncertainty can have an important bearing on the scope of liability. If the law would (as is the case in some Member States with respect to employers' liability for occupational diseases) shift the burden of proving causation to operators, or allow liability for exposure to risk in itself, this could potentially enlarge the scope of liability substantially, since an industrial operator could in that case (if he is not able to show that his activity did not cause the harm) lead to situations that the operator is held liable also for damage that he may not have caused. Therefore a careful determination of the criteria for causation and more particularly the way in which the law deals with causal uncertainty is crucial to understand the scope of liability.

#### 4. Attribution of liability

Related to the problem of causal uncertainty is how the law deals with situations where multiple parties may have contributed to the risk. One approach, in case of multiple tortfeasors, is to adopt a joint and several liability (sometimes also referred to as solidarity) instead of an attribution according to each party's contribution to the risk. A joint and several liability could potentially (especially to the extent that the other tortfeasors are found insolvent) seriously expand the scope of liability of tortfeasors. The literature has indicated that the tort/insurance crisis which has played a large role in the US in the 1980s of last

century<sup>1655</sup> may to a large extent have been caused, not so much by the mere shift from negligence to strict liability, but rather by accompanying features of the strict liability regime, such as the way in which tort law dealt with causal uncertainty and the introduction of joint and several liability.<sup>1656</sup>

A related important issue of attribution is the so-called channelling of liability. Channelling means that liability is channelled to only one party who then becomes fully liable for the damage. Such a channelling of liability was for example the solution introduced in the Nuclear Liability Convention as well as in the conventions dealing with vessel-source marine oil pollution. In the first case liability is channelled to the licensee of a nuclear power plant; in the second case liability was channelled to the registered tanker owner. Again, channelling may have an important bearing on the scope of liability since it could facilitate insurability of the liability. Moreover, it makes *ex ante* clear to potential victims (but also to other stakeholders in the offshore industry) that only the party to whom liability is channelled will be held liable, thus excluding liability of all others involved.

#### 5. Damages – remedies

Obviously also the scope of the damages that can be awarded can have an important consequence for the scope of liability of operators in the offshore industry. The question hence will have to be addressed what heads of damages are to be compensated; a few issues may have an important consequence for the scope of liability, such as:

- the highly debated issue whether also pure economic loss should be compensated (which, again, could potentially enlarge the scope of liability of an operator). What is of particular concern here is the calculation of losses suffered by fishermen and the tourism industry;
- whether and how fatalities/ personal injuries and property damages are respectively compensated;
- how to calculate the damage to the environment itself, or the ecological damages.

#### 6. Amount of compensation

The exploration and exploitation of offshore hydrocarbon resources often takes place in a hostile environment, and poses risks to humans and the environment.<sup>1657</sup> Then the question arises whether the parties who carry out such activities should be held fully liable for the damages they cause (unlimited liability), or whether their liability should be limited to a certain amount (limitation of liability or financial caps).

#### 7. Applicability in time

Victims may suffer dramatically due to an offshore pollution incident. The means of living may be threatened for those who completely depend on the sea area. Therefore, it is crucial for a liability system to envisage a rapid claims handling mechanism that would provide compensation to the victims in a timely manner to help them survive the financial difficulty after the pollution incident. Hence, applicability in time is also an important criterion when examining a liability system.

An important aspect to determine the scope of a liability regime is furthermore whether it applies only to foreseeable risks in the future or whether the liability regime will also apply to risks that were created in the past. The latter is referred to as a so-called retrospective or retroactive liability regime. Retrospective liability has been strongly criticised in the US where the so-called superfund regime under CERCLA was based on a joint and several

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<sup>1655</sup> See Priest (1987), 1521-1590.

<sup>1656</sup> See in this respect especially Trebilcock (1987), 929-1002.

<sup>1657</sup> Offshore Oil and Gas in the UK – An Independent Review of the Regulatory Regime, December 2011, p. 3.

retrospective strict liability. Again, if a new liability regime were only to be applied to future situations (like it is for example the case under the Environmental Liability Directive) this may seriously limit the liability exposure of operators; a retrospective liability could on the other hand precisely endanger the insurability of liability.<sup>1658</sup>

#### 8. Compensation mechanisms

It is of crucial importance not only to focus on liability, but also to address compensation mechanisms. Indeed, if alternative compensation mechanisms (meaning other than liability) were available this could to some extent reduce the need for victims to call on the tort system to seek compensation for their losses. Again, some argue that the fact that tort liability has apparently been much more popular in the US than in Europe, is to some extent due to the fact that social security may be covering less in the US than in Europe which would hence increase the need for victims to call on liability law, also for compensation of their primary needs.<sup>1659</sup> Therefore, in addition to addressing merely the liability, when analysing the various liability schemes addressed in the different work packages attention should also be paid to the existence of potential other compensation mechanisms, such as (for example, but not limited to):

- the existence of compulsory liability insurance or other duties to seek financial coverage for liability;
- the existence of (mandatory or voluntary) first party or direct insurance schemes;
- the availability of risk sharing agreements or pooling schemes between operators;
- the use of *ex ante* guarantees and deposits (of a voluntary or mandatory nature);
- the level of compensation awarded via social security mechanisms.

#### 9. Jurisdictional issues

Also, the way litigation is organised can have an important bearing on the scope of liability; in this respect, attention should e.g. be paid to:

- possibilities of bringing a suit in the EU Member State in which the incident has occurred;
- the question whether this would deliver exclusive jurisdiction or whether victims could bring suit in different Member States;
- the way case management has or can be organised in case of either multiple tortfeasors or multiple victims.

Again, these seemingly technical (procedural) issues can have an important consequence for the scope of liability of an operator of offshore activities. For example, possibilities of bundling of claims of various victims in one case could potentially reduce liability costs of an operator, whereas different claims in different jurisdictions could increase those costs.

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<sup>1658</sup> See Faure and Fenn (1999), 487-500.

<sup>1659</sup> See Koziol (1997), 21-35.

# Annex 3: Oil Pollution Act Liability Limits 2012<sup>1660</sup>

## Attachment A: Incidents Exceeding Liability Limits by Vessel Type

Vessel Type	Project Name	Incident Year	Incident Location	Gross Tonnage	Total Incident Cost	Inflation Factor	Total Incident Cost (2012 Dollars)	Limits of Liability	Fund Exposure	Actual OSLTF Costs Incurred
Tank Ship (Single Hull)	TY JULIEN	1990	ME	18,500	\$52,601,200	1.46	\$76,798,000	\$59,126,000	\$17,671,000	\$28,376,000
Tank Ship (Single Hull)	TY A THRS I	2004	NO	37,500	\$356,978,000	1.21	\$431,943,000	\$121,264,000	\$188,679,000	\$209,929,000
<b>Total Tank Ship (Single Hull)</b>							<b>\$397,741,000</b>	<b>\$190,390,000</b>	<b>\$207,350,000</b>	<b>\$238,305,000</b>
Tank Barge (Single Hull)	TB VISTABELLA	1991	PR	1,100	\$6,124,100	1.68	\$10,289,000	\$6,408,000	\$3,881,000	\$4,782,000
Tank Barge (Single Hull)	TB (TAMPA BAY COLLISION)	1993	FL	9,300	\$68,900,000	1.59	\$109,551,000	\$29,638,000	\$79,913,000	\$2,397,000
Tank Barge (Single Hull)	TB MORRIS J. BERMAN	1994	PR	5,400	\$95,488,300	1.53	\$148,007,000	\$74,496,000	\$124,511,000	\$95,488,000
Tank Barge (Single Hull)	MV SCANDIA & TB NORTH CAPE	1996	RI	5,500	\$49,000,000	1.46	\$71,540,000	\$23,496,000	\$48,044,000	\$9,046,000
Tank Barge (Single Hull)	TB BUFFALO #292	1996	TX	1,500	\$21,529,900	1.46	\$31,434,000	\$6,408,000	\$25,026,000	\$16,810,000
Tank Barge (Single Hull)	TB B NO. 120	2003	MA	6,900	\$61,339,200	1.25	\$76,674,000	\$33,496,000	\$53,178,000	\$1,753,000
Tank Barge (Single Hull)	TB EMC 423	2005	IL	1,400	\$13,424,100	1.17	\$15,706,000	\$6,408,000	\$9,298,000	\$1,813,000
<b>Total Tank Barge (Single Hull)</b>							<b>\$463,201,000</b>	<b>\$119,360,000</b>	<b>\$343,851,000</b>	<b>\$136,089,000</b>
Tank Barge (Double Hull)	TB DBL 152	2005	LA	9,700	\$57,019,800	1.17	\$66,783,000	\$19,482,000	\$47,301,000	\$19,478,000
Tank Barge (Double Hull)	TB DM932	2008	LA	800	\$99,735,600	1.07	\$106,713,000	\$4,272,000	\$102,441,000	\$21,516,000
<b>Total Tank Barge (Double Hull)</b>							<b>\$173,496,000</b>	<b>\$23,754,000</b>	<b>\$149,746,000</b>	<b>\$40,994,000</b>
Cargo/Other SPV	MV KUROSHIMA	1997	AK	4,200	\$19,702,600	1.43	\$28,173,000	\$4,600,000	\$24,015,000	\$17,340,000
Cargo/Other SPV	MV KURE	1997	CA	36,000	\$47,218,900	1.47	\$69,523,000	\$36,009,000	\$33,514,000	\$71,000
Cargo/Other SPV	MV NEW CARISSA	1999	OR	36,690	\$50,501,400	1.38	\$69,692,000	\$36,571,000	\$33,121,000	\$32,914,000
Cargo/Other SPV	MV STUYVESANT	1999	CA	7,100	\$11,700,000	1.38	\$16,146,000	\$7,111,000	\$9,035,000	\$379,000
Cargo/Other SPV	MV SERGO ZAKARIADZE	1999	PR	16,500	\$13,966,700	1.38	\$22,034,000	\$16,502,000	\$5,532,000	\$6,063,000
Cargo/Other SPV	SS LUCKENBACH	2001	CA	7,800	\$39,691,800	1.36	\$53,996,000	\$7,809,000	\$46,187,000	\$14,251,000
Cargo/Other SPV	MV KIMTON	2001	PR	300	\$13,700	1.36	\$20,640	\$854,000	\$774,000	\$714,000
Cargo/Other SPV	V CILAKA ROSE HUNY	2003	MA	100	\$1,085,700	1.25	\$1,357,000	\$854,000	\$503,000	\$94,000
Cargo/Other SPV	MV RED DIAMOND	2003	FL	200	\$2,595,200	1.25	\$3,244,000	\$854,000	\$3,390,000	\$2,595,000
Cargo/Other SPV	CLANE BARGE MONARCH	2003	CA	200	\$2,481,700	1.25	\$3,102,000	\$854,000	\$2,248,000	\$2,482,000
Cargo/Other SPV	MV BOWSTRING	2003	FL	300	\$1,636,300	1.25	\$2,045,000	\$854,000	\$1,191,000	\$1,606,000
Cargo/Other SPV	MV SELENDANG AYU	2004	AK	39,800	\$178,988,100	1.21	\$216,576,000	\$39,755,000	\$176,821,000	\$6,721,000
Cargo/Other SPV	MV ORIENTAL I	2004	FL	200	\$727,400	1.21	\$880,000	\$854,000	\$36,000	\$727,000
Cargo/Other SPV	ALBION	2005	CA	200	\$1,207,100	1.17	\$1,412,000	\$854,000	\$558,000	\$1,207,000
Cargo/Other SPV	MV CASITAS	2005	HI	300	\$1,710,700	1.17	\$2,001,000	\$854,000	\$1,147,000	\$1,711,000
Cargo/Other SPV	MAMA LERE	2006	TX	400	\$1,217,300	1.14	\$1,388,000	\$854,000	\$534,000	\$1,217,000
Cargo/Other SPV	MV COBCO BURAN	2007	CA	65,100	\$110,557,900	1.11	\$122,719,000	\$65,131,000	\$57,588,000	\$4,208,000
Cargo/Other SPV	MV SENDICA	2007	MI	200	\$1,211,000	1.11	\$1,344,000	\$854,000	\$490,000	\$1,211,000
Cargo/Other SPV	LST-1166	2007	OR	2,400	\$5,150,700	1.11	\$5,717,000	\$2,418,000	\$3,299,000	\$5,151,000
Cargo/Other SPV	CATALA	2007	WA	5,700	\$6,138,500	1.11	\$6,814,000	\$5,700,000	\$1,114,000	\$6,138,000
Cargo/Other SPV	C/V SEA WITCH	2008	MD	17,800	\$20,619,500	1.07	\$22,074,000	\$17,907,000	\$4,172,000	\$20,630,000
Cargo/Other SPV	BIG BOY & SCOOBY DOO	2008	PA	200	\$1,010,800	1.07	\$1,082,000	\$854,000	\$227,000	\$1,011,000
Cargo/Other SPV	WIDONAH	2009	CA	300	\$932,500	1.07	\$998,000	\$854,000	\$144,000	\$933,000
Cargo/Other SPV	SOIND DEVELOPER	2009	AK	200	\$1,476,800	1.07	\$1,587,000	\$854,000	\$733,000	\$1,477,000
Cargo/Other SPV	MINARCH	2009	AK	300	\$2,698,200	1.07	\$2,887,000	\$854,000	\$2,033,000	\$2,699,000
Cargo/Other SPV	MV PRINCESS KATHLEEN	2010	AK	5,900	\$14,185,500	1.05	\$14,895,000	\$5,875,000	\$9,020,000	\$14,186,000
Cargo/Other SPV	DAVY CROCKETT	2011	WA	4,600	\$22,284,000	1.02	\$22,730,000	\$4,643,000	\$18,087,000	\$22,284,000
Cargo/Other SPV	TUG TIGER	2011	CA	200	\$2,419,900	1.02	\$2,468,000	\$854,000	\$1,614,000	\$2,470,000
<b>Total Cargo/Other SPV</b>							<b>\$693,486,000</b>	<b>\$262,456,000</b>	<b>\$431,020,000</b>	<b>\$206,507,000</b>

This listing includes all incidents regardless of vessel size or type and regardless of whether a claim to the Fund by a responsible party for amounts in excess of liability limits was received or is anticipated. It includes Federal removal costs and claims paid that have been verified. Other costs are estimated from best available information but cannot otherwise be verified. Fund exposure amounts are estimates and do not imply that the responsible parties will be able to limit their liability under the statute where the issue has not yet been determined.

Vessel Type	Project Name	Incident Year	Incident Location	Gross Tonnage	Total Incident Cost	Inflation Factor	Total Incident Cost (2012 Dollars)	Limits of Liability	Fund Exposure	Actual OSLTF Costs Incurred
Fishing Vessel	FV TENYO MARU	1991	WA	4,200	\$6,062,900	1.88	\$10,186,000	\$4,167,000	\$6,019,000	\$6,063,000
Fishing Vessel	FV JIN SHANG FA	1993	AS	400	\$2,013,000	1.59	\$3,201,000	\$854,000	\$2,347,000	\$2,420,000
Fishing Vessel	FV YU TE NG I	1999	AS	200	\$1,164,600	1.38	\$1,607,000	\$854,000	\$753,000	\$5,296,000
Fishing Vessel	FV AMIGA NO. 5	1999	AS	200	\$3,355,700	1.38	\$4,611,000	\$854,000	\$3,757,000	\$2,766,000
Fishing Vessel	FV KWANG MYONG	1999	AS	200	\$1,554,800	1.38	\$2,146,000	\$854,000	\$1,292,000	\$905,000
Fishing Vessel	FV KORAM NO. 3	1999	AS	200	\$1,403,100	1.38	\$1,996,000	\$854,000	\$1,142,000	\$813,000
Fishing Vessel	FV KWANG MYONG NO 72	1999	AS	200	\$2,182,950	1.38	\$2,912,000	\$854,000	\$2,058,000	\$1,593,000
Fishing Vessel	FV KWANG MYONG NO 58	1999	AS	200	\$1,527,000	1.38	\$2,149,000	\$854,000	\$1,295,000	\$967,000
Fishing Vessel	FV KORAM NO 1	1999	AS	200	\$1,378,450	1.38	\$1,902,000	\$854,000	\$1,048,000	\$788,000
Fishing Vessel	FV KWANG MYONG NO 51	1999	AS	200	\$1,249,200	1.38	\$1,724,000	\$854,000	\$870,000	\$690,000
Fishing Vessel	FV JESICA ANN	2000	ME	200	\$617,000	1.33	\$820,000	\$854,000	\$405,000	\$947,000
Fishing Vessel	FV SWORDMAN I	2000	HI	100	\$1,528,500	1.33	\$2,033,000	\$854,000	\$1,179,000	\$1,528,000
Fishing Vessel	FV WINDY DAY	2001	AK	400	\$3,398,400	1.30	\$4,415,000	\$854,000	\$3,561,000	\$3,398,000
Fishing Vessel	FV VANGUARD	2001	AK	200	\$699,800	1.30	\$910,000	\$854,000	\$55,000	\$700,000
Fishing Vessel	FV GENE MARU #7	2002	AK	100	\$869,800	1.28	\$1,113,000	\$854,000	\$259,000	\$870,000
Fishing Vessel	FV TERESA LYNN	2002	IL	200	\$690,800	1.28	\$884,000	\$854,000	\$30,000	\$691,000
Fishing Vessel	FV NEW HORIZON	2004	CA	100	\$805,500	1.21	\$974,000	\$854,000	\$120,000	\$305,000
Fishing Vessel	FV MWALIE SAAT	2004	GU	200	\$3,413,500	1.21	\$4,130,000	\$854,000	\$3,276,000	\$3,414,000
Fishing Vessel	FV THE HOSS	2004	OR	200	\$926,100	1.21	\$1,121,000	\$854,000	\$267,000	\$926,000
Fishing Vessel	FV MILKY WAY	2005	WA	200	\$1,039,600	1.17	\$1,216,000	\$854,000	\$362,000	\$980,000
<b>Total Fishing Vessel</b>							<b>\$89,550,000</b>	<b>\$26,393,000</b>	<b>\$30,180,000</b>	<b>\$35,116,000</b>
<b>Grand Total</b>							<b>\$1,768,473,000</b>	<b>\$666,357,000</b>	<b>\$1,162,116,000</b>	<b>\$659,011,000</b>

SPV - Self-Propelled Vessel

<sup>1660</sup> <[http://www.uscg.mil/npcf/docs/PDFs/Reports/Liability\\_Limits\\_Report\\_2012.pdf](http://www.uscg.mil/npcf/docs/PDFs/Reports/Liability_Limits_Report_2012.pdf)>.

## Attachment B: Incidents Exceeding Liability Limits by Incident Date

Vessel Type	Project Name	Incident Year	Incident Location	Gross Tonnage	Total Incident Cost	Inflation Factor	Total Incident Cost (2012 Dollars)	Limits of Liability	Fund Exposure	Actual OSLETF Costs Incurred
Fishing Vessel	FV TENYO MARU	1991	WA	4,200	\$6,062,900	1.68	\$1,018,000	\$4,167,000	\$6,019,000	\$6,063,000
Tank Barge (Single Hull)	TB VISTABELLA	1991	PR	1,100	\$6,124,100	1.68	\$1,0289,000	\$6,408,000	\$3,881,000	\$1,782,000
Fishing Vessel	FV JIN SHANG FA	1993	AS	400	\$2,013,000	1.59	\$3,201,000	\$854,000	\$7,346,000	\$2,420,000
Tank Barge (Single Hull)	TB (TAMPA BAY COLLISION)	1993	FL	9,300	\$68,900,000	1.59	\$109,551,000	\$29,638,000	\$79,913,000	\$2,397,000
Tank Barge (Single Hull)	TB MORRIS J. BERMAN	1994	PR	5,400	\$95,488,300	1.55	\$148,007,000	\$23,496,000	\$124,511,000	\$95,488,000
Tank Barge (Single Hull)	MV SCANDIA & TB NORTH CAPE	1996	RI	5,500	\$49,000,000	1.46	\$71,540,000	\$23,496,000	\$48,044,000	\$9,046,000
Tank Barge (Single Hull)	TB BUFFALO #292	1996	TX	1,500	\$21,529,900	1.46	\$31,434,000	\$6,408,000	\$25,026,000	\$16,810,000
Tank Ship (Single Hull)	TV JULIE N	1996	ME	18,500	\$52,601,200	1.46	\$76,798,000	\$59,126,000	\$17,671,000	\$78,376,000
Cargo/Other SPV	MV KUBOSHIMA	1997	AF	1,200	\$19,702,600	1.43	\$28,178,000	\$4,100,000	\$24,018,000	\$1,750,000
Cargo/Other SPV	MV KURE	1997	CA	86,000	\$47,218,900	1.43	\$67,525,000	\$36,009,000	\$31,514,000	\$711,000
Cargo/Other SPV	MV NEW CARISSA	1999	OR	36,600	\$50,501,400	1.38	\$69,692,000	\$36,571,000	\$33,121,000	\$32,914,000
Cargo/Other SPV	MV STUYVESANT	1999	CA	7,100	\$11,700,000	1.38	\$16,146,000	\$7,111,000	\$9,035,000	\$379,000
Cargo/Other SPV	MV SERGO ZAKARIADZE	1999	PR	16,500	\$15,966,700	1.38	\$22,034,000	\$16,502,000	\$5,532,000	\$6,065,000
Fishing Vessel	FV YU TE NO. 1	1999	AS	200	\$1,164,600	1.38	\$1,607,000	\$854,000	\$733,000	\$7,296,000
Fishing Vessel	FV AMIGA NO. 5	1999	AS	200	\$3,355,700	1.38	\$4,631,000	\$854,000	\$3,777,000	\$2,766,000
Fishing Vessel	FV KWANG MYONG	1999	AS	200	\$1,554,800	1.38	\$2,146,000	\$854,000	\$1,291,000	\$965,000
Fishing Vessel	FV KORAM NO. 3	1999	AS	200	\$1,403,100	1.38	\$1,936,000	\$854,000	\$1,082,000	\$813,000
Fishing Vessel	FV KWANG MYONG NO 72	1999	AS	200	\$2,182,900	1.38	\$3,012,000	\$854,000	\$2,158,000	\$1,583,000
Fishing Vessel	FV KWANG MYONG NO 58	1999	AS	200	\$1,557,600	1.38	\$2,145,000	\$854,000	\$1,291,000	\$967,000
Fishing Vessel	FV KORAM NO 1	1999	AS	200	\$1,378,400	1.38	\$1,902,000	\$854,000	\$1,048,000	\$788,000
Fishing Vessel	FV KWANG MYONG NO 51	1999	AS	200	\$1,249,200	1.38	\$1,724,000	\$854,000	\$869,000	\$659,000
Fishing Vessel	FV JESSICA ANN	2000	ME	200	\$947,000	1.33	\$1,260,000	\$854,000	\$405,000	\$947,000
Fishing Vessel	FV SWORDMAN I	2000	HI	100	\$1,528,500	1.33	\$2,033,000	\$854,000	\$1,178,000	\$1,528,000
Cargo/Other SPV	SS ILLUCENBACH	2001	CA	7,800	\$39,691,800	1.30	\$51,599,000	\$7,809,000	\$43,790,000	\$44,051,800
Cargo/Other SPV	MV KIMTON	2001	PR	200	\$713,700	1.30	\$928,000	\$854,000	\$73,000	\$714,000
Fishing Vessel	FV WINDY BAY	2001	AK	400	\$3,396,400	1.30	\$4,415,000	\$854,000	\$3,561,000	\$3,396,000
Fishing Vessel	FV VANGUARD	2001	AK	200	\$699,800	1.30	\$910,000	\$854,000	\$55,000	\$700,000
Fishing Vessel	FV GENTI MARIU #7	2002	AK	100	\$869,800	1.28	\$1,113,000	\$854,000	\$259,000	\$870,000
Fishing Vessel	FV TERESA LYNN	2002	FL	200	\$690,800	1.28	\$884,000	\$854,000	\$30,000	\$691,000
Cargo/Other SPV	VICTORIA ROSE HUNT	2003	MA	100	\$1,085,700	1.25	\$1,357,000	\$854,000	\$503,000	\$940,000
Cargo/Other SPV	MV RED DIAMOND	2003	FL	200	\$2,595,200	1.25	\$3,244,000	\$854,000	\$2,390,000	\$2,595,000
Cargo/Other SPV	CRANE BARGE MONARCH	2003	CA	200	\$2,481,700	1.25	\$3,102,000	\$854,000	\$2,248,000	\$2,481,000
Cargo/Other SPV	MV BOWSTRING	2003	FL	300	\$1,606,500	1.25	\$2,008,000	\$854,000	\$1,154,000	\$1,606,000
Tank Barge (Single Hull)	TB B NC 120	2003	MA	6,800	\$61,339,200	1.25	\$76,674,000	\$23,496,000	\$53,178,000	\$1,753,000
Fishing Vessel	FV NEW HORIZON	2004	CA	100	\$805,300	1.21	\$974,000	\$854,000	\$120,000	\$705,000
Cargo/Other SPV	MV SELENDANG AYU	2004	AK	39,800	\$178,988,100	1.21	\$216,576,000	\$39,755,000	\$176,821,000	\$6,721,000

Vessel Type	Project Name	Incident Year	Incident Location	Gross Tonnage	Total Incident Cost	Inflation Factor	Total Incident Cost (2012 Dollars)	Limits of Liability	Fund Exposure	Actual OSLETF Costs Incurred
Fishing Vessel	FV MWALIL SAAT	2004	GU	200	\$3,413,500	1.21	\$4,130,000	\$854,000	\$3,276,000	\$3,414,000
Fishing Vessel	FV THE BOSS	2004	OR	200	\$926,100	1.21	\$1,121,000	\$854,000	\$266,000	\$926,000
Tank Ship (Single Hull)	TV ATHOS I	2004	NJ	37,900	\$256,978,000	1.21	\$310,943,000	\$121,264,000	\$189,679,000	\$209,929,000
Cargo/Other SPV	MV ORIENTAL I	2004	FL	200	\$727,400	1.21	\$880,000	\$854,000	\$26,000	\$727,000
Tank Barge (Double Hull)	TB DBL 152	2005	LA	8,700	\$57,079,800	1.17	\$66,783,000	\$19,482,000	\$47,301,000	\$19,478,000
Cargo/Other SPV	ALBION	2005	CA	200	\$1,207,100	1.17	\$1,412,000	\$854,000	\$558,000	\$1,207,000
Cargo/Other SPV	MV CASITAS	2005	HI	300	\$1,710,700	1.17	\$2,001,000	\$854,000	\$1,147,000	\$1,711,000
Tank Barge (Single Hull)	TB EMC 423	2005	IL	1,400	\$13,424,100	1.17	\$15,706,000	\$6,408,000	\$9,298,000	\$4,813,000
Fishing Vessel	FV MILKY WAY	2005	WA	200	\$1,039,600	1.17	\$1,216,000	\$854,000	\$362,000	\$900,000
Cargo/Other SPV	MAMA LERE	2006	TX	400	\$1,217,300	1.14	\$1,388,000	\$854,000	\$533,000	\$1,217,000
Cargo/Other SPV	MV COSCO BUSAN	2007	CA	65,100	\$110,557,900	1.11	\$122,719,000	\$65,131,000	\$57,588,000	\$1,208,000
Cargo/Other SPV	MV SENECA	2007	MD	200	\$1,211,000	1.11	\$1,344,000	\$854,000	\$490,000	\$1,211,000
Cargo/Other SPV	LST-1166	2007	OR	2,400	\$3,150,700	1.11	\$3,517,000	\$2,418,000	\$3,299,000	\$3,151,000
Cargo/Other SPV	CATALA	2007	WA	5,700	\$6,138,500	1.11	\$6,814,000	\$5,700,000	\$1,114,000	\$6,138,000
Tank Barge (Double Hull)	TB DM932	2008	LA	800	\$99,735,600	1.07	\$106,717,000	\$4,272,000	\$102,445,000	\$21,516,000
Cargo/Other SPV	CV SEA WITCH	2008	MD	17,900	\$20,629,900	1.07	\$22,074,000	\$17,902,000	\$4,172,000	\$20,630,000
Cargo/Other SPV	BIG BOY & SCOOBY DOO	2008	PA	200	\$1,010,800	1.07	\$1,082,000	\$854,000	\$227,000	\$1,011,000
Cargo/Other SPV	WENONAH	2009	CA	300	\$932,500	1.07	\$998,000	\$854,000	\$143,000	\$933,000
Cargo/Other SPV	SOUND DEVELOPER	2009	AK	200	\$1,576,600	1.07	\$1,687,000	\$854,000	\$833,000	\$1,577,000
Cargo/Other SPV	MONARCH	2009	AK	300	\$2,698,200	1.07	\$2,887,000	\$854,000	\$2,033,000	\$2,698,000
Cargo/Other SPV	MV PRINCESS KATHLEEN	2010	AK	5,900	\$14,185,900	1.05	\$14,895,000	\$5,875,000	\$9,020,000	\$14,186,000
Cargo/Other SPV	DAVY CROCKETT	2011	WA	4,600	\$22,284,000	1.02	\$22,730,000	\$4,613,000	\$18,087,000	\$22,284,000
Cargo/Other SPV	TUG TIGER	2011	CA	200	\$2,419,500	1.02	\$2,468,000	\$854,000	\$1,614,000	\$2,420,000
<b>Total 1991-2000</b>							\$686,974,000	\$262,491,000	\$424,483,000	\$239,314,000
<b>Total 2001-2012</b>							\$1,081,499,000	\$343,866,000	\$737,633,000	\$410,697,000

SPV - Self-Propelled Vessel

This listing includes all incidents regardless of vessel size or type and regardless of whether a claim to the Fund by a responsible party for amounts in excess of liability limits was received or is a Costs include Federal removal costs and claims paid that have been verified. Other costs are estimated from best available information but cannot otherwise be verified. Fund exposure amounts and do not imply that the responsible parties will be able to limit their liability under the statute where the issue has not yet been determined.

# Attachment C: Incidents Exceeding Liability Limits With Limits to Achieve 50 percent Cost Share

Vessel Type	Project Name	Incident Year	Incident Location	Gross Tonnage	Total Incident Cost	Inflation Factor	Total Incident Cost (2017 Dollars)	Limits of Liability	Fund Exposure	Actual OSLT Costs Incurred	Costs Exceeding Liability Limits For a 50% Cost Share	Minimum Liability For a 50% Cost Share
Tank Ship (Single Hull)	T/V JULIEN	1996	ME	18,500	\$52,600,200	1.46	\$76,799,000	\$90,364,000	\$17,671,000	\$38,378,000	\$61,400,000	\$38,378,000
Tank Ship (Single Hull)	T/V ATHOS I	2004	NO	37,900	\$26,979,000	1.21	\$32,654,200	\$21,254,000	\$109,979,000	\$209,979,000	\$170,560,000	\$38,378,000
<b>Total Tank Ship (Single Hull)</b>							<b>\$109,453,200</b>	<b>\$111,618,000</b>	<b>\$287,358,000</b>	<b>\$588,358,000</b>	<b>\$331,938,000</b>	<b>\$38,378,000</b>
Tank Barge (Single Hull)	T/B VESTARILLA	1991	PR	1,100	\$6,124,100	1.68	\$10,289,000	\$6,408,000	\$3,881,000	\$1,792,000	\$8,239,000	\$10,289,000
Tank Barge (Single Hull)	T/B (TAMPA BAY COLLECTION)	1993	FL	9,300	\$68,000,000	1.59	\$109,251,000	\$29,638,000	\$79,913,000	\$2,997,000	\$69,750,000	\$33,100,000
Tank Barge (Single Hull)	T/B MORRIS J. BERMAN	1994	PR	5,400	\$91,488,300	1.55	\$140,807,000	\$33,496,000	\$124,541,000	\$9,548,000	\$48,500,000	\$33,100,000
Tank Barge (Single Hull)	M/V SCARDIA & T/B NORTH CAPE	1996	HI	5,500	\$49,000,000	1.46	\$71,540,000	\$23,496,000	\$48,044,000	\$9,046,000	\$41,250,000	\$33,100,000
Tank Barge (Single Hull)	T/B BUFFALO RIVER	1996	TX	1,500	\$21,529,900	1.46	\$31,434,000	\$6,408,000	\$25,026,000	\$16,816,000	\$11,250,000	\$10,000,000
Tank Barge (Single Hull)	T/B B 580 130	2003	MA	6,000	\$61,209,200	1.25	\$76,520,000	\$23,086,000	\$33,176,000	\$1,723,000	\$35,750,000	\$33,100,000
Tank Barge (Single Hull)	T/B BAC 123	2003	IL	1,300	\$12,424,100	1.17	\$14,536,000	\$6,408,000	\$9,279,000	\$1,212,000	\$12,500,000	\$23,100,000
<b>Total Tank Barge (Single Hull)</b>							<b>\$465,991,000</b>	<b>\$119,686,000</b>	<b>\$343,883,000</b>	<b>\$158,689,000</b>	<b>\$188,689,000</b>	<b>\$119,686,000</b>
Tank Barge (Double Hull)	T/B DBL 112	2001	LA	9,700	\$57,979,000	1.17	\$66,783,000	\$19,402,000	\$47,381,000	\$19,476,000	\$379,400,000	\$43,400,000
Tank Barge (Double Hull)	T/B DBL 12	2003	LA	800	\$99,735,000	1.07	\$106,717,000	\$4,372,000	\$102,345,000	\$21,516,000	\$80,829,000	\$43,400,000
<b>Total Tank Barge (Double Hull)</b>							<b>\$173,500,000</b>	<b>\$23,774,000</b>	<b>\$149,726,000</b>	<b>\$40,992,000</b>	<b>\$124,734,000</b>	<b>\$86,800,000</b>
NIV < 300 GT	T/V TOKYO MARU	1991	WA	4,200	\$6,062,900	1.68	\$10,186,000	\$4,367,000	\$6,019,000	\$6,082,000	\$5,400,000	\$20,200,000
NIV < 300 GT	T/V JIN SHANG FA	1991	AS	400	\$2,013,000	1.50	\$3,021,000	\$8,410,000	\$2,346,000	\$1,000,000	\$325,000	\$20,200,000
NIV < 300 GT	M/V KUBOSHIWA	1997	AK	4,200	\$16,762,600	1.47	\$23,751,000	\$4,161,000	\$24,361,000	\$17,548,000	\$5,400,000	\$20,200,000
NIV < 300 GT	M/V KUBO	1997	CA	36,000	\$47,238,000	1.43	\$67,523,000	\$30,609,000	\$33,914,000	\$7,110,000	\$40,800,000	\$20,200,000
NIV < 300 GT	M/V NEW CARIBBEA	1999	OR	36,600	\$39,501,000	1.38	\$56,292,000	\$36,371,000	\$33,121,000	\$33,914,000	\$47,500,000	\$20,200,000
NIV < 300 GT	M/V STUYVESANT	1999	CA	5,100	\$11,700,000	1.38	\$16,146,000	\$7,111,000	\$9,031,000	\$3,930,000	\$9,230,000	\$20,200,000
NIV < 300 GT	M/V SEBEO ZAKARIADZE	1999	PR	16,300	\$13,986,700	1.38	\$19,104,000	\$16,302,000	\$5,321,000	\$6,665,000	\$21,000,000	\$20,200,000
NIV < 300 GT	T/V WINDY BAY	2001	AK	400	\$3,296,400	1.30	\$4,285,000	\$8,540,000	\$2,564,000	\$3,286,000	\$320,000	\$20,200,000
NIV < 300 GT	SS JI LOCKENRAOT	2001	CA	7,800	\$39,661,800	1.30	\$51,569,000	\$7,869,000	\$43,700,000	\$11,051,000	\$10,700,000	\$20,200,000
NIV < 300 GT	M/V SELINDANG AYU	2001	AK	39,800	\$17,968,100	1.21	\$21,736,000	\$39,755,000	\$17,624,100	\$6,721,000	\$11,700,000	\$20,200,000
NIV < 300 GT	M/SMA LEBE	2006	TX	400	\$1,217,700	1.14	\$1,388,000	\$9,160,000	\$32,000	\$1,217,000	\$1,217,000	\$20,200,000
NIV < 300 GT	M/V CAGIG BUSAN	2007	CA	65,100	\$10,573,700	1.11	\$12,221,000	\$5,521,000	\$7,700,000	\$1,208,000	\$14,000,000	\$20,200,000
NIV < 300 GT	LST146	2007	OR	2,400	\$51,507,000	1.11	\$57,276,000	\$2,418,000	\$3,299,000	\$3,510,000	\$3,100,000	\$20,200,000
NIV < 300 GT	CATALA	2007	WA	5,700	\$6,138,500	1.11	\$6,814,000	\$5,700,000	\$1,114,000	\$6,138,000	\$7,410,000	\$20,200,000
NIV < 300 GT	OP SEA WITCH	2008	MD	17,900	\$30,629,000	1.07	\$32,774,000	\$17,902,000	\$4,177,000	\$3,630,000	\$21,200,000	\$20,200,000
NIV < 300 GT	M/V PRINCESS KATHLEEN	2010	AK	5,800	\$14,183,000	1.05	\$14,895,000	\$3,875,000	\$9,020,000	\$4,186,000	\$7,670,000	\$20,200,000
NIV < 300 GT	DANV CROCKETT	2011	WA	4,600	\$22,249,000	1.02	\$22,790,000	\$4,643,000	\$19,987,000	\$22,249,000	\$19,987,000	\$20,200,000
<b>Total NIV &lt; 300 GT</b>							<b>\$688,884,000</b>	<b>\$786,478,000</b>	<b>\$479,870,000</b>	<b>\$1,194,074,000</b>	<b>\$1,194,074,000</b>	<b>\$1,194,074,000</b>
NIV < 300 GT 300 GT	T/V T/TI 101	1989	AS	200	\$1,164,000	1.39	\$1,617,000	\$254,000	\$1,363,000	\$5,296,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	T/V AMBA NO. 3	1995	AS	200	\$2,355,700	1.39	\$3,274,000	\$461,000	\$2,772,000	\$2,766,000	\$960,000	\$940,000
NIV < 300 GT 300 GT	T/V KWANG MYONG	1989	AS	200	\$1,554,000	1.39	\$2,160,000	\$954,000	\$1,206,000	\$995,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	T/V KOGAKU NO. 2	1999	AS	200	\$1,083,100	1.39	\$1,506,000	\$954,000	\$1,082,000	\$813,000	\$990,000	\$940,000

Vessel Type	Project Name	Incident Year	Incident Location	Gross Tonnage	Total Incident Cost	Inflation Factor	Total Incident Cost (2017 Dollars)	Limits of Liability	Fund Exposure	Actual OSLT Costs Incurred	Costs Exceeding Liability Limits For a 50% Cost Share	Minimum Liability For a 50% Cost Share
NIV < 300 GT 300 GT	T/V KWANG MYONG NO. 72	1999	AS	200	\$2,182,000	1.39	\$3,031,000	\$954,000	\$2,077,000	\$1,593,000	\$960,000	\$940,000
NIV < 300 GT 300 GT	T/V KWANG MYONG NO. 58	1999	AS	200	\$1,557,600	1.39	\$2,164,000	\$954,000	\$1,209,000	\$967,000	\$960,000	\$940,000
NIV < 300 GT 300 GT	T/V KOGAKU NO. 1	1999	AS	200	\$1,378,000	1.39	\$1,902,000	\$954,000	\$1,048,000	\$788,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	T/V KWANG MYONG NO. 51	1999	AS	200	\$1,249,200	1.39	\$1,734,000	\$954,000	\$880,000	\$699,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	T/V JESSE ANN	2009	ME	200	\$9,700,000	1.25	\$12,126,000	\$9,700,000	\$48,500	\$97,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	T/V SPOHDMAN I	2009	HI	100	\$1,528,900	1.25	\$1,911,000	\$954,000	\$1,057,000	\$1,236,000	\$490,000	\$940,000
NIV < 300 GT 300 GT	M/V KIMJUN	2006	PR	200	\$713,700	1.30	\$928,000	\$954,000	\$772,000	\$714,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	T/V VANGLARD	2006	AK	200	\$699,000	1.30	\$909,000	\$954,000	\$55,000	\$780,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	T/V GENJI MARU I?	2003	AS	100	\$109,000	1.39	\$150,000	\$954,000	\$39,000	\$870,000	\$400,000	\$940,000
NIV < 300 GT 300 GT	T/V TERESA LYNN	2003	FL	200	\$69,000	1.39	\$95,000	\$954,000	\$30,000	\$69,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	V/TORAL ROSE HUNT	2003	MA	100	\$1,085,700	1.25	\$1,357,000	\$954,000	\$403,000	\$394,000	\$400,000	\$940,000
NIV < 300 GT 300 GT	M/V RED DIAMOND	2003	FL	200	\$2,595,200	1.25	\$3,244,000	\$954,000	\$2,290,000	\$2,290,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	CRANE BARGE MONARCH	2001	CA	200	\$2,491,700	1.25	\$3,114,000	\$954,000	\$2,160,000	\$2,491,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	M/V BOUTRONG	2003	FL	200	\$1,696,700	1.25	\$2,120,000	\$954,000	\$1,166,000	\$1,166,000	\$1,166,000	\$940,000
NIV < 300 GT 300 GT	T/V NEW HORIZON	2004	CA	100	\$91,900	1.21	\$111,000	\$954,000	\$19,000	\$90,000	\$400,000	\$940,000
NIV < 300 GT 300 GT	T/V SPWALL SAAT	2004	OR	200	\$3,412,000	1.21	\$4,129,000	\$954,000	\$3,175,000	\$3,412,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	T/V THE BOSS	2004	OR	200	\$958,100	1.21	\$1,159,000	\$954,000	\$204,000	\$958,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	M/V ORIENTAL 1	2004	FL	200	\$727,800	1.21	\$880,000	\$954,000	\$326,000	\$727,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	ALDION	2005	CA	200	\$1,207,100	1.17	\$1,402,000	\$954,000	\$558,000	\$1,207,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	M/V CASITAS	2005	HI	300	\$1,129,700	1.17	\$1,320,000	\$954,000	\$1,147,000	\$1,147,000	\$1,140,000	\$940,000
NIV < 300 GT 300 GT	T/V MILERS WAY	2005	WA	200	\$1,039,600	1.17	\$1,216,000	\$954,000	\$262,000	\$920,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	M/V SENECA	2007	ME	200	\$1,211,000	1.11	\$1,344,000	\$954,000	\$390,000	\$1,211,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	DIXIEON & SCOBRY DOG	2008	PA	200	\$3,013,000	1.07	\$3,222,000	\$954,000	\$2,270,000	\$1,011,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	NETSCAM	2009	CA	200	\$922,500	1.07	\$988,000	\$954,000	\$143,000	\$993,000	\$1,440,000	\$940,000
NIV < 300 GT 300 GT	NOTSDE FENLIPPER	2009	AK	200	\$1,576,000	1.07	\$1,687,000	\$954,000	\$833,000	\$1,576,000	\$990,000	\$940,000
NIV < 300 GT 300 GT	MONARCH	2009	AK	300	\$2,699,200	1.07	\$2,887,000	\$954,000	\$2,033,000	\$2,400,000	\$1,440,000	\$940,000
NIV < 300 GT 300 GT	TUG TEEB	2011	CA	200	\$2,419,900	1.02	\$2,468,000	\$954,000	\$1,614,000	\$2,430,000	\$990,000	\$940,000
<b>Total NIV &lt; 300 GT 300 GT</b>							<b>\$88,146,000</b>	<b>\$76,474,000</b>	<b>\$31,463,000</b>	<b>\$1,518,000</b>	<b>\$1,518,000</b>	<b>\$1,518,000</b>
<b>Grand Total</b>							<b>\$1,708,473,000</b>	<b>\$866,357,000</b>	<b>\$1,163,116,000</b>	<b>\$656,011,000</b>	<b>\$656,011,000</b>	<b>\$656,011,000</b>

NIV < 300 Tank Vessel

This listing includes all incidents regardless of vessel size or type and regardless of whether a claim to the Fund by a responsible party for amounts in excess of liability limits was received or is a Costs include Federal removal costs and claims paid that have been verified. Other costs are estimated from best available information but cannot otherwise be verified. Fund exposure amounts and do not imply that the responsible parties will be able to limit their liability under the statute where the issue has not yet been determined.



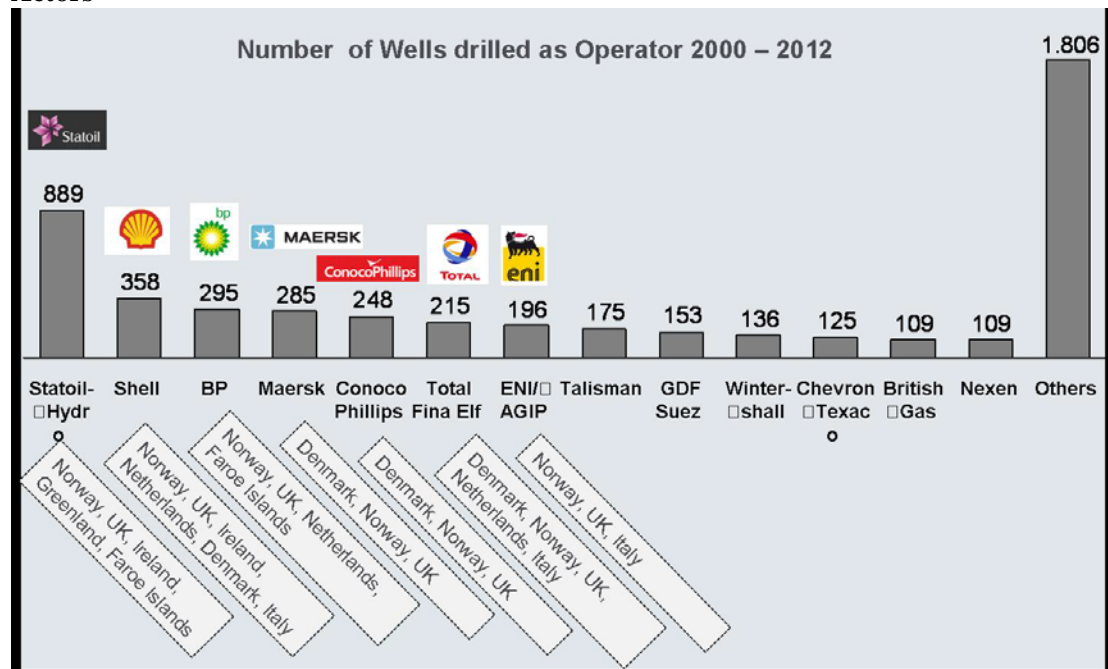
## 9. Executive summary

This executive summary will focus on the main findings of the report and therefore in footnotes also refer to the sections in the report where more details can be found. At the same time this executive summary will be structured in such a way that the tasks formulated in the invitation to tender will be followed, making clear where and how the various tasks in the invitation to tender were executed in the report.

### 9.1. An assessment of the extent of the problem

Chapter 2 of the report starts with an identification of the main actors (stakeholders) in offshore activities. The following figure provides an overview of the oil companies with explorations/production licences in Europe:

#### Actors

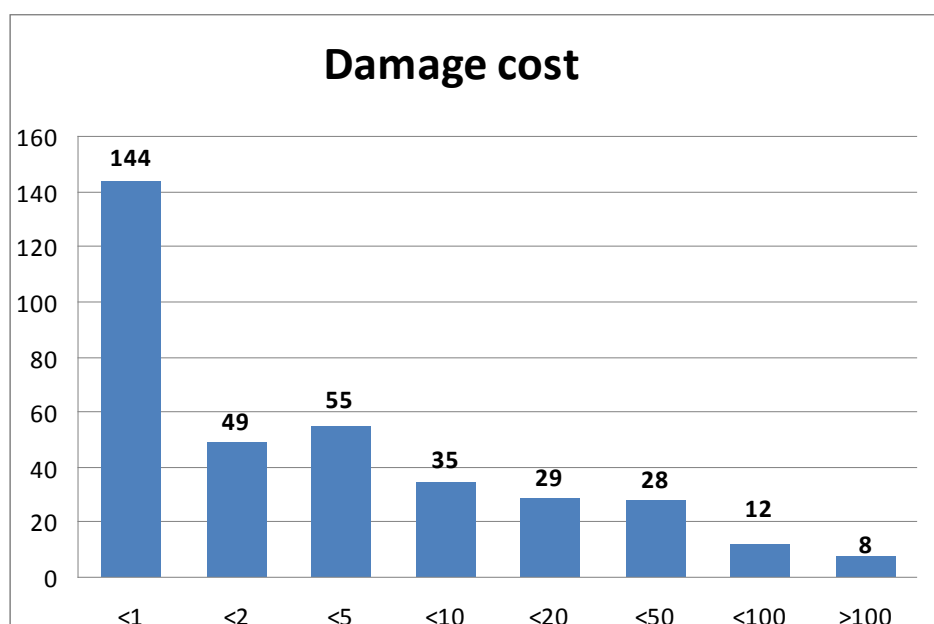


This figure shows that there are on the one hand a few major companies that have quite an importance in offshore activities in Europe, but that there is also a substantial number of wells (1806) drilled by other (often smaller) operators. This hence shows that the market for offshore activities is in a way very diversified.

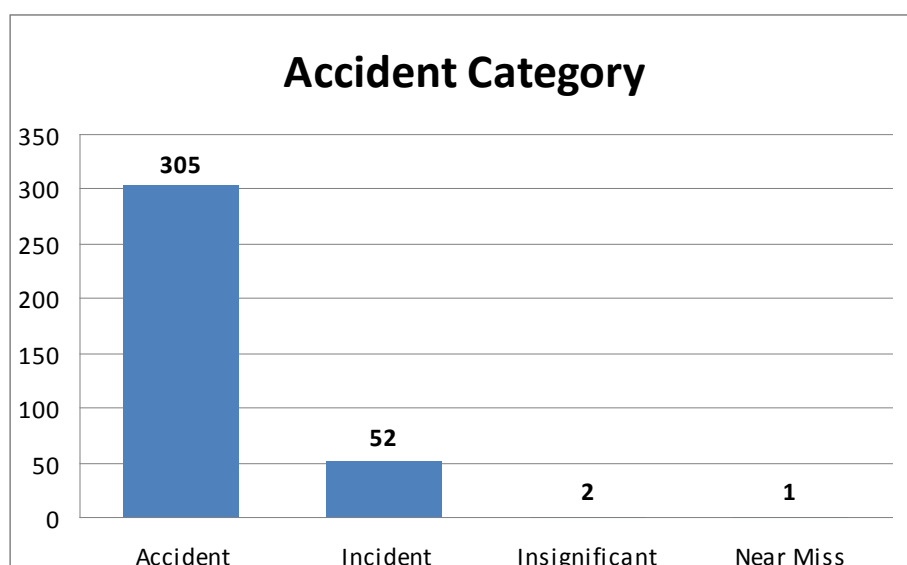
### 9.1.1. Data on incidents

An important part of Chapter 2 also deals with the extent to which information is available on offshore incidents.

Some information in that respect can be found in the Worldwide Offshore Accident Databank (WOAD) which is operated by DET Norske Veritas (DNV). It contains more than 6000 incidents since the year 1975. However, from all those incidents information on damage costs exists in only 360 i.e. at only 5,83% of the records. In more than 1/3 of the incidents (38%), for which costs data are available, the costs were limited: less than 0,5 mio. US\$. 45% of the incidents on which cost data were available had a cost of less than 1 mio. US\$ and for only 1,4% of the incidents damage costs exceeded 100 mio. US\$. This is represented in the following table which is drafted by the Joint Research Center, based on the WOAD database.



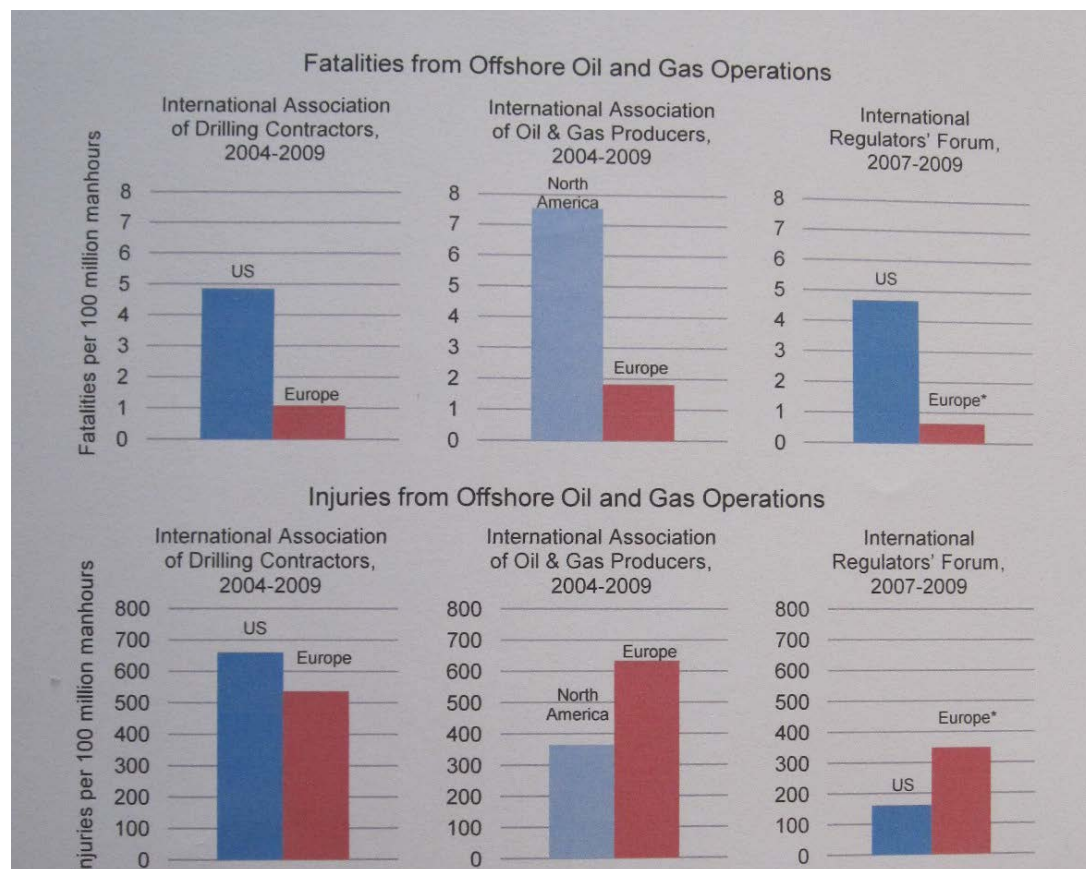
WOAD also provides an overview of the events which are classified into various categories as follows:



Data are also provided by other stakeholders.

However, these organizations collect data with different criteria and compile their data with different approaches, which may lead to difficulties when comparing these various data directly. For instance, a study carried out by some members of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling compared the fatalities and injuries from offshore facilities in Europe with the US. Various data sources suggest slightly different results.

These differences in data can be illustrated by putting accident data together on incidents in the US and Europe that come from on the one hand the International Association of Drilling Contractors (IADC), the International Association of Oil and Gas Producers (OGP) and the International Regulators Forum.<sup>1661</sup>



Source: *IADC Incident Statistics Program*, International Association of Drilling Contractors, <http://www.iadc.org/asp.htm>; *Safety performance indicators*, International Association of Oil & Gas Producers, <http://www.ogp.org.uk/>; *IRF Country Performance Measures*, International Regulators' Forum, <http://www.irfoffshoresafety.com/country/performance/>.

\*Europe for the International Regulators' Forum data represents the United Kingdom, Norway, and the Netherlands.

<sup>1661</sup> Data from the International Association of Oil & Gas Producers includes helicopter-related incidents. Data from the International Association of Drilling Contractors and the International Regulators' Forum include helicopter-related incidents only if it is at or near an offshore installation.

Overviews of upstream losses in the energy sector are also provided in the Willis Energy Loss Database. They provide the following tables for 2011 and 2012:

Table 4: Upstream losses XS USD 50M 2011<sup>1662</sup>

Type	Cause	Country	PD USD	OEE USD	BI USD	Total Actual USD
MOPU	Heavy weather	UK	534,000,000		500,000,000	1,034,000,000
MOPU	Heavy weather	UK	193,000,000		227,000,000	420,000,000
Rig	Capsize	Mexico	230,000,000			230,000,000
SSCS	Unknown	Nigeria	230,000,000			230,000,000
Well	Blowout	Israel		200,000,000		200,000,000
MOPU	Mechanical failure	USA	150,000,000			150,000,000
MOPU	Corrosion	Nigeria	120,000,000			120,000,000
Well	Faulty design	Norway	115,000,000			115,000,000
Well	Subsidence/landslide	Israel		115,000,000		115,000,000
Platform	Unknown	China	106,000,000			106,000,000
Rig	Heavy weather	Russia	100,000,000			100,000,000
Rig	Faulty design	Singapore	8,500,000		80,840,000	89,340,000
MOPU	Mechanical failure	Nigeria	82,000,000			82,000,000
MOPU	Unknown	Brazil	80,000,000			80,000,000
Rig	Collision	Venezuela	25,000,000		47,250,000	72,250,000
						3,143,590,000

Table 5: Upstream losses XS USD 50M 2012

Type	Cause	Country	PD USD	OEE USD	BI USD	Total USD
Rig	Blowout	Nigeria	175,000,000	277,000,000		452,000,000
Well	Blowout	UK		400,000,000		400,000,000
Well	Blowout	Nigeria		200,000,000		200,000,000
Well	Bowout	India		150,000,000		150,000,000
Rig	Grounding	USA	90,000,000			90,000,000
Pipeline	Unknown	Venezuela	65,300,000			65,300,000
Well	Blowout	USA		60,000,000		60,000,000
Well	Blowout	Canada		54,850,000		54,850,000
Rig	Faulty design	Brazil			54,488,000	54,488,000
Platform	Fire/lightning/explosion	Mexico	54,200,000			54,200,000
						1,580,838,000

These charts show the major loss records for the upstream energy industry in 2011 and 2012. However, the reported losses of course not only refer to offshore incidents (although many do) and in many cases the losses reported did not cause damage to third parties, but for example related to the costs for reinstating a platform. The charts, however, provide an indication of the fact that in the upstream energy industry on a yearly basis all over the world still substantial losses occur.

### 9.1.2. Deepwater Horizon

Chapter 2 also provides a detailed analysis of the Deepwater Horizon incident which obviously triggered European action with respect to civil liability and financial security for offshore oil and gas activities.

<sup>1662</sup> Source: Willis Energy Loss Database as at April 2013 (figures include both insured and uninsured losses).

The case of the Macando/Deepwater Horizon incident shows that, at least in the US, a operator, like in this particular case BP, but also other contractors involved in the operation of the rig, can be confronted with a large variety of claims.

Although the total amounts of payments by BP and the other contractors is yet (May 2013) unknown it is important to stress that payments from BP took place at at least three different levels:

- an amount of \$4 billion was paid as a criminal penalty settlement;
- an amount of \$20 billion was paid to the Gulf Coast Claims Facility (GCCF) by BP;
- substantial amounts were already paid by BP in civil penalties, but precisely on the amount of civil penalties there still is debate between the parties on two crucial issues:
  - the total amount of oil released;
  - whether there was gross negligence or not. Although BP waived its right to call on the limit under OPA the question whether there is gross negligence or not is still relevant to determine the civil fine under the CWA since that is four times as high (\$4,300) in case of gross negligence than when there is no gross negligence (\$1,100).<sup>1663</sup>

Although the total amounts to be paid by BP (and some of the other contractors) were hence still unknown (in May 2013) estimates by experts hold that total payments by BP could easily amount to \$40 billion.

Chapter 2 also analysed what the likelihood is of a Deepwater Horizon incident in European waters. That overview of the various opinions shows that there is a lot of debate on the likelihood of a Deepwater Horizon-type accident in the EU. Many point at the fact that there are differences between the Gulf of Mexico and European waters. Others point at the fact that these differences should not be overstated and that hence, also in Europe, when a large scale disaster would happen, the potential damage can be substantial. The estimate of the potential damage caused by a disaster scale incident is of course very important, especially when it comes to the question how much financial capacity should be available to cover the risks from a major offshore accident.

### **9.1.3. Conclusions Chapter 2**

The goal that was pursued in executing this first task (making an assessment of the extent of the problem) was to sketch the offshore industry in Europe and to analyse the details of the incidents that occurred in Europe, especially focusing on the amount of damage caused by these incidents and the type of damage caused by them.

Based on that research Chapter 2 came to the following conclusions in answering task 1:

- reliable data on the actual number of offshore facilities in the EU are not readily available and existing data are in some cases contradictory;
- the most important fact is that the number of offshore facilities is likely to rise in the (near) future, with oil and gas discoveries offshore Norway, in the Mediterranean and in the Black Sea. Furthermore, although not definitive yet, there are ideas to built offshore facilities in the Artic, which is a much more difficult and risky environment to work in;

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<sup>1663</sup> See *supra* 2.5.5.2.1. and see Daily Report for Executives 20 February 2013, available at <[http://dailyreport.bna.com/drpt/display/batch\\_print\\_display.adp](http://dailyreport.bna.com/drpt/display/batch_print_display.adp)> last accessed on 21 February 2013.

- although many point at differences in the drilling conditions between the Gulf of Mexico (where the Deepwater Horizon incident happened) and the EU, data show that in the EU and Norway incidents happen regularly;
- data of Norway and the UK show that personal injuries as well as hydrocarbon releases decreased over the last decade. Nevertheless, a few significant releases happened as well in the last decade;
- due to fortunate circumstances (e.g. Statfjord A or Gannet Alpha) these releases did not cause severe personal or environmental damage;
- it therefore is difficult to examine insurance claims over the last decade;
- an analysis of recent incidents (last 5 years), shows that the reasons for these incidents have similar explanations in Norway and in the UK and that these explanations might be reasons to worry. Both PSA as HSE investigation reports identify a backlog of maintenance, deficient maintenance management, inadequacies in risk identification and deficient barrier management as causes of the incidents;
- up to now, this has not lead to incidents leading to severe environmental and personal damage, but we should not wait for a severe accident to happen, in order to develop proper regulation.

## **9.2. Analysis of existing legal regimes**

### **9.2.1. International and sectoral arrangements**

The second task consisted of carrying out an analysis of existing legal regimes dealing with damage resulting from major offshore incidents. Attention was mostly paid to EU Member States and moreover mostly to those Member States that have major offshore installations. It was first sketched that there are some international conventions that may have some relevance for offshore related risks, but that the impact of those conventions (like UNCLOS and MARPOL 73/78) mostly focus on safety regulation, but less on liability and compensation issues. The IMO does currently not consider that it has competence to make a convention concerning compensation for damage related to offshore related risks. The IMO, however, stimulates the creation of bilateral or regional arrangements. Various of those regional arrangements, such as OSPAR (for the North Sea) and the Barcelona Convention (for the Mediterranean) have been created.

However, most attention was paid to the legal regime in Member States with a strong interest in offshore oil and gas activities. Attention was also paid to Australia and the US, since both have witnessed some major offshore incidents. The legal analysis took place on the basis of a checklist that allows a comparability of the results.

In most countries with a strong offshore petroleum interest, there is at least a national legal regime on civil liability, although it may consist of various pieces of legislation, some less developed than others. In some countries, such as the UK, the civil liability for offshore activities consists of different layers from the industry arrangement OPOL to statutory liability; and in the US, the liability for offshore incidents may arise from federal laws and state laws. In other countries, the liability derives from rather easily identifiable primary and secondary legislation. Nevertheless, given that the offshore oil and gas activities involve many complications (technological development, various stakeholders involved, various contracts and subcontracts), and that the damages of an offshore incident may result in personal injury/fatalities, property damage, and/or environmental damage, it is at least difficult and perhaps virtually impossible for any jurisdiction to cover all of these aspects in one single piece of legislation.

It appeared from the legal analysis that, differently than e.g. in the case of marine oil pollution resulting from vessels (where most countries have implemented the international conventions)

there is relatively little regulation as far as liability for damage resulting from offshore installations is concerned. As the table below will show, in most Member States there is at best a brief mention of a liability of the operator based e.g. on a Petroleum Act and a provision on financial responsibility, but a detailed regulation of liability for damage resulting from offshore related activities is in fact only present in the US and to some extent in the UK, which relies on OPOL. However, given the large differences between the legal systems that were discussed it is not possible to make a sweeping statement claiming that e.g. one particular legal system would constitute a “best practice”.

Given the fact that there are only few legal systems where liability resulting from offshore related activities is explicitly addressed it is not possible to draw strong normative conclusions based on this comparative analysis.

The legislative framework of the countries that were analysed can be summarized as follows:

	UK	Norway	Denmark	US	Australia	Canada
Causation	Proof on victim	Burden on claimant + in causal uncertainty: J&S	-	-	-	-
Attribution	J&S <sup>1664</sup> under OPOL for insolvency	Channelling to licensee or operator. Joint venture: J&S toward third parties	Channelling to licensee. If several parties: J&S	Liab. on responsible party and lessee. If more: J&S	Liab. on title holder + J&S	Licensee is liab. + J&S.
Damages	Pollution damage (if direct) + remedial measures. OPOL not personal injury.	Also: losses to fishermen	All.	Removal costs + damages	Costs of public auth	Actual loss + costs of public auth.

<sup>1664</sup> J&S stands for Joint & Several Liability.

Cap	OPOL \$ 250 mio.	No cap.	Only for MOD's	75 mio. + removal costs. Loss of cap if gross negligence or viol of REG + no preemption of state law.	No cap.	Cap.
Compensation mechanism	OPOL membership mandatory	Rapid claims settlement for fishermen. Mandatory security for production licence, not exploration licence + detailed regulation of what insurance should cover	Financial capacity condition for licence.	Fin. Security max. 150 mio. + details and different methods can be used. Fund (OSLTF): 1 bio. financed via tax.	Mandatory insurance condition for licence	Proof of financial responsibility required.

### 9.2.2. Comparative analysis

This table allows to make a few generalizations on the liability regimes in the legal systems that we discussed.

First, the basis of liability is in general strict and the liability is imposed on the holder of a licence/permit/lease or the operator.

Second, the relationship with regulation: In most countries, there are regulations aiming at safety standards for offshore operations and aiming at the prevention of incidents during offshore oil and gas activities. However, the compliance with regulations in most countries we have studied does not constitute a defence to exempt the responsible party from assuming liability. Only the Australian law is not clear on that point, as it includes a vague provision which could lead to the situation that compliance with regulation may be used as a legal defence.

Third, as to causation, it is mostly the occurrence of an incident that triggers the liability. Most statutes we examined are silent on the causation issue.

Fourth, attribution of liability: in case of multiple tortfeasors, most jurisdictions follow a joint and several liability. In some jurisdictions, there is no specific provision concerning this issue.

Fifth, as to the amount of compensation, in most countries examined, there is no upper limit on the amount to be compensated by the responsible party. Hence in theory the liability will be unlimited. The US and Canadian regimes are the only ones with financial caps. However, in the US the liability is limited only in the federal law OPA, which leaves open the possibility of state laws to impose additional liability. OPA does not pre-empt state law. Moreover, such a financial cap concerns only the damages, the removal costs remain uncapped. Although the liability is in theory unlimited in most legal regimes, it is important to



realize that without the security of a financial guarantee the unlimited liability cannot provide adequate compensation.

Sixth, applicability in time (rapid claims settlement): The strict liability with a financial guarantee can be considered as a mechanism in the interest of rapid claims settlement, since it avoids the need for victims to prove negligence as the primary test of liability which can be rather difficult and time consuming.<sup>1665</sup> This is adopted in all of the liability regimes we examined. However, looking at the specific compensation mechanisms in each national law, it is difficult to find useful instruments in addition to the strict liability and compulsory financial guarantee to provide rapid compensation to the pollution victims.

Seventh, as to the compensation mechanisms, there is always some requirement on the financial capacity of the applicant. In some countries, e.g. in the UK, the financial capability proved by OPOL is a precondition for the granting of a licence. The amount of such a financial guarantee is in most jurisdictions (with the exception of the US) not specified in the regulations, but assessed on a case by case basis by the national authority responsible for issuing licences. The US system provides for detailed requirements on the financial guarantee a responsible party has to take out. This is based on the so-called worst case scenario. The forms of financial guarantee can be different.

In addition to the financial guarantee, in the US regime, there exists a compensation fund contributed by the oil industry, the OSLTF, which provides compensation up to \$1 billion per incident.

Eighth, jurisdictional issues: Offshore activities often take place in the continental shelf where the jurisdiction is granted to the coastal state through UNCLOS. However, in some federal systems like the US and Australia, there is a distinction between states' jurisdiction and the jurisdiction of the federal laws. As far as offshore activities are concerned, they mostly fall within the federal jurisdiction.

### **9.2.3. Another high risk sector: the nuclear**

In addition Chapter 3, executing task 2, also paid attention to another high risk sector, being the nuclear risk.

Like damage resulting from offshore installations, damage caused by a nuclear accident can potentially be quite large. Hence, the nuclear liability conventions have a few features that are worth studying. For example there is a limitation (so-called financial cap) on the liability and the liability is channelled to the licensee of the nuclear power plant. Moreover, in a second and third layer, compensation is provided by government as a result of which doctrine holds that the nuclear industry is (at least partially) subsidized. The regime is, however, quite different in the US under the so-called Price Anderson Act, since no legal channelling applies and since there is no state intervention.

The literature criticized the international regime from an economic perspective. The criticism was rather straightforward: the legal channelling of liability in the international conventions has the major disadvantage that many parties, other than the nuclear operator, who could equally influence the risk of a nuclear accident are not exposed to liability.<sup>1666</sup> Also, the financial limit on the liability of the licensee of the nuclear plant remains too low, which, in

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<sup>1665</sup> King (2010), 6.

<sup>1666</sup> See Trebilcock and Winter (1997).

combination with the large public funds made available in the international regime, leads to a substantial subsidization of nuclear energy, and thus to an insufficient cost internalization.<sup>1667</sup>

Even though we have indicated that it is hard to make a final, positive judgment on the U.S. compensation regime given the fact that the real costs of a nuclear damage can still be higher than the compensation available, the U.S. regime seems in many respects to be more in line with the law and economics literature with respect to nuclear liability.

A first advantage of the U.S. regime is that it seems far more dynamic than the international regime. The Price-Anderson Act started in 1957 with a relatively low financial limit – \$60 million – on the liability of the operator, but a large amount of government intervention – \$500 million. But by 1975, the Price-Anderson Act already provided for a dynamic system whereby the relationship between private and public funding could change, taking into account inter alia developments in the insurance market. The fact the Price-Anderson Act organized insurers at the federal level and not at the state level as most U.S. insurance markets, the U.S. nuclear insurance market could create substantially higher amounts of compensation. Today, the coverage of the nuclear risk in Europe still takes place via the nuclear insurance pools, which are organized at a national, Member State level, and therefore, not surprisingly, have generated amounts of insurance coverage that are too low. The U.S. federal government has systematically removed itself from covering the nuclear risk such that by 1982 the \$560 million of required compensation was entirely financed by private funds.

It is striking that in the beginning, the international regime and the American nuclear compensation scheme were very similar, but today the differences between the two systems are quite spectacular. Today, in the U.S., the total amount of compensation available is \$12.2 billion, of which \$75 million is financed through the individual liability of the nuclear operator and the remainder through the collective responsibility of all operators financed through retrospective premiums. Today, the NEA regime requires a total amount of available compensation of 300 million SDRs (roughly €10.35 million; \$493.08 million). Once the Protocols to the Paris and Brussels Supplementary Conventions enter into force, the total amount of compensation available will be €1.5 billion (\$2.383 billion), of which €700 million (\$1.112 billion) will be financed by the nuclear operator and €800 million (\$1.271 billion) by public funds. Of course, the Contracting Parties have the freedom to charge the cost of their obligation to the nuclear operators and thus, indirectly contributing to more internalisation. But even if the Contracting Parties were to do so, thereby imposing a liability limit of €1.2 billion (\$1.907 billion), a part of the damage would still be paid by public funds. Unless all Contracting Parties opt for unlimited liability of the nuclear operator, no one will be liable for damage in excess of €1.5 billion (\$2.383 billion).

The conclusion, therefore, is rather straightforward. The economic goal of cost internalization can hardly be reached in the international regime for two main reasons. In the NEA regime, the individual liability of the nuclear operator seems at first blush high – €700 million (\$1.112 billion) compared to \$75 million in the U.S. Price-Anderson Act-but is only a small fraction of the potential costs of a nuclear accident, estimating the damage to be between \$10 billion and \$100 billion.<sup>1668</sup> Second, the second layer of compensation in the international regime is entirely provided through public funds whereby no risk related financing takes place

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<sup>1667</sup> See, e.g., Faure and Fiore (2006).

<sup>1668</sup> See United States General Accounting Office, Report To Congressional Committees, Nuclear Regulation: A Perspective On Liability Protection For Nuclear Accident 18 (1987), available at: <<http://archive.gao.gov/d28t5/133093.pdf>>; Dubin and Rothwell 1990, p. 73-79; Heyes and Liston-Heyes 1998, p. 122-124. This is also the case in the IAEA regime, where the revised liability amount is 300 million SDRs (\$493.083 million). See International Atomic Energy Agency, Status: Convention On Supplementary Compensation For Nuclear Damage 1 (May 21, 2008), available at: <[http://www.iaea.org/Publications/Documents/Conventions/supcomp\\_status.pdf](http://www.iaea.org/Publications/Documents/Conventions/supcomp_status.pdf)>.

whatsoever. The second and third layer of public funds in the NEA regime and the second layer under CSC are a pure subsidy to the nuclear industry and contribute nothing to cost internalization. This criticism can be partially addressed if the Contracting Parties charge the operators for the costs of making public money available. However, these costs should be market reflective and should take into account risk differentiation. It is far from certain that any governmental institution is well equipped to assume this difficult task, let alone in a more efficient manner than an insurance company or mutual insurance scheme.

On the other hand, in the U.S. the second layer is not only considerably higher than in the international regime (\$12.2 billion compared to €800 million, \$1.271 billion, in the NEA regime), but it is also financed through the collectivity of the nuclear operators and hence contributes to a cost internalization. The situation is, moreover, only worse if one compares the Price-Anderson Act with the regime under the Vienna Convention where the amounts are even dramatically lower than in the NEA regime. An important feature of the U.S. regime is that, indeed, a system has been developed whereby the second layer of compensation does not merely consist of public funding, but is the collective responsibility of industry. The task of the government in this respect is limited to pre-financing the compensation to the victim and collecting the retrospective premiums from the operators. Moreover, in order to limit the risk exposure of the operators, the annual retrospective premiums are determined by law. However, in the end, it is the nuclear operators that contribute to finance the second layer of \$12.2 billion through these retrospective premiums.

The lesson seems, therefore, to be rather clear: the U.S. Price-Anderson Act and its recent amendments seem to have understood and incorporated the lessons from economic analysis. The various parties who contribute to nuclear risk are exposed to substantial amounts of liability which may provide incentives for prevention and cost internalization.

#### 9.2.4. Conclusions Chapter 3

The overall conclusions from Chapter 3, executing task 2, can be summarized as follows:

- there is no international legal framework dealing with liability for offshore related incidents; the IMO will not take action in this respect.
- there are various regional arrangements related to offshore safety. Most of those contain general principles and do usually not contain provisions with respect to liability or compensation.<sup>1669</sup>
- the specific countries that were examined usually do not have specific legislation aiming at damage resulting from offshore activities. If it is the case usually a strict liability rule applies. Many legal systems do have a requirement that financial security is proven as a precondition for granting a licence.
- the regime concerning liability for nuclear accidents in international conventions may not constitute an example for a potential future liability regime for offshore related accidents in the EU. The financial cap on liability, legal channeling of liability to the nuclear operator (thus excluding liability of others) and the compensation via public funds lead to insufficient cost internalization.
- many of those negative features of the international regime are absent in the US Price-Anderson Act. Although there is a liability limit the amounts are substantially higher and the second layer will not be paid through public funds but it is a collective responsibility of industry, financed via retrospective premiums charged to the nuclear industry. The US Price-Anderson Act hence shows how high amounts of

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<sup>1669</sup> See the summary *supra* in 3.3.6.

compensation can be generated without ex ante immobilization of capital and without public funding.

### 9.3. Risk pooling mechanisms

#### 9.3.1. Advantages of pooling

Chapter 4 paid attention to risk pooling mechanisms for damage following an offshore accident, but also to pooling mechanisms in related areas. First the major advantages of pooling via a risk sharing agreement were sketched as follows:

- it creates strong incentives for mutual monitoring since the members are dependent on each other; i.e. a bad risk can create the likelihood that the pool will have to intervene;
- for highly technical and complicated (often new) risks operators themselves may have better information (compared to insurers) on optimal preventive technologies which they can reflect in a differentiation of the contribution to the pool (or excluding membership for bad risks);
- a risk sharing agreement does not require actuarial information *ex ante* on the probability of an accident and the scope of the damage for the simple reason that no *ex ante* premium has to be fixed. Only information is needed on the relative contribution of each member to the risk, but this does not necessarily have to be translated into a premium. *Ex ante* costs to administer a risk pool can hence be lower, especially in cases where actuarial information (for example because the risk is new and statistical information is lacking) may not be available;
- since *ex ante* premiums do not have to be paid, risk sharing creates less liquidity problems. It can be based on an agreement of the members to share in case the risk emerges;
- differently than with insurance when the risk would not emerge there are no premiums paid to an insurance company that are (at least in the view of the operator) “lost”. If the risk for which the risk sharing agreement is concluded does not emerge the members of the risk pooling scheme simply do not have to contribute;
- this also points at the relative flexibility of a risk pooling mechanism: when during a particular period many accidents happened the risk pool can *ex post* ask additional contributions from the members on an ad hoc basis;
- however, such a risk pooling mechanism may have all these advantages if the number of members in the pool is relatively restricted; the comparative benefit (compared to insurance) mostly applies to highly technical (new) risks. When, however, the members of the pool would be very large (e.g. all car drivers in a particular area) the administrative costs of running the pool would become huge and the comparative benefits vis-à-vis insurance would disappear.

#### 9.3.2. OPOL

The discussion of one pooling mechanism in the offshore sector today, OPOL, showed that OPOL is not a risk sharing agreement in the sense discussed in this chapter. It is a pooling mechanism, but in fact only the solvency risk is pooled. OPOL undoubtedly has strengths in the sense that it e.g. forces all its members to provide financial security up to the amount of compensation guaranteed by OPOL. In some member states, such as the UK, membership of OPOL is moreover a condition for obtaining a license. In those member states, via the membership of OPOL, there is hence a guarantee of financial security. However, the sufficiency of the guarantee is controlled via OPOL and not by regulatory authorities (at least in those countries where membership of OPOL is not a condition for obtaining a license). Moreover, since OPOL is not a risk sharing agreement, the benefits of mutual monitoring

leading to increased prevention will not exist. Members of OPOL only have an incentive to monitor the solvency of the other members. But given mandatory guarantees which have to be proven *ex ante*, they should not necessarily constitute a large problem. That may also explain why in practice OPOL never had to intervene and in fact only played its “silent” role of forcing its members to provide guarantees up to the limits of OPOL. One could, with a view to the future, of course consider the possibility of reconstructing OPOL to a true risk sharing agreement, but that would fundamentally change the nature of OPOL in its current structure.

### **9.3.3. P&I Clubs**

Today, compensation for damage caused by offshore facilities is guaranteed via a variety of financial and market mechanisms. One risk sharing agreement which in that respect plays a (modest) role is the so-called Protection and Indemnity Club. The Protection and Indemnity Club is a true risk sharing agreement and consists of ship-owners that mutually cover each other’s losses. Hence, this arrangement does provide incentives for mutual monitoring and in the area of vessel based pollution in fact functions as insurance. The P&I clubs play a much more important role in vessel based pollution and only a relatively modest role as far as the coverage of pollution coming from offshore installations is concerned. However, a discussion of their structure and functioning was of interest since they are a pooling mechanism in an area closely related to the offshore sector.

### **9.3.4. CLC & Fund**

The (international) regulation of vessel based pollution shows a few other interesting aspects which are surely worth considering in developing a compensation and liability mechanism in the offshore sector. One interesting aspect is that the liability of the operator (in the case of vessel based pollution the tanker owner) is capped. This of course contrasts with the liability of operators of offshore facilities which is, as the overview in chapter 3 showed, largely unlimited. However, an important evolution has taken place in the sense that the amounts of the financial limit have increased over time, mostly as a result of new incidents which time after time showed that existing limits in the international conventions were too low. The international conventions are for that reason seriously criticized in the literature, arguing that limits on liability do not provide correct incentives to potential injurers (in that case the tanker owners).

### **9.3.5. OPA**

The US example of the Oil Pollution Act 1990 constitutes an interesting example. Not only is it relatively easy to break the limits (financial caps) under OPA (as also the case of the Deepwater Horizon showed). Moreover, OPA does not preempt state law. Hence, many state legislations have unlimited liability, thus fully exposing tanker owners to liability for all damage resulting from their actions. Moreover, another interesting aspect of the US Oil Pollution Act is that the limit on liability depends on the safety measures taken. Limits are hence substantially higher for single hull tankers (which are considered more risky) than for double hull tankers. Hence, the US OPA shows that the liability regime can be structured in such a way that it provides operators incentives for investment in preventive technology.

Another interesting feature of the compensation regime for vessel based solution is its multi-layered aspect. Indeed, a brief look at the legal history showed that the CLC Convention of 1969, which introduced the capped strict liability of the tanker owner was combined with the Fund Convention 1971 to which the oil industry contributes. As a result of this, compensation awarded for vessel based pollution is partly awarded by the shipping industry (via the strict

liability under CLC) and partially by the oil industry (via the Fund Convention). This hence has led to relatively large amounts being now available after the adoption of the latest convention on supplementary funding. Currently approximately one billion euro is available for compensating damage resulting from vessel based pollution. This of course constitutes an important difference with the offshore sector since, differently than in the area of vessel based pollution, there are not two different industry sectors (shipping industry and oil) that could contribute to the compensation and thus share the burden.

Finally, it should be mentioned that, similarly to OPOL, also in the area of vessel based pollution voluntary mechanisms (previously CRISTAL and TOVALOP and currently TOPIA and STOPIA) exist. However, their role is totally different and relatively limited. These voluntary agreements in fact only provide an additional layer of compensation by the tanker owner or oil industry to supplement the amounts available under the international conventions. Their role is hence relatively limited.

An issue which we did not cover so far but which has to be taken into account when devising pooling mechanisms is that pooling between either insurers or industrial operators may violate principles of competition policy. In EC competition law specific conditions have been elaborated explaining the requirements for those pools to be compatible with competition policy. It is an aspect that remains further undiscussed within the scope of this report, but that should be taken into account when analyzing the usefulness of pools.<sup>1670</sup>

### 9.3.6. Summary

In sum, this analysis of pooling mechanisms in other sectors shows that there are a variety of features, both of the liability regime as well as of the available financial security that could provide inspiration for a liability and compensation mechanism for the offshore sector. In that respect, lessons can be learned (positive as well as negative) from compensation mechanisms in the nuclear and vessel based pollution sectors as well as from risk pooling mechanisms in other sectors. These lessons, summarized in this section, will of course be further developed in the next chapters when discussing various scenarios and possibilities of compensation for damage resulting from offshore installations. In that respect, the question will of course again be asked to what extent risk pooling mechanisms could play an important role in compensating damage resulting from offshore incidents. The lessons learned from this chapter have provided some insights on conditions that will have to be fulfilled to make risk pooling mechanisms work.

### 9.3.7. Conclusions Chapter 4

- Pooling (in the sense of risk sharing between operators) has many theoretical advantages compared to insurance, especially for highly technical risks like the offshore related damage.
- OPOL has many advantages, but is not a risk-sharing agreement; only the risk of insolvency is shared. Until now the OPOL guarantee has never been used.
- The only real existing pooling mechanisms for offshore related damage are OIL and OCIL.

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<sup>1670</sup> See on these aspects inter alia Faure and Hartlief (2003), 90-94 and see the recent study by Ernst & Young, Study on co(re)insurance pools and on ad-hoc co(re)insurance agreements on the subscription market, EC Commission, Luxembourg, February 2013. See: <[http://ec.europa.eu/competition/sectors/financial\\_services/insurance.html](http://ec.europa.eu/competition/sectors/financial_services/insurance.html)>.

- The CLC and Fund Convention provide an interesting combination of financing of compensation by the tanker owner (CLC) and the oil industry (Fund), but have disadvantages as well, e.g. the limitation of liability and the financial cap.
- The US OPA has a limit on liability, but this can be set aside in case of gross negligence or violation of regulations. OPA, moreover, does not preempt state law.
- P&I Clubs are an interesting example of a risk-sharing agreement for marine related risks.
- The US Price-Anderson Act provides an interesting example of an *ex post* risk pooling via a retrospective premium scheme.
- The emergence of a European-wide pooling system for nuclear risks in Europe is not likely given the absence of EU-wide harmonized safety standards and highly different risks created by various operators.
- The CLC/Fund Convention provide mechanisms for rapid claims settlement and so does the GCCF. This allows speedier compensation than the traditional compensation via tort law and civil procedure.

#### **9.4. The use of financial market instruments to cover traditional liabilities following a major offshore incident**

##### **9.4.1. Available instruments**

Chapter 5 addressed an inventory of financial market instruments that are currently used to cover liability following a major offshore incident. It corresponds with the first part of task 1 (executing work package 1), sketching which instruments operators currently use to cover their liability. The following instruments were discussed:

- self-insurance
- the use of the capital market
- bank guarantees
- (re)insurance
- risk pooling schemes
- OPOL

In each case the theoretical advantages and possibilities of the particular instrument were sketched; then the use of the particular instrument in practice was explained and an analysis followed, analysing the pros and cons of the particular instrument.

The analysis executed in Chapter 5 provided the following picture:

In practice it is rare that only one type of instrument would be used. In fact this may only be the case for the majors who effectively only use self-insurance or captives. Others *de facto* often use a combination of different hedging strategies whereby, logically, the comparative benefits of the various instruments are used for an optimal combination.

As an example: a middle sized operator may choose a retention (self-insurance) of for example 5 million and choose insurance or a risk pooling scheme to cover the excess risk. Moreover, he could (and in the case of the UK must) also be a member of OPOL in which case he would use the self-insurance and insurance in combination as proof of financial security.

The type of combinations that will be chosen by operators in practice may of course to an important extent depend upon their size, and hence their assets but also the type of risks to which they are exposed on the one hand and on the other hand the relative costs of various strategies to transfer risk, like the relative costs of insurance versus risk pooling.

## 9.4.2. Conclusions Chapter 5

Summarizing, the following instruments are currently used to cover liability following a major offshore accident:

- Self-insurance, largely by the majors, who in some cases create captives as well.
- The capital market, although actually today only to a very limited extent.
- Guarantees are possible in theory, but are not that often used in practice. Bank guarantees or letters of credit are simply considered too costly and hence not used.
- (re)Insurance is undoubtedly the most often used mechanism of financial security for offshore related risks.
- Risk pooling schemes like OIL and OCIL are mostly used by middle-size players.
- OPOL is not as such a system of financial security, but OPOL is important in the UK where membership of OPOL is mandatory for offshore operators in order to obtain a licence.
- In practice, depending upon their size, balance sheet, assets and risks to which they are exposed, operators may use a combination of any of the financial instruments mentioned above.

## 9.5. Potential of financial and insurance instruments to cover liability following a major offshore accident

### 9.5.1. Expected costs of various incidents

A second part of task 2 consisted of analysing the potential of various insurance and financial market-based instruments to provide coverage for damage caused by offshore installations. Again, the various instruments that were earlier discussed in Chapter 5 were discussed in more detail in Chapter 6, more particularly with respect to their capacity to be increased in the future in order to provide compensation if a major incident (in a worse case scenario) were to happen in European waters. The analysis in Chapter 6 therefore started with the question whether a Deepwater Horizon type incident could occur in the EU and whether an insolvency risk could potentially emerge. The results can be summarized as follows:

For smaller incidents (defined as those with a magnitude of damage up to 250 million €) OPOL coverage would be available. However, one should remind that OPOL is limited to the North Sea and that, moreover, membership of OPOL is only mandatory in the UK. It therefore *de facto* only covers UK operators. OPOL hence cannot provide a guarantee against insolvency outside of the North Sea area (like in the Mediterranean where offshore operations are increasing). Moreover, for non-UK operators in the North Sea, it depends on whether the national regulators require membership of OPOL or another type of financial responsibility as guarantee.

For middle-size accidents (defined as having an accident magnitude between 250 million and the maximum insurance coverage available on the market, for these purposes assumed to be 750 million €) to the extent that operators took insurance coverage, there should be no problem. However, a problem from a policy perspective is that there may not be a uniform regulation across Europe. Hence, this only works to the extent that regulators *de facto* force operators *ex ante* to take financial coverage (like insurance or membership of OIL or OCIL) to provide coverage up to the maximum amount available.

For large accidents, *de facto* only the majors could provide coverage beyond the limits of commercial insurance coverage available on the market, via self-insurance.



### **9.5.2. SOS-Proposal**

Two major proposals were formulated to expand cover. One proposal is formulated by Munich Re Insurance and is referred to as SOS (Sudden Oil Spill). It is a model that has been developed for the Gulf of Mexico and could there provide coverage up to 10 to 20 bio. US\$.

On paper the proposal by Munich Re seems to correspond with essential principles of risk distribution. So far a detailed proposal has only been worked out for the Gulf. Munich Re holds that a similar proposal can also be developed for European waters, if additional information is provided. Whether this can constitute a realistic option to cover offshore-related risks is by the end of course not a theoretical question, but will depend on the reaction of the market. The amount of retention to be held is still considerable and majors may therefore probably still prefer (as they apparently argue) to self-insure or look for alternative solutions. For that reason the proposal has, although it was already developed in 2010, never worked in practice. That can of course hardly be blamed to Munich Re, but is due to the fact that operators (for a variety of reasons) have apparently no longer an interest in investing in this facility. Munich Re therefore holds that developing such a mechanism will de facto only be possible if there is a regulatory solution (i.e. a duty) to join such a mechanism.

### **9.5.3. Noble Energy-Proposal**

A different, probably competing, proposal has been launched by Noble Energy, which is based on risk pooling by industry.

Evaluating this proposal of Noble one can argue that it complies largely with the benefits of mutual monitoring which would be inherent in a risk pooling scheme as has been explained above. However, understandably, major operators held that the arguments for such a comprehensive risk pooling scheme may be stronger in the US where the plaintiff bar American style leads to much higher amounts of compensation than is generally the case in Europe. Still, Noble Energy rightly mentions that such a risk pooling model could in theory also be attractive for EU operators, especially for small and medium size operators who may be exposed to large risks as well. However, that is to some extent countered by the argument of the majors that (e.g. differently than with P&I clubs) in the offshore business operators and risks are of a totally different nature which makes risk differentiation very hard and the danger of cross-subsidization and negative redistribution very realistic. Hence, from the perspective of the majors, one can understand that they fear that such a mechanism could be used as an instrument of externalization by (potentially higher risk) smaller and medium size operators who could then (in case of mutualization via a pool) free ride on the balance sheet of the majors. This would, also from a social policy perspective, be undesirable since it could reduce incentives for care of higher risk operators.

One potential weakness/point to be addressed is (like in the Price-Anderson Act) how one monitors the solvency risk with individual operators. There needs obviously to be serious monitoring, not only of safety but also of solvency of individual operators since otherwise they could externalize their risk still to the group and simply go out of business. That may, however, not necessarily be a huge problem and could be accounted for.

### **9.5.4. Expanding OPOL**

A third option to provide more cover is to expand the functioning of OPOL. There are various ways in which OPOL could be expanded:

1. One possibility would be to make OPOL membership mandatory in more legal systems. That would hence mean that the OPOL solvency guarantee would expand and e.g. also extend to Norway, Denmark or the Netherlands. Ultimately, this would obviously be something for the local regulators to decide and is beyond the decision of OPOL. Still, one would have to take into account the limits of OPOL: since it is not a true risk sharing agreement, it only provides a solvency guarantee and moreover only up to 250 million US\$ which is in our definition only for the smallest incidents.
2. A second possibility is to expand the amount of coverage of OPOL. That would e.g. mean that the current solvency guarantee would be increased from 250 million US\$ to, say, 500 million US\$. Again, the majors are opposed to such a proposal for the same reason as they would not like to join risk pools like OIL or OCIL: it increases the mutualization and hence increases the risk which they would not desire.
3. A third possibility would be to expand the scope of the current OPOL beyond the North Sea (to which its application is currently limited). Not surprisingly, many are opposed against such an idea for the same reasons as why they do not want to increase the amount: increasing the current OPOL to an EU wide model, e.g. including the Mediterranean or the Black Sea, would mean that for the current members (who may not at all be active in the Mediterranean) risks would increase, whereas the members may not have sufficient possibilities to monitor the solvency of operators in those other areas. For that reason, they would be opposed against such a territorial expansion.
4. A fourth possibility is that different regional agreements, like OPOL, would be created, e.g. for the Baltic, the Black Sea and the Mediterranean. In that case, there would be no risk sharing (as far as insolvency is concerned) between the operators active in the current OPOL (in the North Sea) and e.g. operators active in the Mediterranean. A new OPOL would then be created specifically e.g. for Mediterranean risks. That is a model that all stakeholders seem to subscribe to for the simple reason that the risks of mutualization and cross-subsidization are then limited. Moreover, mutual monitoring (of the insolvency risk) is easier when new regional risk pools would be created.
5. A fifth possibility would be to transform OPOL altogether from the current model (whereby it merely guarantees the solvency of its members) to a truly risk sharing agreement like OIL and OCIL. Again, it may not surprise that for the same reasons why the majors did not want to join OIL and OCIL they would also not be in favour of such a transformation of OPOL from merely guaranteeing the solvency of its members to a true risk sharing agreement. Again, the fear for mutualization and cross-subsidization would inhibit such a model.

In sum, the only option to expand OPOL which was positively received by stakeholders, was the fourth option mentioned above, i.e. to create other regional risk pools for other sea areas than the North Sea along the lines of OPOL: a pooling agreement where members share the insolvency risk of their members. Still, it would have to be recalled that this 1/ does not have the benefits of mutual monitoring; 2/ would only provide limited amounts of coverage and 3/ would only intervene to guarantee solvency up to the limited OPOL amounts. Still other arrangements would have to be developed to cover for medium and large accidents.

### **9.5.5. Conclusions Chapter 6**

The analysis in Chapter 6 hence shows that there are no easy solutions to increase the coverage available for offshore related risks in European waters, compared to the status quo we have described in chapter 5. Various proposals do exist, both using insurance or industry pooling, but all have their disadvantages as well and are therefore understandably opposed by industry. The opposition can, moreover, also be understood, taking into account economic

principles since a forced mutualization could even lead to increased safety risks which should obviously at all price be avoided. When addressing the question whether there is a need for some regulatory action compared to the status quo, the starting point should be whether there is a problem in the current situation. The answer is that that strongly depends on the type of accident and the solutions that could be envisaged:

1. For the smaller accidents (defined as with a maximum of 250 million euro damage) the current OPOL mechanism may work. However, one has to recall the limits of OPOL:
  - only applicable to the North Sea;
  - only mandatory in the UK;
  - only providing solvency guarantees;
  - never applied in practice and hence no practical experience;
  - no risk differentiation and hence no incentives for prevention.

OPOL relies on a variety of instruments (like self-insurance, insurance or guarantees), but a solution will hence be necessary even for this lower category of accidents for the cases and territories where OPOL does not apply.

2. That is certainly also the case for the medium-size accidents (between 250 and 750 million euro). Even though they go beyond the limit provided by OPOL insurance solutions available on the commercial market can still be used as well as pooling arrangements like OIL and OCIL.
3. Only for the category of large accidents (damage higher than 750 mio €) insurance may either not or only partially (with large retentions) be available. In those cases, only majors would be able to provide cover based on the balance sheets via either self-insurance or captives.

As was mentioned, this could either lead to a regulatory recommendation (as for example already applied by DECC and following from the UK oil and gas guidelines on financial responsibility) to use risk assessment in order to determine the potential damage resulting from particular operations. This could lead to the consequence of only allowing majors to engage in activities that could lead to large damage or suggesting smaller and medium-size operators to engage in joint ventures with majors.

There only seems scope for developing other regional pools like OPOL (solvency guarantee pools) e.g. for the Mediterranean. However, it should be clear that such pooling schemes will only develop under a regulatory duty to show financial responsibility; otherwise, operators may lack any incentives to develop such a scheme. That would hence be a strong argument in favour, as we will also argue below, a regulatory duty to show financial coverage. Moreover, if the government were to stimulate further going risk pooling arrangements between operators (going beyond the solvency guarantees provided in OPOL) an important condition would be to impose high safety standards for offshore installations through regulation, in order to facilitate the mutual monitoring inherent in risk pooling schemes.

## **9.6. Scenario analysis for civil liability regimes and financial security mechanisms**

Chapter 7 provided further scenarios related to civil liability and financial mechanisms for operators to cover such costs, following task 5. The chapter first sketches the conditions for an efficient liability regime applicable to offshore related risks. The argument is made that there are reasons to introduce strict liability to offshore related risks, but to combine it with a contributory negligence rule in order to take the victims influence on the accident risk into account as well. Legal channelling of liability (thus excluding the liability of other parties

than the one to whom the liability is channelled) should be avoided. The same is the case for a financial limit (a so-called financial cap) on liability. It not only leads to undercompensation of victims and underdeterrence of operators, but also would constitute an indirect subsidisation of the industry enjoying a particular limit on liability.

### **9.6.1. Role of safety regulation**

Although liability rules may play an important role in providing incentives to operators of offshore installations, it was held that also safety regulation can play an important role as well. This led to the following conclusions:

- Based on theoretical starting points, safety regulation should play an important role in the prevention of offshore related risks;
- Liability rules remain important to fulfill a complementary role where safety regulation remains suboptimal or is inadequately enforced;
- Given the informational advantages (especially of the majors in the offshore sector) safety regulation could also take the form of self-regulation or private regulation, but should anyway be supervised by government in a kind of “conditional self-regulation”. The covenant that was concluded in the Netherlands between regulators and industry as well as the collaboration in the UK between Oil and Gas UK and DECC may constitute examples of such a public-private partnership in standard setting;
- It is in the interest of industry (especially those willing to comply with high safety standards) and regulators to have high and stringent safety standards; there is still room for improvement in that respect in the EU;
- The question however arises whether setting those standards should be a task for the EU Commission; it seems preferable that e.g. via EU guidance notes agreements on targets and safety standards are promoted to be concluded between industry (given higher technical knowledge) and (a conglomerate of) national regulators. This recommendation of course to a large extent complies with the creation of the European Maritime Safety Agency which was precisely established for the purpose of ensuring a high, uniform and effective level of maritime safety and prevention of pollution by ships within the Community as well as ensuring a response to marine pollution caused by oil and gas installations. In addition mutual learning and collaboration (via networking) between national inspection agencies in the Member States should be encouraged as well.

### **9.6.2. Mandatory financial security**

Next it was held that small and medium size operators could constitute a serious insolvency risk as a result of which mandatory financial security may be indicated. This led to the following recommendations:

- It seems indicated to mandate financial coverage for offshore related risks, especially for the cases where smaller and medium size operators may create a risk of major damage and hence an insolvency risk would emerge.
- To the extent possible, also at the licensing level it should be avoided that operators would engage in offshore operations of which the risks in case of an accident would outweigh their personal assets. In that case, a joint venture with OGPs with larger financial capacity may be indicated.
- It seems indicated to issue a guidance note at EU level, guiding local licensing authorities in Member States on the required amount and form of financial security for offshore related risks.

- As far as the amount is concerned, this guidance note should be based on an objective assessment of the risk taking into account technical criteria that relate a specific operation and operator to particular amounts of potential damage.
- The guidance should allow sufficient flexibility as far as the forms of financial security are concerned and should not necessarily limit those to insurance. The only condition would be that local regulators accurately verify whether the form and amount of the financial security offered by the operator would be adequate to cover the potential damage emerging from that particular offshore installation.
- The guidance could hence take into account location specific circumstances on which local regulators in Member States can base their assessment of the amount and form of financial security.

### **9.6.3. Compensation via Government?**

Subsequently the question was asked whether there should be a role for government in providing compensation.

First the question was addressed whether there should be direct compensation by government. It was held that this should never be a preferred option to deal with offshore related damage.

This is not to say that there should be no role whatsoever for government in the aftermath of a disaster caused by an offshore-related incident. Relief measures and coordinating disaster management in the immediate aftermath of the disaster are undoubtedly tasks where the government can play an important role. However, an important condition would be that if steps would be taken, either in clean-up e.g. of polluted beaches or providing immediate relief to victims, that via liability rules the price for those interventions are ultimately allocated to the liable operator. This corresponds to sound economic principles of costs internalization and to the polluter-pays-principle.

Next the question was asked whether government should play a role as reinsurer of last resort. It was held that for the case of offshore-related damage the arguments in favour of such an intervention by government as reinsurer of last resort do not seem very compelling. One important condition for such an intervention would be that a market solution is largely failing. That may be the case for terrorism and natural hazards but it is doubtful that this is the case for third party liability risks created by industry generally and related to offshore activities more specifically. Uninsurability on traditional insurance markets may only arise for the third category of incidents (with a damage above 750 mio. Euros) which may not or be difficult to insure on the traditional commercial insurance market. However, as we have explained above, various proposals have been formulated by commercial entities to create market solutions which would enable coverage also for these disastrous types of offshore-related incidents. In this respect we can refer both to the proposal formulated by Noble Energy as well as to the proposal formulated by Munich Re. Even though these proposals may not have materialized yet the regulatory answer to that would obviously not be an intervention of government as reinsurer of last resort, but rather a duty imposed on industry to provide adequate coverage as a result of which industry will and shall develop market solutions to provide appropriate coverage.

Finally the question was also asked whether a compensation fund for offshore related damage should be created. Again, it was argued that we do not see a lot of scope for introducing a fund solution for offshore related risks. It seems preferable, given the necessity of a compensation mechanism to provide incentives for prevention, to rely on insurance and other mechanisms where contributions can reflect risk. The only role one could imagine for a compensation fund would be as an upper layer e.g. beyond 750 million euro or any limit on the insurance amount available in the market. However, not only would this create a very complicated system to administer. In the second layer, there would be no risk related

contributions and hence no positive effect on incentives. Moreover, it would *de facto* mean that operators would have to pay twice: first for insurance or contributions to a guarantee or pooling system and second a tax for the fund that would constitute the second layer. Moreover, (this constitutes again a major difference with vessel-based pollution) given the large differences in the offshore market, for some operators contributing to such a (costly) fund would be meaningless since they could easily take charge of the costs above the insurance limit through self-insurance. For them, a duty to contribute to a fund would hence only create additional costs without compensating benefit. This would then amount to a situation whereby the duty to compensate to the fund would only be imposed on some (presumably smaller) operators (since they may be exposed to an insolvency risk) and not to others. That would obviously be politically unfeasible. For those reasons, we argue that the difficulties that prevent the creation of a compensation fund in the area of environmental liability may also inhibit the creation of a compensation fund for offshore related risks.

#### 9.6.4. Three scenarios

Based on the evaluation and analysis in Chapter 7 three possible scenarios were worked out with different solutions, depending on whether OPOL (or a similar regime for other areas than the North Sea could be developed) is applicable (1), for situations where the damage is higher than the OPOL-limit (250 mio.), but still insurable on the commercial market (2) and finally the situation where no financial cover via the regular commercial can be obtained (3).

Starting point for each scenario is that mandatory financial security should in each case be provided, but that the instruments used can differ. We will here merely suffice by sketching the scenarios in a table; the conditions for the specific instruments to work have been discussed in detail in the main text of the report.

##### Scenario 1: damage max. 250 mio.

UK/North Sea OPOL	Other areas: Other regional arrangements (to be developed)
Mandatory financial security via: self insurance insurance industry pooling (like OIL/OCIL or comparable pooling mechanisms) (guarantees) other	

##### Scenario 2: damage between 250 mio. and 750 mio.

UK/North Sea OPOL	Other areas: Other regional arrangements (to be developed)
Mandatory financial security via: self insurance insurance industry pooling (like OIL/OCIL or comparable pooling mechanisms) (guarantees) other	

### Scenario 3: damage above 750 mio. euros

Mandatory financial security until risk related amount
First best:  Majors: self-insurance/captives Others: less risky activities
Second best:  Possibly: Munich Re facility Noble Proposal (generally: industry pooling) Fund with risk-related contributions A retrospective pooling scheme Government as reinsurer of last resort

## 9.7. Recommendations for action at EU-level

Finally, in Chapter 8 recommendations were made for action by the Commission to ensure strengthened provisions for financial security and a comprehensive civil liability regime in the event of a major offshore accident in Union waters, following task 6.

### 9.7.1. General

- Data on incidents related to damage resulting from offshore oil and gas activities are either difficult to obtain or not publically disclosed. It would be recommendable that an institution at EU-level would centrally collect those data, also in order to increase the insurability of offshore-related damage.
- It would be recommendable to urge Member States to invite the offshore oil and gas producers within their jurisdiction to collaborate in the provision of those data to the central European institution.
- It would be recommendable that the EU takes initiative (eventually via a specialised UN agency or other institutions) to come to an international agreement especially focusing on the offshore-related incidents with a transboundary character.
- In order to promote (international) risk pooling by industry mandatory safety standards should be implemented guaranteeing a minimum level of offshore safety in the EU. Safety regulation should play a more important role than liability rules in the prevention of offshore-related risks.
- Given higher technical knowledge of industry on optimal safety standards the EU could promote (inter alia via guidance notes) industry agreements (eventually with national regulators) on targets and safety standards, but striving for high harmonized EU-wide safety standards).

### 9.7.2. Efficient liability rules

An EU-wide regime for damage caused by offshore-related risks could be shaped along the following lines.

- Liability for damage caused by offshore-related risk should be strict.
- Liability should take into account the behaviour of the victim as well, meaning that the claim on compensation should in principle be reduced to the extent that the victim has contributed to the loss.
- A legal channelling of liability should be avoided.
- A joint and several liability of various parties who contributed to the offshore-related risk can be installed.

- Systems of so-called “economic channelling”, implying that the financial security of a licensee or operator also covers the liability of subcontractors should be promoted.
- Financial caps on liability should be avoided in order to expose operators and others who contribute to offshore-related risks fully to the social costs created through their activity.
- Compliance with a regulatory standard should not automatically exclude liability for damage resulting from offshore-related risks.
- It is recommendable to provide an integrated liability regime for damage caused by offshore-related risks. The proposal to integrate damage caused by offshore-related risks into the ELD could hence be reconsidered.

### **9.7.3. Mandatory financial security**

- It seems indicated to mandate financial coverage for offshore related risks, especially for the cases where smaller and medium size operators may create a risk of major damage and hence an insolvency risk would emerge.
- To the extent possible, also at the licensing level it should be avoided that operators would engage in offshore operations of which the risks in case of an accident would outweigh their personal assets. In that case, a joint venture with OGP's with larger financial capacity may be indicated.
- It seems indicated to issue a guidance note at EU level, guiding local licensing authorities in Member States on the required amount and form of financial security for offshore related risks.
- As far as the amount is concerned, this guidance note should be based on an objective assessment of the risk, taking into account technical criteria that relate a specific operation and operator to particular amounts of potential damage.
- The guidance should allow sufficient flexibility as far as the forms of financial security are concerned and not necessarily limit those to insurance. The only condition would be that local regulators accurately verify whether the form and amount of the financial security offered by the operator would be adequate to cover the potential damage emerging from that particular offshore installation.
- The guidance could hence take into account location specific circumstances on which local regulators in Member States can base their assessment of the amount and form of financial security.
- Such an approach allows sufficient flexibility, avoids unnecessary costs (e.g. forcing majors to transfer risks to lower rated insurance companies), encourages a level playing field for operators and avoids an externalization of social costs (and thus a market failure) in case of insolvency.
- The EU could promote the development of other regional pools like OPOL (solventy guarantee pools) for other areas than the North Sea, e.g. for the Mediterranean. The imposition of a regulatory duty to show financial responsibility, as recommended here, should also promote the development of those regional pools.

### **9.7.4. A role for government?**

The EU could consider either initiating itself or suggesting the Member States particular initiatives to facilitate the provision of compensation for offshore-related risks where the damage would be higher than an amount which is insurable on the commercial market. However, such a role for government should correspond with a few fundamental principles:

- Government intervention would only be indicated for those risks for which none of the financial market solutions are available.



- To the extent that market solutions (such as self-insurance or captives) are available a government intervention should remain absent.
- Government should hence only intervene as a last resort in the hypothetical situation that catastrophic losses could not be covered by any mechanism available on the market.
- In that case the government intervention should still be based on premiums or contributions that reflect the actual risk in order to provide adequate incentives for prevention.

When these (exceptional) conditions would be met the following types of government intervention would be envisable:

- The creation of a compensation fund for offshore-related risk, only providing an upper layer for catastrophic damage and financed with risk-related contributions.
- A retrospective pooling scheme, whereby a government institution (agency) prefinances the loss and *ex post* (after the accident) claims back the moneys paid to the victims on the basis of retrospective contributions to be paid by operators. The retrospective contributions should be risk-dependent.
- A reinsurance by government as last resort. Again, risk-dependant (re)insurance premiums should be charged by government.

#### **9.7.5. Rapid claims mechanism**

The EU should invite Member States to develop a mechanism allowing to make early compensation payments to particular vulneral groups of victims (more particularly fishermen and hotel/restaurant owners in coastal areas) that may be negatively affected by an offshore-related incident. The following mechanisms could be envisaged:

- An obligation imposed on the provider of the financial security or the liable person to formulate an offer for payment to the victim within a fixed period of time after the victim has presented his claim.
- The development of a (rapid) claims settlement mechanism via OPOL or similar regional pooling schemes.
- The potential construction of a facility allowing the prepayment to the particular vulnerable group of victims on the basis of a rapid evaluation of the validity of the claim and subsequent recourse of the facility against the person(s) liable for the damage caused by the offshore-related incident.