European Commission (DG ENV)

STUDY ON THE IMPLEMENTATION EFFECTIVENESS OF THE ENVIRONMENTAL LIABILITY DIRECTIVE (ELD) AND RELATED FINANCIAL SECURITY ISSUES

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In association with

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European Commission, DG ENV
ELD Implementation Effectiveness and related Financial Security issues
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EXECUTIVE SUMMARY

Background
Environmental liability is the mechanism by which the cost of damaging the environment is paid by those who cause the damage. Directive 2004/35/CE on environmental liability with regard to the prevention and remediying of environmental damage (hereafter ELD) provides the legal framework for introducing an environmental liability system in the European Union (EU) for industrial, commercial and other operations. The fundamental principle of the Directive is the polluter pays principle. That is, “that an operator whose activity has caused the environmental damage or the imminent threat of such damage is to be held financially liable, in order to induce operators to adopt measures and develop practices to minimise the risks of environmental damage so that their exposure to financial liabilities is reduced” \(^1\). The ELD was adopted by the European Parliament and the Council on 21 April 2004 and the deadline for its transposition in the Member States (MS) was 30 April 2007.

Article 14(2) of the ELD directs the European Commission to report by April 2010 on the effectiveness of the ELD in terms of the actual remediation of environmental damage, on the availability of insurance products covering ELD liabilities and their costs, as well as other types of security for the activities covered by Annex III of the Directive. The Commission shall submit another report to the European Parliament and to the Council before 30 April 2014 which shall include any appropriate proposals for amendment. This study is part of the preparatory work for the Commission’s report of 2010 on the effectiveness of the ELD.

Objectives and Methodology
This study aims at updating and completing available information regarding the transposition of the ELD, approaches of MS to financial security, and currently available financial security solutions. The issues of a gradual approach, a ceiling for the financial guarantee and the exclusion of low-risk activities need to be further analysed in this context. Furthermore, the study is to provide further insight into the operators’ perspective of ELD implementation as well as into ELD cases in order to gain an understanding of the Directive’s implementation in practice.

The study is based on stakeholder consultations with MS authorities, the insurance sector (re/insurers and brokers), and operators. A number of providers of alternative financial security instruments were also contacted. This information gathering was completed by a desk study of existing relevant publications and internet sources. Finally, a workshop was organised to discuss and analyse relevant information with key stakeholders and experts in the field of financial security.

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\(^1\) ELD recital 2.
Transposition of the ELD and financial security approaches

As of October 2009, 25 MS had transposed the Directive, with Austria and Finland still not having fully transposed it.

The most common country-specific features of ELD implementation, due to the flexibility allowed by the Directive to MS in its transposition, are an extension of the scope of biodiversity beyond that of the ELD and the absence of state-of-the-art and/or permit defences. Regarding the obligation under Article 14(1) of the Directive that requires MS to take measures to encourage the development of markets for financial security instruments, MS have only taken limited actions so far. In most cases these actions have been restricted to discussions with insurers and/or their trade associations. Discussions with providers of other financial security instruments have been virtually non-existent.

Mandatory financial security schemes will be put in place by a number of MS from 2010 onwards. Every single one of these schemes allows for insurance as well as various other instruments as evidence of financial security. They also employ a form of gradual approach, exclusion of low-risk activities, or ceilings for the financial guarantee in order to facilitate the implementation of the scheme.

The concepts of a gradual approach, the exclusion of low-risk activities, or ceilings for financial guarantees are often interrelated and their exact definitions remain unclear at the point of writing of this report. A number of different options for each mechanism are discussed in section 3.2.3. A gradual approach would entail the gradual introduction of financial security, whether in terms of time, covered industrial sectors or covered liabilities. Introducing a ceiling for financial guarantees means limiting the financial guarantees to a certain level of indemnity or, perhaps, level of fee for the financial security instrument. Ceilings for financial guarantees can be considered as an integral component of any financial security system because no financial security instrument will provide for unlimited liability. Low-risk activities can be excluded to prevent operators within this category from having to obtain financial security.

Developments in the USA

As financial security provisions for environmental liabilities have been established in the USA for over 20 years, experiences gained in their use are of interest to the different stakeholder groups in the EU.

The federal and state governments in the USA have introduced a wide range of financial security provisions whose implementation and enforcement have revealed important issues. These include criticisms about the adequacy of some financial security mechanisms such as the financial test and corporate guarantees, questions regarding the use of captive insurance companies, and the inadequate enforcement of some requirements. Rather than these issues resulting in the demise of financial security requirements, however, the provisions have been refined, their enforcement has been increased and the requirements are being substantially extended because of
the significant costs of cleaning of contamination that have been paid by taxpayers when some operators have not had adequate funding to pay the costs themselves.

The ELD insurance sector in the EU

The overall assessment of the ELD-related insurance market is positive. It is generally described as a growing and competitive market that provides good cover for most liabilities under the ELD. What seems to hinder further growth of the market at this point is the lack of interest from operators in this type of product rather than high premiums or the uninsurability of certain liabilities.

The most frequently named limitations of currently available insurance products are the exclusion of gradual environmental damage, sub-limits or exclusions for compensatory remediation, and the limitation of cover for environmental damage to damage from pollution events rather than also including cover for non-pollution events. However, it has to be stressed that these limitations are not universal to all insurance products. Furthermore, as the market gains experience with ELD-related claims, it can expected that these limitations will become a thing of the past.

Activities that were most frequently mentioned as not being covered (explicitly or implicitly) are: genetically modified organisms (GMOs), waste management/waste disposal sites, extractive activities, the use of chemical and other hazardous products in the agricultural sector, and nuclear activities (please see section 5.2.1.5). However, this does not mean that the ELD-related liabilities of these activities cannot be covered by financial security instruments. Alternative financial security instruments to insurance, such as a letter of credit or a trust fund, can be suitable mechanisms to cover these activities. Financial security obligations for permits within the waste sector, for example, are traditionally not solely covered by liability insurance. The sector is therefore likely to continue to cover its liabilities with a range of different instruments and through government schemes.

The importance of the further development of guidelines and models related to the ELD, such as guidelines for the assessment of natural resource damage and the amount of compensatory remediation, needs to be stressed. Current guideline development is largely restricted to national efforts that might not be applicable to other MS. In Germany, the main insurance industry association (GDV) adapted a 1993 model for insurance policies covering environmental risks to take into account the new requirements under the German transposition of the ELD. Institutions providing for reinsurance of environmental risks such as ASSURPOL in France and the Pool Español de Riesgos Medioambientales in Spain also developed guidelines for members of their pool. MS, such as Belgium (Walloon Region), Czech Republic, Hungary, Ireland, Latvia, Malta, the Netherlands, Poland, Slovakia, and the UK have developed guidelines to cover specific issues, for example available thresholds or remedial measures. These efforts are still far from the clear consistent guidelines that could be applied to all EU MS and all cases of environmental damage. A pan-European effort in developing
relevance guidelines and models could be important in facilitating the implementation of the ELD.

Alternative financial security instruments

Throughout the project it was noted that MS authorities and operators largely focus on insurance products as a financial instrument to cover ELD-related liabilities and that knowledge of alternatives to insurance tends to be limited. However, there is a wide range of alternative products that are suitable to cover ELD-related liabilities. Furthermore, significant experience has been gained with these products in the context of other environmental legislation requiring financial security, both in the EU and USA, and no or limited adaptation efforts needed to be undertaken to make the instrument suitable for ELD-related risks. However, some of these alternative instruments are more suitable for large operators with significant assets than for SMEs. Furthermore, the availability of these alternative instruments is likely to be affected by the current economic crisis, especially when it comes to SMEs.

How suitable a financial security instrument is in the context of the implementation of the ELD will depend on its efficiency in terms of covered remediation costs and its availability to operators. There is no one instrument that fulfils all three requirements for all ELD-liabilities and sectors concerned. A decision on the suitability of an instrument will need to be made on a case-by-case basis.

Operators

Operators seem to remain largely unaware of the ELD and its related liabilities. Even if operators stated that they are aware of the Directive, they are generally not of the opinion that their environmental risks have changed as a result of its implementation and they have consequently not changed their practices. However, it should be emphasised that awareness of the ELD and its related risks tends to increase with the size of the company as well as the risks associated with the sector in which a company operates. Furthermore, awareness of the ELD is related to the length of time the Directive has been in force in a MS and the financial security requirements in place.

Currently the large majority of operators cover their environmental risks through insurance products and believe that all their environmental liabilities are adequately covered by these. The notable exception is the agricultural sector, whose members note that most available insurance products are not suitable to cover their liabilities.

ELD cases

Only a limited number of ELD cases could be identified within the duration of this study, either because only a few ELD cases have occurred or because competent authorities in the MS have not treated them as such, e.g. because the criteria or thresholds determining the significance of the damage were not fulfilled or the operator’s activity does not fall under Annex III and the operator will therefore be liable under the ELD only if it was negligent, which is yet to be determined.
Due to the small number of cases that were reported, the discussion includes cases that occurred prior to the deadline for transposition of the ELD but which could have been ELD cases if they have occurred after that date. Furthermore, the discussion includes cases that could potentially have fallen under the ELD but that, for one reason or another, ultimately do not do so. Although preliminary, two main trends can be concluded from the discussed cases: Firstly that the ELD can have an important triggering effect on other environmental legislation. And secondly, the potential for the Directive to miss out on large polluting incidents if these are not caused by activities under legislation in Annex III (see section 8.3.2). The lack of ELD cases means that assessing the effectiveness of the ELD in the sense of actual remediation measures that are taking/have taken place is not possible at this point in time.

The limited information that has been made available by the different stakeholders was included in the ELD case templates. The ELD case database, which can be found in Annex II of this report, has been populated accordingly.

Future work

A number of issues have been identified for which further analysis would facilitate an efficient implementation of the ELD. First and foremost, increased efforts are required to raise the awareness of operators of the ELD and its related liabilities. MS authorities need to play an important role in this effort if it is to be effective. Industry associations might be their most appropriate means of communicating with operators. A related point is the need for improved communication among different stakeholder groups.

The results of this project show that the knowledge of alternative financial security instruments in the context of the ELD remains limited. Operators as well as MS authorities should be informed in more detail about these options as they can play an important role in ensuring the efficient implementation of the Directive. Information should be gathered with a special focus on SMEs.

In order to assess the implementation effectiveness of the ELD, further information on ELD cases will need to be gathered. It is important that key information on these cases should be made available to the different stakeholder groups. Furthermore, the future development of guidelines and models to facilitate ELD-related assessments and calculations could play a significant role in the efficient implementation of the Directive.

Finally, further research into the options of a gradual approach, ceilings for financial security and the exclusion of low-risk activities and their impact on ELD implementation might need to be conducted. This could provide the European Commission as well as MS authorities with more detailed knowledge of how the introduction of a financial security scheme could be facilitated without a significant decrease in the effective cover of environmental damage under the scheme.
# Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>CEA</td>
<td>European insurance and reinsurance federation</td>
</tr>
<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Act (US)</td>
</tr>
<tr>
<td>CIRCA</td>
<td>Communication and Information Resource Centre Administrator</td>
</tr>
<tr>
<td>EFAB</td>
<td>Environmental Financial Advisory Board (of the US EPA)</td>
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<tr>
<td>ELD</td>
<td>Environmental Liability Directive</td>
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<tr>
<td>EMAS</td>
<td>Eco-Management and Audit Scheme</td>
</tr>
<tr>
<td>GAO</td>
<td>General Accounting Office (US)</td>
</tr>
<tr>
<td>GDV</td>
<td>German Insurance Association</td>
</tr>
<tr>
<td>GMOs</td>
<td>Genetically Modified Organisms</td>
</tr>
<tr>
<td>GTPL</td>
<td>General Third Party Liability (insurance policy)</td>
</tr>
<tr>
<td>IPPC</td>
<td>Integrated Pollution Prevention and Control</td>
</tr>
<tr>
<td>ISO</td>
<td>International Organisation for Standardisation</td>
</tr>
<tr>
<td>MS</td>
<td>Member State(s) of the European Union</td>
</tr>
<tr>
<td>OECA</td>
<td>Office of Enforcement and Compliance Assurance (of the US EPA)</td>
</tr>
<tr>
<td>PRP</td>
<td>Potentially Responsible Party (under CERCLA)</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation and Recovery Act (US)</td>
</tr>
<tr>
<td>REMEDE</td>
<td>Resource Equivalency Methods for assessing Environmental Damage in the EU</td>
</tr>
<tr>
<td>SPA</td>
<td>Special Protection Area</td>
</tr>
<tr>
<td>SSSI</td>
<td>Sites of Special Scientific Interest</td>
</tr>
<tr>
<td>TSD facility</td>
<td>Hazardous waste treatment, storage and disposal facility</td>
</tr>
<tr>
<td>UST</td>
<td>Underground Storage Tank</td>
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1. INTRODUCTION

1.1. REPORT STRUCTURE

This is the final report of the study on “Implementation Effectiveness of the Environmental Liability Directive (ELD) and related Financial Security Issues” commissioned by DG Environment under Service Contract 070307/2008/516353/ETU/G.1. The study is based on stakeholder consultations, a desk study, and a workshop on the “Implementation Efficiency of the ELD”, which took place in Brussels on July 10th, 2009.2

This report is organised in nine sections.

Section 1 provides background information on the ELD.

Section 2 describes the scope of the current study, specifying its main goals, and the adopted approach and methodology.

Sections 3 to 8 present the main findings of the stakeholder consultations as well as the desk study. More specifically, section 3 provides an overview of the ELD implementation of different MS and their approaches to financial security. This is followed in Section 4 by a description of relevant developments in the USA, which can serve as a base for Europe as environmental liability related activities started there more than 20 years ago. Section 5 provides insight into the state of the EU environmental insurance market, identified gaps and limitations, and an outlook to future developments. Instruments that can serve as alternatives to insurance in the context of ELD liability cover are presented and discussed in Section 6. This is followed by a presentation and discussion of the needs and expectations of operators in Section 7. Finally, Section 8 presents the ELD case database that was developed for this study and how it was tried to gather information about potential ELD cases.

Conclusions are presented and discussed in Section 9.

1.2. THE CONCEPT OF ENVIRONMENTAL LIABILITY

Environmental liability is the term used for the process by which the cost of damaging the environment is placed on those persons who are responsible for causing the damage. Directive 2004/35/EC on environmental liability with regard to the prevention and remedying of environmental damage (hereafter ELD) provides a legal framework for introducing an environmental liability system for EU industrial, commercial and other operations. The prevention and remedying of environmental damage is to be implemented through furtherance of the polluter-pays principle. The fundamental principle of the Directive, therefore, is, “that an operator whose activity has caused the environmental damage or the imminent threat of such damage is to be held financially

2 See www.biohost.org/eld/workshop09 for more details.
liable, in order to induce operators to adopt measures and develop practices to minimise the risks of environmental damage so that their exposure to financial liabilities is reduced. The Directive was adopted by the European Parliament and Council on 21 April 2004; the deadline for its transposition in the Member States (MS) was 30 April 2007.

1.3. BACKGROUND

The polluter-pays principle suggests that polluters should be charged for the costs of cleaning up pollution caused by them, for the economic cost that pollution causes to the property of others, and for the purchase of consents to discharge pollution. Natural environment, being a ‘public good’, is not priced in a conventional market and as a result there remains ambiguity regarding the responsibility for the damage caused. Also, the charges for rectifying environmental damage may sometimes reflect its true environmental cost inadequately. By introducing the concept of environmental liability, the polluter is thus held responsible for the environmental damage caused by it.

The ELD covers:

- Protected species and natural habitats (protected by the 1979 Wild Birds Directive and 1992 Habitats Directive) at over 25,000 individual sites that form the Natura 2000 network covering nearly 20 percent of the land area of the EU as well as 100,000 km$^2$ of marine area
- Water (covered by the Community’s Water Framework Directive)
- Direct or indirect contamination of land that creates a significant risk on human health

The ELD differentiates between two types of liability: strict and fault based. Strict liability applies in respect to environmental damage or the imminent threat of such damage caused by the operation of activities under legislation listed in Annex III to the Directive, e.g. integrated pollution prevention and control (IPPC) and waste activities subject to permit or registration. Strict liability means that a causal link between the occupational activity and the environmental damage is sufficient and no fault or negligence by the operator of the occupational activity is necessary to trigger liability. Strict liability covers all forms of environmental damage, i.e. damage to water resources and land, as well as damage to protected species and natural habitats covered by the Birds and Habitats Directives. Fault-based liability, on the other hand, means that the operator of the occupational activity, through a deliberate action, omission, or negligence, has caused the environmental damage. It applies to damage to protected species and natural habitats from all non-Annex III occupational activities but not to water and land damage. See Annex 1 for various definitions related to the ELD.

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3 ELD recital 2.
When an operator’s activity has caused an imminent threat of, or actual, environmental damage, the operator is liable for carrying out preventive or remedial actions (that is, emergency remedial actions and remedial measures), respectively. Regarding remedial measures, the ELD differentiates between primary remediation, i.e. the remediation necessary to restore a damaged natural resource to its condition before it was damaged; complementary remediation, i.e. the remediation of an alternative site in cases where primary remediation has not restored the damaged site to its baseline condition; and finally compensatory remediation, i.e. the provision of compensation for any interim loss suffered by other natural resources or the general public due to the damage caused to a natural resource (e.g. loss of amenity, ecosystem services). Importantly, no monetary limit of liability has been set for the costs of the remediation measures.

The scope of the ELD, however, is limited by the following exemptions:

- It only applies to damage arising from events/emissions occurring after 30 April 2007.
- It does not apply to activities covered by some international conventions (e.g. the International Convention on Oil Pollution Damage).
- It does not apply in case of damage or imminent damage resulting from armed conflict, natural disaster, national defence, etc.
- It does not apply in case of diffused pollution where it is impossible to link the negative environmental effects with acts or failure to act of certain individual operators.

In addition, the following ‘defences’ may apply, including the following:

- An operator is not liable to bear the costs when the damage is caused by a third party, provided that appropriate safety measures were in place.
- An operator is not liable to bear the costs if the damage results from compliance with an order or instruction from a public authority.
- MS have the discretion to decide that an operator is not liable for bearing the costs if the damage results from an authorised activity (permit defence) or the emission or activity was not considered likely to cause environmental damage according to the state of scientific and technical knowledge at the time (state-of-the-art defence).

The Directive leaves a large degree of flexibility to the MS in transposition and thus implementation of the ELD. A number of MS have made use of this flexibility in their national transposition. Besides the option of adopting the permit and state-of-the-art defences, the MS can also decide whether or not liability should be joint and several, or proportional. Furthermore, MS also have the option to go beyond the Directive, for example, by introducing obligatory financial security. Consequently, the implementation of the Directive may follow different models according to the choices made by MS while transposing the Directive.
Currently, the ELD does not require operators to cover their activities by financial security (e.g. insurance). However, looking at the liability conditions imposed by the ELD and their financial implications, which can be very large depending on the damage caused, operators that are aware of these liabilities would be expected to seek cover for these risks. Financial security can be considered as one of the cornerstones for the implementation of the ELD. If operators do not cover their liabilities with financial security instruments, there is a risk that remediation measures will not be undertaken, which means that the implementation of the ELD might only show very limited results.

1.4. PREPARATORY WORK FOR THE COMMISSION’S REPORTING

As per Article 14(2) of the Directive, the European Commission is obliged to present by 30 April 2010 a report on the effectiveness of the ELD, on the availability of financial security at reasonable costs, and on conditions of insurance and other types of financial security for the activities covered by Annex III. The report shall also consider in relation to financial security the following aspects: a gradual approach, a ceiling for the financial guarantee, and the exclusion of low-risk activities. In the light of this report and of an impact assessment (IA), including a cost-benefit analysis, the Commission may, if appropriate, submit a proposal for a system of harmonised mandatory financial security.

Furthermore, Article 18 provides that MS shall report to the Commission on the experience gained in the application of this Directive by 30 April 2013 at the latest. Based on these MS reports, the Commission shall submit a report to the European Parliament and to the Council by 30 April 2014, which shall include any appropriate proposals for amendment.

Main sources for the 2010 report will be MS and stakeholder consultation during 2008/2009 and studies conducted on these issues. More specifically, the preparatory work will consist of:

- Close monitoring of the state of play with regard to transposition of the ELD and in particular the provisions under Article 14.
- Discussion/uploads on progress made with the MS in the Liability Expert Group by means of regular annual or bi-annual meetings.
- Discussions and cooperation with the insurance companies on how the market for financial security for ELD-related liabilities develops.
- The 2008 study “Financial Security in ELD” and the current study

For the 2014 report on the application of the ELD, the main source will be the MS reports, which are due by 2013.
2. OBJECTIVES, SCOPE, AND METHODOLOGY

2.1. OBJECTIVES

The overall objective of the study is to update and complete available information regarding the transposition of the ELD as well as the financial security solutions in place, and to provide the Commission with the necessary information to meet the reporting requirements set out in Article 14(2) of the Directive.

In particular, it was the aim of this study to:

- Build on the results of the study on “Financial Security in ELD” conducted in 2008, to update and complete existing information regarding the progress in the transposition of the ELD particularly in those MS where the transposition had not been fully finalised by September 2008 when the study was concluded.

- Analyse the approaches taken by MS regarding financial security issues and the different solutions that have been implemented in MS to promote the development of financial security instruments and to encourage market development, including the identification of gaps and limitations. In particular, the issues that need further analysis include those indicated in Article 14(2) of the ELD, namely the adoption of a gradual approach, a ceiling for the financial guarantee, and the exclusion of low-risk activities.

- Update and complete available information on the currently available insurance and other financial security instruments (funds, bonds, self-insurance, etc.) to cover environmental liability in different MS.

- Build a database of ELD cases in MS, which will provide useful information on the effectiveness of the Directive in terms of actual remediation of environmental damage, as well as on how implementation works in practice and the performance of the available financial security products.

- Further analyse the position of operators regarding the ELD, particularly regarding their needs and attitudes towards the transposition and implementation provisions of the ELD as well as their expectations from financial security providers.

- Provide a platform for the exchange of experiences of different stakeholders and experts in the field in the form of a workshop.
2.2. SCOPE

This study examines the different approaches to ELD transposition taken by MS, the different solutions that have been implemented in the MS to promote the development of financial security instruments as well as the existing financial security solutions available to operators in different MS. The issues are analysed from the perspectives of MS authorities, financial security providers, and operators. The study also reviews similar work in other countries, in particular the USA, where environmental liability financial security schemes have existed for many years. This study attempts to answer the following questions:

- What is the current status of transposition in those MS that had not transposed the Directive by September 2008 and what kind of differences can be observed in the national legislation compared to the ELD?
- What are the implementing provisions in place? How does implementation work in practice?
- What is the approach to financial security in countries for which detailed information is not available or that have recently transposed the Directive?
- What are the measures that are being taken by MS to encourage the development of financial security instruments and markets? What is their performance and what are the limitations?
- What are the emerging ELD-related insurance products? What are their current gaps and limitations?
- How is the insurance market reacting at the EU level and in the MS with the advancement of the ELD transposition process?
- What is the status of awareness (and use) of financial security products among operators to cover ELD-related risks? What are their expectations and the barriers encountered?
- What is the effectiveness of the Directive in terms of actual remediation of environmental damage?
- Regarding financial security, which MS have introduced a gradual approach, a ceiling for financial guarantees, and the exclusion of low-risk activities? What is the reasoning behind these choices and what are the observed advantages and limitations to these provisions?

According to Article 14(2), the Commission could submit proposals for a harmonised mandatory financial security scheme based on the Commission’s 2010 report as well as an extended impact assessment, including a cost-benefit analysis, if it is deemed appropriate. The discussion of possible impacts of a harmonised mandatory financial security scheme are therefore not within the scope of this report but might be addressed by the Commission at a later stage.
2.3. APPROACH AND METHODOLOGY

For the collection of the information necessary to answer the range of questions highlighted above, the approach chosen was that of an extensive stakeholder consultation through the development of targeted questionnaires and interviews of various groups of stakeholders, including MS authorities, insurance providers and operators. Further information was also gathered through a review of existing literature. Finally, the information from these various sources was presented at a workshop and discussed with key stakeholders and experts in the field of financial security.

The following sections present the key steps in the process and the approach and methodology adopted for each step.

2.4. DESK STUDY

In order to take into consideration existing research on the subject, a desk study of existing relevant publications and internet sources was performed. The main objective was to identify information on the current situation regarding ELD-relevant insurance products, market development, alternative solutions, and approaches adopted by different MS on financial security under the ELD, as well as operators’ approaches to cover these risks. Public awareness of the ELD has been observed to be low and media coverage is in line with that interest. It should, however, be noted that this stands in contrast to the relatively high attention paid to the Directive by academia, in particular at European law faculties.

2.4.1. STAKEHOLDER CONSULTATION

The information collected through the first study was further completed and updated via a broad stakeholder consultation, targeting MS, the insurance industry, and operators.

- MS Consultation

ELD experts in different MS were contacted in order to update and complete information gathered during the 2008 study “Financial Security in ELD”. Areas of special interest included features of national ELD transpositions; views on different financial security instruments with a focus on insurance products; further information on mandatory financial security schemes (if applicable); and information on ELD-implementation in practice, including ELD cases.

MS that had already answered a questionnaire for the 2008 study were interviewed over the phone to update and complete the information previously provided. Thirteen MS concerned were interviewed. It should be noted that some of these MS, such as the Czech Republic, preferred to answer in writing. Those MS that had not answered the previous questionnaire were sent a reworked version that was adapted to the new focus of the study. Only three responses were received.
The 17 MS that took part in this consultation (either through an interview or the questionnaire) were Austria, Belgium (Flanders, the Brussels region and Wallonia), Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, France, Germany, Hungary, Ireland, Italy, Malta, Netherlands, Poland, Sweden, and the United Kingdom (UK). Regarding the discussion of findings of this consultation, it should be noted that they are only based on information provided by a limited number of MS and are not necessarily representative for all MS.

It should be noted that MS contacts were the ELD experts who were involved in the transposition of the ELD. However, in most cases these experts are not the competent authority and are not in-charge of the actual implementation and enforcement of the ELD. Certain questions could therefore not be answered by these contacts. Given the fact that most MS appointed a number of different competent authorities, e.g. for different types of damage or based on regional responsibilities, it was beyond the scope of this study to contact all people responsible for the transposition, implementation, and enforcement of the ELD in MS. Furthermore, even when people responsible for the implementation and enforcement of the Directive were contacted, it became clear that due to the lack of the experience in these areas, many questions would still remain unanswered.

- Insurance sector consultation

In order to gain further insight into the development of the ELD-related insurance market, re/insurers and brokers were contacted for in-depth interviews. Companies were chosen that were either leaders in this market or that had decided not to enter this market in order to reflect viewpoints from both ends of the spectrum. Attention was paid to cover as many countries as possible and, whenever relevant in the context of this study, locally based insurers were contacted. Three different questionnaires, with different sets of questions targeted at the interviewees, were developed.

A total of 36 re/insurers and brokers were contacted with the result that 18 in-depth interviews with insurers, two with reinsurers, and three with brokers were conducted. As illustrated below, a good mix of 12 MS were represented in this group:
Where appropriate, the findings were supplemented by information gathered by one of the authors of the report, Valerie Fogleman, during her long experience in researching, writing on, and advising clients on environmental liability and insurance (including the examination of, and advice, on, many environmental and ELD-related insurance policies) and legislative financial security provisions.

- Operators consultation

A questionnaire was developed targeting sectors for which the ELD was of particular relevance. The sectors were selected based on the various predictions entailed in impact assessments carried out by MS with the resulting sectors being:

- Agriculture
- Waste and recycling
- Water supply and treatment
- Manufacturing, with the following subgroups:
  - Food and beverages
  - Chemicals
  - Coke and petroleum
  - Metals

Other sectors of interest in this context, even if less than the ones mentioned above, include construction and demolition, land transport, and retail fuel. In order to reach the highest possible number of operators, the questionnaire was sent to a total of 122 industry associations and federations with the request to disseminate it to their operators.
members. In order to increase the response rate the questionnaire was also translated into French. Furthermore, a number of operators that had been identified during the last study were contacted directly. The main focus of the questionnaire was the operators’ awareness of risk as well as their current and anticipated risk coverage (including insurance products and alternative financial security instruments).

At the time of writing, a total of eleven operators and two national industry associations representing farmers answered the questionnaire. This low response rate can partially be attributed to the fact that the questionnaire was disseminated in summer when a large number of people were not available. However, a sufficient reply period of eight weeks was provided. What seems to be the more important factor behind this response rate is the low awareness of the ELD among operators and the resulting general lack of interest in a questionnaire on this issue.

- Contacts with providers of alternative financial security instruments

Contacts were also established with potential providers of alternative financial security instruments.

2.4.2. Workshop

A one-day workshop was organised on July 10 2009 in order to provide a platform for the different stakeholder groups to discuss key issues. The workshop was attended by about 50 participants that included representatives of the European Commission, MS ELD experts, re/insurers, brokers, operators, providers of alternative security instruments, and representatives of other interest groups. Following the presentation of background information on the ELD, its transposition, and the current study, representatives of the insurance industry provided a snapshot of the environmental insurance market across Europe and provided their views with regard to the maturity of ELD products currently on the market and future prospects. MS representatives provided insights into the transposition process and their national ELD governance structures and processes followed by the presentation of a number of potential ELD cases. A representative of an operator association presented the main concerns of European industries with regard to the ELD and a provider of alternative financial instruments presented possible solutions that are currently available.4

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4 See [www.biohost.org/eld/workshop09](http://www.biohost.org/eld/workshop09) for more details.
3. ELD TRANSPOSITION IN MS

3.1. CURRENT STATE OF TRANSPOSITION

The ELD leaves a large degree of flexibility to MS in its transposition and thus implementation, of which a number of MS have made full use. This section provides an overview of the state of transposition as of October 2009 as well as country-specific transposition features that go beyond the specifications of the Directive.

Please note that, unless stated otherwise, the analysis below is based on the results of the MS consultation. As discussed above, a total of 17 MS have answered this consultation. No replies were received from Finland, Greece, Latvia, Lithuania, Luxembourg, Portugal, Slovakia, Slovenia, Spain and Romania. The analysis below is therefore not necessarily representative of all MS.

3.1.1. OVERVIEW

As of October 2009, 25 MS had transposed the Directive, with France, Luxembourg, the UK, Slovenia and Greece being the most recent ones. Austria and Finland have still not fully transposed the ELD. In Figure 2 below, these countries are presented.
Regarding the countries that have not yet fully transposed the ELD, it should be noted that:

- Finland transposed the ELD for the mainland with full transposition for Aland still missing.
- Austria transposed the ELD at the federal level in June 2009 but the majority of the Länder still have to transpose it for natural resource damage and parts of land damage.

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5 Based on questionnaire responses and information provided by the European Commission
3.1.2. SPECIFIC FEATURES OF NATIONAL TRANSPPOSITIONS

The most common country-specific features of ELD implementation are an extension of the scope of biodiversity beyond that of the ELD and the absence of state-of-the-art and/or permit defences. Furthermore, the obligation of a competent authority to take remedial action if no operator can be identified and an ELD transposition coming into force after April 2007 are also common features.

Figure 3: National transposition features

MS that introduced a wider scope of biodiversity than that of the ELD are Belgium (Federal level and Brussels), Cyprus, the Czech Republic, Estonia, Greece, Hungary, Italy, Latvia, Lithuania, Poland, Portugal, Spain, Sweden and the UK (except for Scotland). As illustrated below, the information gathered through the MS consultation as well as that provided by the European Commission shows that the picture of the way MS have handled the issue of possible defences is a mixed one.

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6 Based on questionnaire responses and information provided by the European Commission
### Table 1: ELD defence options in MS transpositions

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<thead>
<tr>
<th>Both defences accepted</th>
<th>No defences accepted</th>
<th>SOA defence only accepted</th>
<th>Permit defence only accepted</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium (Flanders, Walloon, Brussels regions)</td>
<td>Belgium (Federal State)</td>
<td>France</td>
<td>Denmark</td>
<td>Netherlands(^7)</td>
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<td>Cyprus</td>
<td>Bulgaria</td>
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<td>Lithuania</td>
<td>Sweden(^8)</td>
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<td>Czech Republic(^9)</td>
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</table>

The obligation for competent authorities to take remedial action if an operator cannot be identified or is not in a financial position to take action has been incorporated into national law by Austria, Czech Republic, Estonia, Hungary, Malta and Poland. Countries in which the ELD has been transposed later than 30 April 2007 and in which the coming into force of the transposition has not been backdated to 30 April 2007 are Austria, Czech Republic, Denmark, Estonia, Ireland, Malta and the UK. Finally, Denmark, Hungary, Lithuania and Sweden (as well as potentially Greece the Netherlands) introduced strict liability also for sectors outside of Annex-III and mandatory financial security is being introduced by Bulgaria, Czech Republic and Spain (see below).

MS did not report any particular problems with the definition of damage to protected species and natural habitats and the definition of water damage. Other potential

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\(^7\) Defences possible only after ‘check of reason’, which is regarded as falling into the category of ‘No defences accepted’

\(^8\) SOA and permits can be mitigating factors but not defences

\(^9\) GMOs are excluded from the permit defence option. The direct release of GMOs is also excluded from the permit and state-of-the-art defence options in Wales, Scotland and Latvia.
definition problems that were named, even if only sporadically, were those of an ‘operator’, a ‘permit defence’, and ‘natural resource services’.

3.2. MS APPROACHES TO FINANCIAL SECURITY ISSUES

In transposing the ELD, MS made different choices concerning their approach to financial security issues, which are discussed in this section.

3.2.1. ENCOURAGING THE DEVELOPMENT OF FINANCIAL SECURITY INSTRUMENTS

According to Article 14(1) of the Directive, MS shall take measures to encourage the development of financial security instruments and markets to cover ELD-related liabilities. Article 14(1) does not state whether this is a continuing obligation or whether a MS may satisfy it by, say, organising workshops and seminars during a limited time period. Arguably, a MS must continue to take measures if the measures it has already taken do not achieve the stated objective of establishing financial security instruments and markets adequate to cover ELD liability.

Only a few MS have included the implementation of Article 14(1) in their ELD transposition, namely Belgium (Flanders), Cyprus, Italy, and Romania (Bocken, 2009). However, most MS have discussed the issue with insurers and/or their associations. Furthermore, a number of MS stated that they had organised workshops and seminars together with the insurance industry. Contact with providers of other financial security products was, however, not mentioned as part of the effort to encourage their market development. This suggests that there has been a strong focus on insurance products as a means of covering ELD-related liabilities with only little interest in other possible solutions.

3.2.2. MANDATORY FINANCIAL SECURITY

Whether or not a MS introduces a mandatory financial security scheme is one of the factors that will have most impact, at least in the short term, on the development of a market for financial security instruments, including insurance. Mandatory financial security means that operators that face potential environmental liability under the ELD must provide evidence to a competent authority to show that costs arising from the potential liability are covered by some form of financial security instrument. This is to ensure the implementation of the polluter-pays principle, which is at the heart of the ELD, by ensuring that the liable operator will be able to pay the costs of remediating any environmental damage caused by its activities. There are a number of examples of mandatory financial security provisions in EU law, such as in Regulation 259/93/EEC regarding transboundary shipments of waste, Directive 99/31/EC on landfills, and Directive 2006/21/EC on the management of waste from extractive industries (Bocken, 2009).
The introduction of a mandatory financial security scheme can differ significantly depending, among other things, on its scope in terms of operators that are covered, instruments that are recognised as evidence of financial security, and the precise ELD-liabilities for which financial security is required. Provisions of mandatory financial security schemes in the individual MS are discussed below:

- **Bulgaria** will introduce compulsory financial security from January 2011 covering all operators under Annex III. The scheme will be introduced to all operators at the same time and will allow for insurance, pools, bank guarantees, and financial guarantees as proof of liability cover. It is envisaged that an operator will have to have financial security commensurate to the cost of potential remediation measures. A determination of financial security that is ‘commensurate’ will be determined through risk assessment.

- In the **Czech Republic** financial security for all Annex III operators will become compulsory from January 2013. Insurance and bank guarantees will be acceptable means to provide evidence that liabilities are covered. Further details about the scheme, such as the level of indemnity that needs to be covered, will be specified in the Government Order that is currently being written. This is expected to be published in April 2011 and will come into force in January 2013. As already discussed in last year’s report, a number of exceptions to the mandatory financial security scheme will be introduced:
  - when the potential cost of remediation is less than 20 million CZK (approximately €800k) based on a risk assessment; and
  - when the company in question is Eco-management and Audit Scheme (EMAS) registered, even if the potential remediation costs exceed the above mentioned amount.

- In **Hungary** the introduction of a mandatory financial security scheme has been postponed indefinitely due to the economic crisis. Furthermore, following the national election in spring 2010, it remains uncertain whether such legislation will ever come into force. The scheme that had been foreseen was a simple and easily enforceable scheme that would only cover activities regulated under the IPPC regime with operators being able to choose from all types of financial security instruments, such as insurance, bonds, and guarantees.

- **Spain** is introducing a limited mandatory financial security scheme from April 2010. It will cover all operators in Annex III but it is not intended to cover all costs potentially arising from the Law. The security provided by the guarantee covers the costs of primary remediation and a small percentage of prevention and avoidance costs. The compulsory guarantee refers only to damage caused by ‘pollution’, despite the Law being based on the concept of ‘damage to natural resources’ irrespective of whether the damage is caused by pollution or not (i.e.; fire, aquifer depletion). (Willis, 2009)
Decree 2090/2008, which has been in force since April 23, 2009, develops the Law and provides a method to determine the way the damage must be assessed in order to constitute the mandatory guarantee. The risk assessment must be done according to the provision of UNE 150008:2008 (a national non-binding standard on risk assessment) or similar method, and to be verified by an independent agent. The regulation provides that the competent authority will determine the minimum sum insured according to the environmental risk assessment report. For operators who are included in the mandatory requirement for financial security, the sum indicated represents a minimum. These amounts might change because a revision of the sums presently ensured might be requested by public authorities following the implementation of the Decree. The following are exemptions for operators in Annex III from the guarantee obligation:

- Operators of activities likely to cause damage which primary remediation is estimated to be less than €300k; and
- Operators of activities likely to cause damage, primary remediation of which is estimated at between €300k and €2m and who show that they are certified with EMAS or ISO 14001:1996.

Though compulsory financial security is limited in the Law to €20m based on a study carried out by the Department of Economics of the University of Alcalá, which analysed the implications of a possible mandatory financial security scheme, liability as stated in the ELD is unlimited (Azqueta, 2006).

In addition to insurance, acceptable means of financial security are a guarantee provided by a financial entity or technical reserve and ad-hoc funds. These means of financial security must be valid for the entire period of operation. This means that, once the financial guarantees are mandatory, these are not required retroactively to cover the operator from the date the Spanish transposition came into force but from the date of application of the permit or authorisation for such an activity. The operator would have to keep a valid guarantee during the entire duration of the activity.

The Law requires the competent authorities to establish a system to control the validity of guarantees and insurers, financial organisations and operators to provide the competent authority with the information that it might request in this regard (art. 31.1). (Willis, 2009)

A methodology is currently being developed to evaluate risk scenarios and damage remediation costs in respect of the amount of financial security that an operator needs to take out.

- **Greece, Portugal, Slovakia and Romania** also introduced provisions for mandatory financial security in their ELD transpositions as discussed in 2008 report on “Financial Security in ELD”.
In all the above-mentioned cases, mandatory financial security is understood in an ex-ante manner, which means that it must be established in anticipation of a potential incident rather than after an incident has occurred. However, even for countries that did not include a provision for this kind of scheme in the ELD transposition, Article 8(2) of the Directive requires that the competent authority “… shall recover, inter alia, via security over property or other appropriate guarantees from the operator who has caused the damage or the imminent threat of damage, the costs it has incurred in relation to the preventive or remedial actions taken under this Directive”. The kind of guarantee that is considered to be appropriate is not further specified although it is generally assumed that it must be established only after an incident has occurred.

Countries that have implemented Article 8(2) according to this interpretation by directing competent authorities to require financial security in different forms are, for example, Belgium (Flanders and Walloon region), Bulgaria, Cyprus, Estonia, Italy, Malta, Romania, and UK (except Scotland due to differences in Scots law) (Bocken, 2009).

3.2.3. GRADUAL APPROACH, FINANCIAL GUARANTEE CEILINGS, AND EXCLUSION OF LOW-RISK ACTIVITIES

Article 14(2) of the Directive states that “[t]he [Commission’s 2010] report shall also consider in relation to financial security the following aspects: a gradual approach, a ceiling for the financial guarantee and the exclusion of low-risk activities”. These concepts are often interrelated and their exact definition remains unclear at the point of writing of this report. Two alternatives for a gradual approach were considered by the Commission, Council, and European Parliament during the debates on the ELD and these are discussed below. This section also provides an overview of possible interpretations of these terms and what this would mean in practice. The list of possible interpretations does not claim to be exhaustive but covers the most likely and feasible options.

3.2.3.1 A gradual approach

A gradual approach would entail the gradual introduction of financial security, whether in terms of time, covered industrial sectors or covered liabilities.

Whereas financial security mechanisms, such as insurance policies, may evolve over time, they are not necessarily introduced with the view that they will be broadened in the future. To do so would be to commit to a course of action regardless of whether it will prove to be profitable or not. In addition, the providers of financial security instruments are not likely to state that they will broaden the instruments in the future but, rather, to broaden them only if the instruments have proven to be commercially feasible. However, it can be envisaged that an insurer may gradually enter the ELD-related insurance market by expanding cover under its policies and the range of operators it covers depending on its experience. Importantly though, as discussed in
Chapter 5 of this report, a number of insurers consider that their ELD-related insurance products cover all liabilities arising from the Directive. This means that a gradual approach to ELD-related insurance cover has not been necessary.

The situation is different for the introduction of mandatory financial security as all countries implementing such a scheme apply some form of a gradual approach. The discussion below therefore concentrates on a gradual approach to the introduction of a mandatory financial security scheme.

It can be assumed that a gradual approach might be limited to Annex III activities for which a permit or other approval or registration is required. This is because applying a compulsory scheme to non-permitted activities would create difficulties – perhaps impossibilities – in enforcing the system because neither competent authorities nor operators would know whether an activity for which a permit, other approval or registration had been issued required financial security.

- One gradual approach that was proposed by the European Parliament during the enactment of the ELD would have introduced compulsory financial security first for environmental damage to water and land. A period of two years was then proposed prior to its introduction to protected species and natural habitats. (European Parliament, 2003) The reason for this gradual approach was the lack of expertise by insurers in quantifying damage to protected species and natural habitats. This reason appears to have been reduced at least in part by the entry of new insurers into the environmental insurance market for ELD liabilities including damage to protected species and natural habitats.

- A second type of gradual approach that was considered during the enactment of the ELD was the introduction of compulsory financial security for operators of IPPC installations. This was to be extended after a period of five years or so to other Annex III activities. The reason for focusing first on IPPC installations was that some MS already require companies that have an IPPC permit to have insurance for liabilities arising under their permits. Still further, insurers have long experience in providing insurance to IPPC operators. The Hungarian scheme, for example, planned to introduce the scheme only for IPPC activities to minimise administration efforts. Focusing on IPPC activities first could be an effective way of minimising the administrative effort of the scheme as the companies that are concerned must be monitored anyway under their permits. As with other gradual approaches, the environmental damage potential of the companies not included in this kind of scheme would need to be taken into account. If this potential remains significant, a gradual approach could undermine the original purpose of the scheme.

- A third type of gradual approach could mean the progressive introduction of a compulsory financial security scheme for various industrial sectors over time, e.g. it could be introduced first for certain sectors (high-risk, for example) and
later extended to all Annex III sectors. An example of this is the Spanish scheme that will be introduced at different points in time for different sectors.

- A fourth type of gradual approach could be the introduction of a compulsory financial security scheme, e.g. for primary or primary and complementary remediation only. In this case, the potential costs of other remediation types are not taken into account in the amount of financial security required. The Spanish scheme, for example, will limit the financial security requirement to liability for primary remediation. This approach does not only decrease the costs to operators for covering their environmental liabilities but it can also avoid some of the most difficult issues in covering ELD-related liabilities, namely the inexperience of stakeholders with complementary remediation and the lack of data in this context.

- Other gradual approaches in terms of time could be envisaged, such as a limited requirement for financial security in the first five years of the scheme, followed by a requirement for financial security up to the upper limit of potential indemnity. This type of gradual approach can facilitate the introduction of the scheme, both in terms of costs to operators as well as administrative costs for the MS authority in charge. However, as this approach also lengthens the full introduction of the scheme, it increases the likelihood that environmental damage would not be paid for by the operator but by the state. Further, such an approach would not reduce the costs on insurers and other providers of financial security to introduce financial security products. Instead, it would reduce the premiums and other amounts received by insurers and others due to the lower limits of indemnity, etc. whilst, at the same time, not reducing administrative costs.

3.2.3.2 Financial guarantee ceilings

Introducing a ceiling for financial guarantees means limiting the requirement for financial guarantees to a certain level of indemnity or, perhaps, level of fee for the financial security instrument. Although referred to as a ceiling, the requirement is, in reality, a minimum level of indemnity. That is, an operator may have one or more financial security instruments that provide indemnity above a specified level (i.e., that “top up” the minimum level) but must have at least the minimum amount. The need for a specified level arises for two main reasons. First, unlike financial security for an activity such as the closure of a landfill (which can be estimated because such costs will necessarily be incurred), the costs of remediating environmental damage that may (or may not) occur cannot be estimated with the same degree of accuracy. Second, no financial guarantee (whether it is insurance, a bank guarantee, corporate financial test, trust fund or so on) will provide for unlimited liability. The ceiling / threshold approach has been adopted in the United States (see section 6.1).
The level of the ceiling would obviously need to be specified. There could be one ceiling or several ceilings depending, among other things, on types of operations, risks posed by the operations, the location of the operation, and the size of the operation.

- A ceiling for the financial guarantee could be introduced if the risk of damage above that ceiling / threshold is considered to be low. Such a ceiling would depend, in large part, on the location of the operations; a small operation may cause substantial environmental damage. Low frequency high severity cases of environmental damage would possibly be partially excluded from this scheme, meaning that the state might cover related costs instead of the operator himself. Alternatively, a lower ceiling / threshold could be set for such operations to reflect the low frequency in incidents.

- A ceiling could also be introduced depending on the type and/or size of operation. For example, there could be one level for the operator of a IPPC installation and a different level for other Annex III activities. The approach in the United States of different minimum levels of financial security for owners and operators of USTs depending on the number of USTs and throughput of petrol is an example (see section 6.1).

- Ceilings could also be introduced for payments for the financial guarantee, e.g. upper limits for insurance premiums for ELD-related liabilities. This could protect operators, to a certain extent at least, from any market distortions based on this additional financial burden. On the other hand, a limit in payments for financial guarantees also means a limit in the cover that the guarantee provides. Furthermore, it would be difficult to determine what level of cover a certain amount of financial guarantee provides, as this will depend heavily on the insurer or provider of alternative financial security instruments. More importantly, insurers and other providers of financial guarantees may refuse to provide the guarantees for the specified amount of premium/payment.

Ceilings for financial guarantees can be considered as an integral component of any financial security system (whether mandatory or voluntary) because, as explained above, no financial guarantee, whether it is insurance, a bank guarantee, corporate financial test, trust fund or so on, will provide for unlimited liability. Therefore, the ceilings apply both to voluntary and mandatory financial security mechanisms.

### 3.2.3.3 Exclusion of low-risk activities

Under a voluntary financial security scheme, providers of relevant instruments are unlikely to exclude low-risk activities. Once they have instruments in place that cover high-risk activities, these necessarily also cover those that pose lower risks. The differences in risk, however, might well be taken into account in the price paid for these instruments. As cover for ELD-related liabilities remains voluntary under this scheme, operators of low-risk activities might exclude themselves by not purchasing financial security instruments to cover their liabilities.
Within a mandatory financial security scheme, the purpose of excluding low-risk activities would be to prevent operators within this category from having to obtain financial security. Low-risk activities might be excluded from a compulsory financial security scheme in the attempt to ensure that implementation efforts of the MS authority as well as the operator are commensurate to the scheme’s gain in terms of actual environmental damage that is covered by the financial security scheme of an operator. The examples of the exclusion of low risk activities in the Czech Republic and Spain discussed below show that the definition of this term can differ significantly. It has not been possible to gather sufficient information from these MS to fully understand how the amounts have been calculated but it has become clear that setting the threshold might well be controversial. Low-risk activities could be excluded on the basis of their potential damage, the environmental management system in place or the solvency risk an operator presents.

- Low-risk activities could be excluded from a mandatory financial security scheme based on an ELD-related risk assessment of all Annex III activities regarding their potential environmental damage, e.g. in the Spanish scheme activities with an estimated potential environmental damage below €300k (or between €300k and €2m in case the operators implemented EMAS/ISO 14001) will be exempt. Although this approach would exempt a potentially large number of operators from compulsory financial security and would thereby facilitate the implementation of the scheme, it also means that all Annex III activities need to be analysed concerning their potential environmental damage. This might, however, prove to be controversial, as environmental risks can depend in large part on the exact circumstances and measures taken by individual operators. This might either make a generalisation disputable or make the actual implementation of the scheme highly cost-intensive.

- Linked to the approach above, a scheme could also define low-risk activities as those where the companies have implemented an environmental management system. The scheme to be introduced in the Czech Republic, for example, will exempt companies that are EMAS registered (or if the potential cost of remediation is expected to be less than €800k or even if the potential remediation cost exceeds the above mentioned amount). Similar to the approach above, the definition of low-risk activities as those that have implemented an environmental management system might be disputable, as more factors might determine the company’s actual environmental risks, such as the nature of its activity and its location. On the other hand, this approach allows for an easy implementation, as no detailed analysis of the individual circumstances of a company is required.

- Another approach to this could be the exclusion of operators that do not appear to present a solvency risk as was foreseen in the Dutch Financial Security Decree of 8 February 2003 (Bocken, 2009). This risk, however, cannot be eliminated as witnessed by the insolvency of large companies with
environmental liabilities such as ASARCO in the USA (as discussed in section 4.1.4). Furthermore, this approach requires analysis of the financial situation of each operator, which increases the administrative burden linked to the scheme.

It should be noted that the large majority of MS ELD experts stated that they would not be in favour of excluding low-risk activities from a financial security scheme. The main reason for this was that the activities that might be considered to be ‘low risk’ can still cause significant environmental damage, e.g. because of the fact that their risk management systems tend to be less elaborate than those of high risk activities. Such exclusion, therefore, could result in the MS paying to remediate environmental damage from low-risk activities instead of the polluters themselves.\footnote{Even though the ELD does not require the MS to pay for remediation measures, it might decide to do so in particular instances of environmental damage.} The exclusion could also result in other responsible operators paying to remediate environmental damage from low- and high-risk activities in MS that have adopted joint and several liabilities in their transposition of the ELD.

It is important to note that the above-mentioned mechanisms could be combined at times, e.g. a scheme could be introduced at different points in time for different sectors (gradual approach) whereas low-risk activities would not be included at all and different financial guarantee ceilings would be introduced for each sector. Furthermore, the different mechanisms can be interlinked, which can lead to difficulties in defining them. The exclusion of low-risk activities, for example, can be regarded as a gradual approach if the number of excluded activities is decreased over time in order to extend the scheme.

### 3.2.3.4 Conclusions

What becomes apparent from the discussion above is that under a voluntary financial security scheme, a gradual approach as well as the exclusion of low-risk activities will be less relevant than they are for the introduction of a mandatory scheme. Financial ceilings, on the other hand, can be considered as an integral part of any financial security scheme, whether voluntary or mandatory.

The introduction of a compulsory financial security scheme by a gradual approach or the exclusion of low-risk activities could result in a scheme that is less effective in covering environmental damage falling under the ELD than a scheme that is introduced for all sectors and operations at the same time and that covers all activities. That is, the introduction of such a scheme will necessarily not apply immediately to some sectors or activities. However, this is a well-known trade-off in policy making and a compromise will need to be found based on thorough risk assessment of different sectors in relation to the different liabilities under the ELD. It should be highlighted that all countries introducing a mandatory financial security scheme are trying to facilitate its implementation by employing one or a combination of the above mentioned approaches.
What also becomes apparent is that it would be necessary to establish one or more ceilings / thresholds for the limit of financial security held by operators. This is because there is no other way in which the authority could be certain that an operator would have an adequate level of financial security for its operations. A ceiling / threshold can therefore be considered as an integral part of a compulsory financial security scheme and not as something that is optional or that could be introduced gradually. Finally, as noted above, it would be difficult, if not impossible, to extend a compulsory financial security scheme to non-Annex III operators and to operators of Annex III activities that do not require a permit, other approval or registration. Instead, a scheme would need to be linked to a permit or other approval or registration in order to identify operators who are required to have financial security.
4. DEVELOPMENTS IN THE USA

In examining approaches to financial security under the ELD, it is useful to consider developments under legislative provisions requiring financial security for environmental liabilities in the USA. The purpose of doing so is not necessarily to endorse the same approaches in respect of the ELD but simply to illustrate the experience of legislative mandatory financial security provisions in a jurisdiction that has a long history of such provisions.

The federal and state governments in the USA have introduced a wide range of such provisions, some of which have been in place for over 20 years. Implementation and enforcement of the provisions have revealed issues that needed to be addressed including criticisms about the adequacy of some financial security mechanisms, and the inadequate enforcement of some requirements. Rather than these issues resulting in the demise of financial security requirements, however, the provisions have been, or are being, refined, their enforcement has been increased and the requirements are being substantially extended.

The purpose of financial security for environmental liabilities from hazardous materials in the USA has been stated by the US Environmental Protection Agency’s (EPA’s) Office of Enforcement and Compliance Assurance (OECA) as follows:

“Financial responsibility protects public health and the environment by promoting the proper and safe handling of hazardous materials and protecting against a liable party defaulting on facility closure or clean up obligations. Consistent with EPA’s mandate to protect human health and the environment and ensure compliance with the law, as well as the Agency’s long standing ‘polluter pays’ principle, an enforcement strategy for obtaining full compliance with financial responsibility requirements prevents improper handling of hazardous materials and the potential shifting of the cleanup costs from the responsible parties to state and federal taxpayers.”

A major purpose of the many financial security requirements for environmental liabilities in the USA is, thus, clearly the need to ensure that the public does not pay to remediate environmental damage caused by a company or other person that does not have adequate funding to carry out the remedial actions. The purpose is not the protection of the company itself.

In order to describe developments in financial security in the USA, the following is a brief review of the two main types of financial security provisions and the amounts of financial security mandated by them. The main types of financial security mechanisms specified in the provisions are listed, with descriptions of them in section 8.1.2.
4.1. FINANCIAL SECURITY PROVISIONS

There are two general types of financial security provisions for environmental liabilities in the USA. The first type requires the owner or operator of a facility or activity to establish a secured source of funding, or to ensure that sufficient funding exists, for works that will necessarily take place. The second type requires the owner or operator of a facility or activity to have sufficient funding to remediate environmental damage or to meet claims for bodily injury or property damage if such damage or injury were to occur.

Legislative provisions that require the first type of financial security include the following obligations:

- the closure and post closure care of a TSD facility by its owner or operator under the Resource Conservation and Recovery Act (RCRA); and
- the clean-up of contamination pursuant to a consent agreement entered into by a potentially responsible party (PRP) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund), that is, the federal programme to clean up contamination in the USA.

These two provisions are similar in that the owner or operator of the TSD facility and the PRP provides evidence of financial security to the relevant federal or state governmental entity as proof that it has sufficient funding to carry out specified works. The amount of, and mechanism for, the financial security is subject to the agreement of either the EPA or a state environmental agency. Various factors are used to determine the appropriate amount including, for the closure and post-closure of a TSD facility, the amount and type of waste deposited at the facility. As the amount of waste at the facility increases during the facility’s operational phase, so does the amount of financial security that is required. In the case of a Superfund consent decree (that is, an agreement by a PRP with the EPA or a state environmental agency to carry out remedial measures), the PRP is generally required to provide evidence of financial security for the cost of cleaning up known releases of contaminants at the time that the remedy for cleaning them up has been selected. As the closure, post-closure and clean-up works are carried out, the amount of financial security decreases accordingly.

Legislative provisions that require the second type of financial security include the following:

- liability for bodily injury and property damage claims from sudden or gradual and accidental releases of pollutants from TSD facilities during their operational phase; and
- liability for bodily injury and property damage claims and the cost of cleaning up contamination from sudden or gradual and accidental releases of petrol and other regulated substances from underground storage tanks (USTs).
The amount of financial security that must be provided is specified in the legislation as a minimum amount. The minimum level for the owner or operator of a TSD facility that is a land treatment or disposal facility is $1 million per occurrence with an annual aggregate limit of $2 million for third-party bodily injury and property damage from a sudden and accidental occurrence. The minimum level for third-party bodily injury and property damage from the same type of TSD facility is $3 million per occurrence with an annual aggregate limit of $6 million for a gradual and accidental occurrence. Thus, the total minimum level for a TSD facility that is a land treatment or disposal facility is $4 million per occurrence and an annual aggregate limit of $8 million. The minimum levels apply to the company that owns or operates one or more TSD facilities; it does not apply to each facility.

The minimum levels are more varied for USTs due to the wide range of owners and operators, including small petrol stations and large petroleum marketing companies. The minimum level of financial security for bodily injury and property damage claims and the cost of cleaning up contamination is $500,000 per occurrence for petroleum non-marketers, local governments and Indian tribes with a throughput of 10,000 gallons per month or less. The minimum level per occurrence for petroleum marketers and the above persons with a throughput of over 10,000 gallons per month is $1 million. The minimum aggregate level for all the above owners and operators is $1 million if they own or operate 100 or less USTs and $2 million if they own or operate over 100 USTs.

### 4.1.1. Financial Security Mechanisms

As a general rule, legislative provisions that require financial security for environmental liabilities in the USA specify the mechanisms that may be used as evidence of financial security. The most common mechanisms are:

- financial test;
- corporate guarantee;
- insurance;
- trust funds;
- letters of credit;
- surety bonds (payment or performance); or
- a combination of the above.

The legislation may also recognise or enable a governmental scheme. The most common mechanism used to provide financial security is insurance, particularly for small- and medium-sized enterprises.

Please see chapter 6 on Alternative Financial Security Instruments for further information on the different mechanisms.

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11 Note that the ELD refers to this threshold as a ‘ceiling’ in respect of the 2008 report on “Financial Security Issues in ELD”
The discussion of environmental insurance policies in section 5 focuses on environmental insurance policies for ELD liabilities. The policies do not, of course, provide cover pursuant to any legislative mandatory financial security provisions because no such provisions were in force when this report was written.

As indicated in section 4.1.3, legislative mandatory financial security provisions generally specify the form of the certificate for the policy or endorsement that is to provide the requisite cover. Among other things, the provisions limit exclusions and conditions in the policy or endorsement. In addition, they generally require the insurer to pay the amount of the deductible when a claim arises. The insurer may then seek to recover that amount from the insured.

### 4.1.2. Acceptability of Financial Test and Corporate Guarantee

The acceptability of the financial test and corporate guarantee (described in section 8.1.2.1) has been increasingly questioned in the USA in the last few years.

In 2003, the Association of State and Territorial Solid Waste Management Officials raised concerns about the appropriateness of the financial test and corporate guarantee due to the insolvency of Enron and other large companies in the USA. Several members of the US Congress subsequently asked the US General Accounting Office (GAO) to report on whether the EPA could do more to ensure that persons who are liable for remediating contamination meet their obligations to do so. In particular, the GAO asked the EPA:

- to determine the number of companies that were liable for cleaning up contamination under federal environmental legislation that had become bankrupt and the number of cases pursued by the EPA in bankruptcy court;
- to identify challenges faced by the EPA in holding such companies and other financially distressed companies responsible for their clean-up obligations; and
- to identify measures that the EPA could take to remedy the situation.

The GAO published its report, entitled “Environmental Liabilities: EPA Should Do More to Ensure That Liable Parties Meet Their Cleanup Obligations”, on 17 August 2005 (GAO-05-658). The report indicated that the EPA had limited information on the relationship between bankruptcies and the failure of companies to clean up contamination. The US Department of Justice had brought 136 cases on behalf of the EPA seeking to make liable companies responsible for cleaning up contamination between 1998 and 2003. There was no reliable information, however, on the number of bankruptcies that involved environmental liabilities out of the 231,630 businesses, (including chemical companies, metal finishers, hazardous waste recyclers and paper mills) that had filed for bankruptcy in the USA between 1998 and 2003.

The GAO stated that the financial test and the corporate guarantee are simply promises to pay that necessitate relatively high oversight by the relevant governmental entity. If a company that uses the financial test encounters financial difficulties, it may no longer be able to obtain or afford another financial security mechanism.
The GAO concluded that the EPA faced significant challenges not only from the bankruptcies of companies that were responsible for cleaning up contamination but also from companies that did not pay the full amount of cleaning up contamination for which they were responsible due to the companies claiming financial hardship (which entitled them to pay a reduced amount). Some companies avoided clean-up responsibilities by re-organising or restructuring in order to separate their assets from their liabilities.

The GAO concluded that “businesses of all sizes can easily limit the amounts they may be required to pay for environmental cleanups under Superfund and RCRA”, in particular, because the length of time to carry out clean ups provides them with sufficient time to implement complex asset protection plans. The GAO further concluded that “it has become more common and acceptable for businesses to use the bankruptcy courts as a reorganization tool that enables businesses to emerge with discharged or reduced environmental liabilities”. The GAO considered that the ease with which businesses could limit their liabilities encouraged them to take more risks in their operations, which increased the risk that they would cause contamination.

The GAO recommended, among other things, that the EPA should:

- evaluate the financial security mechanisms accepted by it;
- revise and update the financial test and the corporate guarantee if it decided that it would continue to accept them as evidence of financial security;
- develop a strategy to ensure that all required financial security mechanisms are adequate and in place; and
- develop a formal process to review bankruptcy proceedings and maintain the necessary data to enable it to identify relevant bankruptcy filings to pursue and bankruptcy actions to monitor.

Meanwhile, in 2004, the EPA had asked its Environmental Financial Advisory Board (EFAB) to consider the adequacy of the financial test. The Board recommended that the EPA should consider requiring all companies that use the test to obtain independent third-party assessments of their credit position using methodologies used by the credit rating agencies and other financial institutions.12

### 4.1.3. Acceptability of Insurance by a Captive Insurance Company

The acceptability of insurance by a captive insurance company has been questioned by the US Congress and the EPA. In order to set this discussion in context, this section briefly describes the use of insurance as evidence for financial security in the USA.

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12 Letter from A. Stanley Meiburg, Executive Director, EPA Environmental Financial Advisory Board, to Stephen Johnson, Administrator, EPA, dated 11 January 2006, entitled “EFAB initial findings concerning use of the financial test and corporate guarantees to meet financial assurance requirements under RCRA programs”.

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A regulated company may provide evidence of financial security by purchasing insurance from a commercial insurer, a captive insurer or a mutual insurance company.

If commercial insurance is purchased, a certificate of insurance or an endorsement provides the requisite evidence. The express or minimum terms and conditions of the certificate or endorsement are, as a general rule, set out in the relevant legislative provisions. Commercial insurers have provided insurance to meet financial security requirements in the USA for over 20 years. Although the number of carriers has always been relatively small, insurance provided by them has, except during the mid 1980s, been readily available to regulated and other companies. Financial risk insurance policies are generally used to evidence financial security for environmental liabilities that will necessarily arise such as the closure and aftercare of a landfill. Risk transfer policies are generally used to evidence financial security for environmental liabilities that will not necessarily arise, such as claims to clean up releases of contaminants and bodily injury and property damage claims.

If a company is sufficiently large, it may establish, and thus obtain insurance from, a captive insurance company that, in turn, may purchase reinsurance from commercial reinsurers.

Mutual insurance companies may be established to provide insurance to operators in certain regulated sectors, such as owners and operators of USTs (which must be registered and are subject to technical controls under federal and state law). Members pay an initial premium followed by annual premiums. The mutual may, in some cases, make a call on members for additional premiums if losses exceed the total funding held by the mutual.

In 2000, a US Congressional Committee asked the EPA’s Office of Inspector General to report on the adequacy of using captive insurance companies to provide financial security for owners and operators of TSD facilities. Issues included the independence of the captive from the regulated company, the potential absence of adequate capitalisation requirements and reserves, and the location of captives outside the jurisdiction in which regulated facilities were located.

In 2001, the Inspector General commented that most captives are wholly owned by the owner’s or operator’s parent company and, therefore, depend on the continued financial viability of the parent. The Inspector General criticised the use of fronting, by which a commercial insurer issued a policy that was reinsured to the captive, with, in some cases, the captive agreeing to reimburse the insurer for the full amount of claims paid by it.

In its 2005 report, referred to in section 4.1.2 above, the GAO criticised the use of captive insurance companies due to the risk involved and the specialised expertise needed by governmental personnel to oversee them.

In March 2007, following lengthy discussions, including workshops, the EFAB issued a report entitled “The Use of Captive Insurance as a Financial Assurance Tool in Office of
Solid Waste and Emergency Response Programs”. The report, which was part of research into the adequacy of various financial security mechanisms, recommended that the EPA should require:

- a financial responsible affiliate that uses a captive insurance company policy to provide financial security to (a) meet the financial test for regulated companies (described in section 4.1.1. above) and unconditionally guarantee the captive’s obligations, or (b) possess investment grading rating;
- the captive that issued the policy to have a rating of ‘secure’ or better by A M Best or a comparable rating agency; and
- formal rating of the captive by the rating agency to take place at least annually, with the report to be provided to the state in which the captive policy is being used for financial security, and any rating change, outlook change, or rating placed under review to be notified within 30 days to the governmental entity.

4.1.4. INCREASED ENFORCEMENT

In another development, the EPA’s Office of Enforcement and Compliance Assurance (OECA) adopted financial security as an enforcement priority in 2005. The OECA is currently in the second phase of its priority programme in which it is extending its review of financial security requirements to include the implementation of requirements under additional legislative provisions. In October 2007, it commented that it had concerns with cost estimates provided by regulated companies, particularly for cleaning up contamination under RCRA.

Enforcement problems have also been exacerbated by continued bankruptcies of large companies with environmental liabilities. In 2005, ASARCO, LLC, a large mining company, declared bankruptcy, citing its environmental liabilities as a primary cause. The company, which subsequently filed for Chapter 11 reorganisation, had environmental claims of over $5 billion filed against it and was involved in cleanups at 94 Superfund sites.

The current economic crisis has resulted in increased enforcement of environmental financial security provisions due, among other things, to the potential that companies that meet the requirements by providing evidence of the financial test or corporate guarantee are encountering, or will encounter, problems in continuing to satisfy the relevant criteria.

Increased enforcement has focused, among other things, on the estimated costs of works for which financial security is required and whether technical estimates upon which those estimates are based are adequate, particularly for long-term monitoring and maintenance.
4.1.5. **Extension of Financial Security Requirements**

A major development in financial security requirements in the USA is the promulgation of the EPA’s long-delayed financial security regulations under CERCLA. CERCLA, which was enacted into law on 11 December 1980, directed the EPA:

- to identify the classes of facilities to which financial security regulations should apply by no later than 11 December 1983;
- to promulgate financial security requirements for the specified classes of facilities beginning in December 1985, with the requirements to be consistent with the degree and duration of risk associated with the production, transportation, storage, or disposal of hazardous substances; and
- to phase in the requirements “as quickly as can be reasonably achieved” but not later than four years after the regulations had been promulgated.

The GAO had commented, in its 2005 report referred to in section 4.1.2 above, that the EPA should issue the regulations in order to fill significant gaps in its environmental financial security coverage in order to reduce the risk that taxpayers would have to pay to clean up contamination. On 6 November 2007, the Sierra Club and other environmental organisations notified the EPA that they would bring a judicial action to order the EPA to promulgate the regulations. The organisations filed the action in the federal District Court for the Northern District of California on 12 March 2008. The organisations alleged, amongst other things, that the EPA’s failure to promulgate the regulations had exposed their members and the environment to an increased risk of unremediated releases of hazardous substances. On 25 February 2009, the court, in *Sierra Club v Johnson*, ordered the EPA to identify and publish the classes of facilities for which it would issue financial security regulations under CERCLA by 9 May 2009.

On 28 July 2009, the EPA published a notice in the Federal Register identifying hardrock mining as the first class of facilities for which it is developing financial security requirements. The reasons for identifying hardrock mining include the large number and size of the mining facilities, the huge quantities of waste at them, the wide range of hazardous substances that are released, the extent of contamination at them including Superfund sites, past and projected governmental expenditures in cleaning up contamination from them, their corporate structure and the potential for bankruptcies. The EPA also noted the ASARCO bankruptcy and other bankruptcies of hardrock mining companies.

The EPA is also determining whether to establish financial security requirements for other classes of facilities, including at a minimum: hazardous waste generators; hazardous waste recyclers; metal finishers; wood treatment facilities; and chemical manufacturers. Factors that are being taken into account by the EPA to determine whether financial security requirements would effectively reduce risks posed by the facilities are:
• the amount of hazardous substances released to the environment from the facilities;
• the toxicity of the hazardous substances;
• the existence and proximity of potential receptors;
• contamination that has been historically discovered from such facilities;
• whether the causes of the historic contamination still exist;
• experiences from federal clean-up programmes; and
• corporate structures and the potential for bankruptcy.

The EPA has stated that it will publish a notice regarding the above classes of facilities in the Federal Register by December 2009.

The EPA has also stated that it plans to introduce the rule for hardrock mining by Spring 2011. As noted by the federal District Court for the Northern District of California on 5 August 2009, however, CERCLA does not direct the EPA to issue the regulations by a specified date.

4.1.6. Lessons from the US experience on financial security for environmental liability

The issues facing the EPA and state environmental agencies in the implementation and enforcement of financial security provisions in the USA differ, of course, from the issues facing the European Commission. Financial security provisions for environmental liabilities have been established in the USA for over 20 years as has the Superfund programme for cleaning up contamination. In refining the financial security provisions, the EPA and state environmental agencies can illustrate the implications of deficiencies in them. For example, the financial test and corporate guarantee have not prevented massive clean-up costs having to be paid by taxpayers because, in some cases, the financial test and corporate guarantee were not applied to ensure that regulated companies had adequate funding for such costs.

The expansion of financial security mechanisms to further occupational activities such as hardrock mining and, potentially, hazardous waste generators, hazardous waste recyclers, metal finishers, wood treatment facilities and chemical manufacturers will substantially increase the scope of the requirements. In extending the requirements – as ordered by the federal court – the EPA will be able to show the enormous cost of cleaning up contamination that has been paid for by taxpayers when some of the above operators have not had adequate funding to pay the costs themselves.

Further, the EPA and state environmental agencies can counter criticism of the increased costs that businesses must pay for the increased implementation and enforcement of financial security provisions in the USA, particularly in the current economic climate, by providing evidence of the costs paid by taxpayers when financial security requirements were either not in place or were not adequately enforced. That is, the agencies can show that if businesses do not pay the increased costs of financial security mechanisms, taxpayers will pay the increased costs of remediating.
environmental damage when financially distressed businesses with environmental liabilities fail.

Whilst there are, of course, differences between the ELD and legislation that requires the remediation of environmental damage in the USA, the history of financial security provisions in the USA illustrates issues that may – indeed, probably will – arise as the ELD is implemented and enforced. By highlighting these issues, the European Commission and MS can learn from the experience of financial security in the USA in determining whether a system of harmonised mandatory financial security, or domestic mandatory financial security, respectively, should be implemented.

4.1.7. Lessons from the US experience on implementing environmental liability regime

In addition to lessons with financial security for environmental liabilities, the US experience with CERCLA and the Superfund programme, in particular, can also assist in providing information to the Commission to assist it in assessing whether revision of certain elements of the ELD should be considered. In providing these comments we are, of course, aware that the Commission considered CERCLA in its proposal for the ELD. (European Commission, 2002). Similar to the Commission’s prior consideration of CERCLA, the retrospective application of that legislation is not discussed here.

Table 2 presents key differences between the ELD and CERCLA in respect of their implementation and enforcement. In setting out the key differences, the objective is not to suggest that the Commission should consider revisions to the ELD; but rather to highlight such differences.

Table 2: Key differences between ELD and CERCLA

<table>
<thead>
<tr>
<th>Liability aspects</th>
<th>ELD</th>
<th>CERCLA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Split between liability for clean-up costs and liability for restoring natural resources including complementary and compensation remediation</td>
<td>No; primary remediation under ELD covers both liability for cleaning up contamination and restoring natural resources; MS may delegate implementation and enforcement authority to different competent authorities</td>
<td>Yes definite split; EPA is responsible for clean-up aspects; natural resource trustees are responsible for restoration aspects Natural resource damage actions tend to be brought, if at all, after clean-up actions are underway or have been completed</td>
</tr>
<tr>
<td>Number of competent authorities</td>
<td>Discretion of MS; may be many competent authorities in some MS or one</td>
<td>EPA (sole competent authority for clean up liabilities) (NB: state competent authorities)</td>
</tr>
<tr>
<td>Natural resources to which clean-up liability applies</td>
<td>Land (subject to significant adverse risk of harm to human health requirement); inland and coastal waters; species and natural habitats protected under the Birds and Habitats Directives plus, at MS option, domestically protected species and natural habitats</td>
<td>Substantially broader than ELD; CERCLA applies to harm to human health or the environment (‘environment’ is defined extremely broadly; no restriction on land to which CERCLA applies – applies to all land)</td>
</tr>
<tr>
<td>Natural resources to which primary, complementary and compensatory remediation applies</td>
<td>As above, ie, land (subject to human health requirement but no complementary and compensatory remediation requirement); inland and coastal waters; species and natural habitats protected under the Birds and Habitats Directives plus, at MS option, domestically protected species and natural habitats</td>
<td>Broader than ELD; natural resource damage provisions of CERCLA apply to land, fish, wildlife, biota, air, water, groundwater, drinking water supplies and other such resources subject to specified jurisdictional requirements of various natural resource trustees</td>
</tr>
<tr>
<td>Scope of natural resource damage</td>
<td>• Primary remediation of damaged natural resource to baseline condition; • emergency remediation costs; • complementary remediation; • compensatory remediation (interim losses); • broad definition of costs including assessment, legal, enforcement and general costs</td>
<td>• Restoration of damaged natural resource to baseline condition; • emergency restoration costs; • replacement by equivalent natural resource; • compensation for lost use of resource between damage to it and its restoration or replacement;</td>
</tr>
<tr>
<td>Environmental damage</td>
<td>Applies to ‘environmental damage’ which includes non-contamination incidents</td>
<td>Applies to contamination only; further limited because CERCLA excludes liability for damage caused by oil, which is covered under the Oil Pollution Act (which also has natural resource damage provisions)</td>
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<tr>
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<tr>
<td>Thresholds</td>
<td>Significance criteria and/or thresholds for environmental damage to land, water and protected species and natural habitats; may take many some time to determine whether significance has been reached (significant, measureable adverse change)</td>
<td>No threshold for liability for cleaning up contamination; as a practical matter, the EPA does not require remediation of sites that do not pose harm to human health or the environment. Threshold of “measurable adverse change, either long- or short- term, in the chemical or physical quality or the viability of a natural resource” for liability for restoration of natural resources. Natural resource damage actions were referred to as a ‘sleeping giant’ for many years due to only a few cases concerning them having been commenced.</td>
</tr>
<tr>
<td>Scope of liability</td>
<td>Joint and several or proportionate liability at option of MS</td>
<td>Joint and several liability</td>
</tr>
<tr>
<td>Standard of liability</td>
<td>Strict liability for Annex III operators; fault-based liability for non-Annex III operators</td>
<td>Strict liability for all potentially responsible parties (i.e., persons against whom EPA and natural resource trustees have brought proceedings to remediate)</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Exemptions</td>
<td>Yes; specified exemptions</td>
<td>None</td>
</tr>
<tr>
<td>Defences</td>
<td>Yes; mandatory (third party, compulsory order) and optional (permit, state of the art) defences; some MS have limited such defences to duty to carry out remedial measures only, ie, not preventive actions or emergency remedial actions under article 6(1)(b)</td>
<td>Yes; three main defences: contamination caused solely by act of God, act of war or act of unrelated third party; extremely narrow application of these defences by courts Also permit defence and defence for natural resources ‘written off’ in environmental impact statement or environmental assessment under National Environmental Policy Act; these defences have rarely been asserted and have not resulted in avoidance of liability by many, if any, persons</td>
</tr>
<tr>
<td>Enforcement of responsible operator’s duty to carry out preventive or remedial measures</td>
<td>Enforcement depend on MS</td>
<td>Onerous penalties for failure to carry out clean-up actions including fines of up to $32,500 (€21,969) per day, reimbursement of cost of remedial actions plus three times cost</td>
</tr>
<tr>
<td>Notification of environmental damage to EPA and natural resource trustees</td>
<td>Persons notifying competent authorities must be affected or likely to be affected, or – subject to MS criteria - having a sufficient interest or alleging the impairment of a right (including environmental NGOs)</td>
<td>Citizen suit provision; no need for persons notifying enforcing authorities or bringing judicial actions to be qualified according to specified criteria</td>
</tr>
<tr>
<td>Financial security requirements</td>
<td>No; but MS may require financial security in their jurisdictions</td>
<td>Yes; but will be phased in only from about 2011 for various industrial sectors beginning with hard rock mining operations</td>
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<td>---------------------------------</td>
<td>---------------------------------------------------------------</td>
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<tr>
<td>Funding</td>
<td>No funding provisions</td>
<td>Annual appropriations by US Congress to EPA and others to implement Superfund programme</td>
</tr>
<tr>
<td>Ability to challenge orders to remediate</td>
<td>ELD refers to available legal remedies under domestic law; issue is whether “defences” in articles 8(3) and 8(4) are defences to costs or liability (former requiring operator to carry out remedial measures first and claim reimbursement later; latter allowing operator to challenge liability before carrying out measures). As the ELD in Article 8(3) and (4) sets out that the operator shall not be required to bear the costs, the defence regards costs and not liability. At least one MS, the UK, has construed “defences” in articles 8(3) and 8(4) as grounds to appeal orders to carry out remedial measures and has stated that orders may be suspended during appeal (with potential for carrying out measures during appeal in some cases)</td>
<td>Potentially responsible parties are barred from challenging their liability to clean up contamination until (1) they have cleaned up the contamination, (2) EPA has carried it out and sought reimbursement from them, or (3) EPA enforces order to clean up in court</td>
</tr>
</tbody>
</table>
5. ENVIRONMENTAL LIABILITY INSURANCE

5.1. THE EU ENVIRONMENTAL LIABILITY INSURANCE MARKET

A total of 23 re/insurers and brokers were interviewed for this study. This section presents the findings of these interviews as well as relevant findings from the other stakeholder consultations.

5.1.1. CURRENT DEVELOPMENTS

The general assessment of current developments by insurers can be described as positive. Although the ELD-related insurance market remains small, it is growing and most insurers state that there is good cover available. In many MS national insurers compete with international groups and competition is described as healthy, at least across Western Europe.

On the other hand it is noted that clients still show little interest in cover for ELD-related liabilities and this lack of interest is increased by the financial crisis. Furthermore, it is mentioned that the ELD has not been in place long enough, or at least it has not been transposed into national law for long enough, to make any judgements about market development. Finally, a number of insurers stressed that they will never cover 100 percent of ELD-related liabilities for all activities as it remains one of the basic principles of the insurance sector that certain risks are excluded from cover.

This overall positive assessment of the situation is mirrored by the assessments of MS authorities, as Figure 4 below shows:

Figure 4: MS assessment of their national environmental insurance market

Please note that this is based on the stakeholder consultation. Countries that did not participate in this process are therefore not included in the analysis.

13 Please note that this is based on the stakeholder consultation. Countries that did not participate in this process are therefore not included in the analysis.
Brokers generally agreed to this overall assessment by saying that they have not yet experienced problems in finding appropriate insurance products to cover their clients’ ELD-related liabilities. Furthermore, according to them it is generally possible to find a single insurance policy that covers all the relevant liabilities with the exception of very high limits of indemnity, which might require the combination of policies from several insurers.

5.1.2. ELD RELATED INSURANCE PRODUCTS

Thirteen of the interviewed insurance companies offer stand-alone products to cover ELD-related liabilities, compared to six that offer products that are integrated into or are available as endorsements to general third party liability (GTPL) products. Four insurance companies stated that they offer both types of products.

Figure 5 – Types of insurance policy types on offer

Regarding premiums for these products, the difficulty of defining an average value was highlighted by insurance companies. The reason is that the ELD-related insurance market is still in its infancy and, in particular, because premiums are directly related to a company’s activity, size, location, risk factors, etc. The same policy might therefore differ significantly from one company to another. Furthermore, premiums are related to the limit that the operator requires. Nevertheless, five companies provided information on premiums, with a low range between €1200 and €5000 and the high end of premiums between €10k and €30k with the comment that they can go well above that. It should be noted, however, that further analysis of what these amounts of insurance premiums cover is not possible, as these will depend largely on the company-specific characteristics discussed above, e.g. the exact activity, size, location.

Similarly as for premiums, it is difficult to provide generalised information on the amount of limits and sub-limits of liability in place for the different insurance products. The factors that are the main influence on limits are the risk assessment of the operator himself (i.e. the limit that the operator actually asks for) as well as
whether the insurance policy is backed by reinsurance, in which case limits can be higher. This explains why the upper limits range from €1m to €25m. One insurer stated that a limit of up to €115m could be covered but above that it would become difficult. Sub-limits were frequently mentioned for compensatory remediation with a range of 10-25 percent of the agreed overall limit. Seventy-three percent of respondents to the question on limits stated that they regard them to be of a temporary nature until more information on ELD claims becomes available. Insurers therefore expect these limits to be renegotiated in the future although it was stressed that this might take a number of years.

Regarding reinsurance, it can be noted that only two insurers stated that it was difficult to find appropriate reinsurance cover for the newly developed products in this field. All other insurers and brokers stated that reinsurance is or should be found without further problems. It should be noted, though, that a number of the latter had not yet tried to find reinsurance cover as the policies they had sold up to this point did not require this.

5.1.3. **SCOPE OF THE COVER**

Ten out of sixteen interviewed insurance companies stated that they cover all activities included in Annex III of the ELD. When policies do not provide cover for certain activities, the lack of cover is not necessarily explicitly excluded in the policy document. For example, insurers may decide not to issue ELD-related or other environmental insurance policies to specified industrial sectors such as the waste or GMO sectors. It is therefore difficult to define which activities are effectively not covered if the interviewee did not want to share this information. However, activities that were most frequently mentioned as not being covered (explicitly or implicitly) are: GMOs, waste management/waste disposal sites, extractive activities, the use of chemical and other hazardous products in the agricultural sector, and nuclear activities (please see section 5.2.1.5). On the other hand there are three providers who state that they do not provide cover for non-Annex III activities. All other providers do not differentiate between Annex III and non-Annex III activities in this sense. Cover can be provided for all activities with the only difference being the premium that will generally be higher for Annex III activities.

In terms of cover for international operators, 12 respondents (75 percent) stated that their products can cover operators that are also active in other EU countries. In this case, the operator will be provided with a master policy in their home country with local adaptations to national environmental law. In countries where the ELD was transposed after the Directive’s transposition deadline of 30 April 2007, seven insurers stated that their products cover incidents that took place between this deadline and the actual transposition. This is to be compared to four insurers that stated that this is not the case for their products, with one of them mentioning that exceptions might be made.
Figure 6 below shows the **ELD-related liabilities covered** by the insurance products presented by the interviewees. It becomes clear that for the three different types of remedial measures, namely primary, compensatory, and complementary, no problem should be encountered in finding cover. Although for cross-border damage as well as gradual events a more extended search might be required to locate appropriate insurance cover, this should generally be possible. According to the responses received, the only real problem in finding insurance cover would be for state-of-the-art and permit activities in countries where these are not exempt from the national ELD transposition.\(^\text{14}\) It should be noted that the perception of this issue by MS authorities differs from the current situation described by insurers. According to MS the most important limitations of currently available ELD-related insurance products is their lack of cover for gradual pollution and compensatory remediation. It becomes evident, therefore, that despite MS’ effort to enter discussions with the insurance sector, there remains an important need for further exchange.

**Figure 6 – Covered ELD-related liabilities**

Another important difference between products seems to concern the event that triggers the insurance policy. Most ELD-related insurance products state (or imply) a pollution event as the necessary trigger. However, as stated by some interviewees as well as discussed during the workshop, ELD liabilities are not restricted to pollution events. An example of a **non-pollution event** would be a fire, drought or flood caused by industrial activities. The number of insurance products covering these non-pollution events is significantly lower than those covering pollution events. It will therefore be of importance for brokers and operators to verify that non-pollution events are covered if this is relevant for the business in question.

\(^\text{14}\) Please see section 5.1.2 for information about countries where these activities are not exempt.
5.1.4. **MARKET DEVELOPMENT**

The evaluation of the success that ELD-related insurance products have had so far gives a mixed picture. Forty-six percent of respondents described their *product uptake* as either very good or fairly good. A German insurer, for example, mentioned that 20 percent of their client portfolio bought an ELD-related insurance product so far, which makes it the company’s biggest success in terms of product introduction. The most frequently named sectors which were responsible for the highest number of sold ELD-related insurance policies were the waste management, chemical, water treatment, petroleum, and general manufacturing sectors.

**Figure 7 – Insurers’ assessment of product success**

![Assessment of Product uptake](image)

Interestingly, not a single insurer stated that their product uptake could be increased by a reduction in *premiums*, even though the national authorities from Estonia, Hungary, and Italy that were interviewed were of the opinion that high costs were among the most important limitations of the currently available products. The single most efficient measure that was considered likely to increase the uptake is extensive media coverage of a case of significant environmental damage falling under the ELD. Furthermore, information sessions for operators were also frequently mentioned as an important measure, followed by more action to be taken by national government bodies to communicate information about the ELD and its related liabilities.

Eighty percent of respondents stated that they are actively *marketing* their ELD-related insurance products through workshops, training sessions, and seminars. These events target mostly brokers but a number of insurers also directly market their products to

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15 Please note that a large number of interviewees did not answer this question. The information provided is based on a total of eight answers.
operators, either also through seminars or by the means of brochures. Reasons for brokers not selling more of these products are that many brokers remain unfamiliar with this type of product, some operators consider (often incorrectly) that their GTPL policies provide sufficient cover, and that operators show very little interest. The results of the MS consultation also show that the familiarity of operators with their ELD liabilities is perceived as very low. In fact, most MS named this lack of knowledge as the most important reason for the limited growth of the ELD-related insurance market. This problem is aggravated by the current economic crisis. On this point the different stakeholder groups (MS, (re)insurers, brokers, and operators) are all of the opinion that during a time like this, operators concentrate on those expenses that are strictly necessary and as the risk of ELD-liabilities is often perceived as low, its coverage might not be a priority. Many MS therefore also acknowledged the importance of increased communications about the ELD, whether that means seminars or workshops with operators and/or insurers or the development of guidelines for the different stakeholders.

However, even if the general opinion seems to be that operators are not yet very knowledgeable about ELD-related liabilities or, if they are, might not take action to cover these liabilities, most insurers stated that brokers have been approached at some point by their clients with requests regarding ELD insurance cover.

In general, interviewees from the insurance sector did not seem to see difficulties in meeting demand for ELD-related insurance products by the end of 2010. Interestingly, all three German insurers that were interviewed stated that they will be able to cover between 80 percent and 100 percent of demand.

5.2. GAPS AND LIMITATIONS OF ELD-RELATED INSURANCE

The insurance interviews have shown that there is no single view on the most important limitations in insurance cover for environmental damage under the ELD that persists at this point. Whereas some insurers are of the opinion that there are no persisting limitations, others emphasised that some limitations remain significant. As noted in section 5.1.3 above, the most frequent limitations named are the exclusion of gradual environmental damage, sub-limits or exclusions for compensatory remediation, and the limitation of cover for environmental damage to damage from pollution events rather than also including non-pollution events. From the operators’ point of view, it was also the exclusion of gradual damage that was perceived as the most important limitation of available insurance products. In addition, cover was not available for environmental damage caused by an operator who acted in compliance with a permit when the permit defence was not available in that MS; or an operator who would not be able to assert the state-of-the-art defence because the MS had not adopted it.
5.2.1. FREQUENT LIMITATIONS

The most frequently named reasons for the exclusion of gradual damage, sub-limits or exclusions for compensatory remediation, and the limitation of environmental damage under the ELD to damage from pollution events, were the current lack of data about ELD incidents and the inability to quantify potential losses. However, as one insurer commented, in light of the absence of experience on claims frequency and severity the cover currently offered has to be regarded as broad and, in the main, complete.

The exclusion of cover for gradual damage in environmental insurance policies is not universal. A substantial proportion of insurers provide such cover already. Further, a substantial proportion of insurers provide cover for compensatory remediation up to the limit of indemnity rather than a sub-limit. These two limitations in cover in some policies may be partially explained by the recent introduction into the environmental insurance market of insurers who do not have past experience of environmental insurance policies. These insurers are, naturally, cautious about the scope of environmental liabilities covered by their policies due to their lack of underwriting or claims experience. A further explanation is that compensatory remediation is a new concept in the EU and, thus, European insurers do not – and, in fact, could not – have had experience with claims that include the costs of compensatory remediation.

The limitation of insurance for environmental damage to pollution events may be partially explained by the above factors as well. Another factor may well be the lack of public awareness of the ELD, as discussed throughout this report. Many stakeholders, even if they are aware of the existence of the ELD, do not understand that it applies to non-pollution events as well as pollution events. As experience and knowledge with implementation of the ELD is gained, the above limitations can be expected to be a thing of the past.

Our research also indicated potential gaps for ELD liabilities in policies designed to cover them. The potential gaps that were identified are:

- GMOs;
- waste management / waste disposal sites;
- extractive industries;
- the use of chemical and other hazardous products in the agricultural sector; and
- nuclear activities (please see section 5.2.1.5).

While discussing these gaps, it was emphasised that even though there might be a potential lack of insurance to narrow or close the gaps, there might be other mechanisms, such as letters of credit, trust funds and bonds that may be able to do so.
5.2.1.1 Genetically modified organisms

Liability for environmental damage from GMOs is specifically covered by the ELD due to the listing in Annex III of the ELD of the Directives on the contained use of genetically modified micro-organisms (90/219/EEC) and the direct release into, and placing on the market of, genetically modified organisms (2001/18/EC). Indeed, the inclusion of these Directives in the ELD followed a lengthy and controversial debate about the lack of specific liability for any harm caused by GMOs in EU law and the domestic law of many MS.

Although the general unavailability of insurance for environmental damage caused by GMOs is obviously a concern, it is understandable that insurers are reluctant to provide cover due to the emotive nature of the whole issue of the introduction of GMOs into the environment and food as witnessed by the recent de facto moratorium on genetically modified products in the EU, the continued reluctance in some MS to authorise field tests and the commercial production of genetically modified crops, and the dis-application of the permit and state-of-the-art defences to GMOs in some MS.

Some GTPL policies, particularly those issued to farmers, specifically exclude liability for harm from GMOs. The absence of cover in such policies is not an ELD issue because any losses from GMOs suffered by the farmers would relate to third party claims and not ELD liability. The absence of cover is, however, further evidence of the general reluctance of insurers to provide cover for GMOs.

The concern regarding the lack of insurance cover for any harm caused by GMOs is partially offset by the limited number of companies that carry out activities that involve GMOs in the EU and the large size of a substantial proportion of these companies. The companies, therefore, should be able to obtain other evidence of financial security such as letters of credit and trust funds.

5.2.1.2 Waste management / waste disposal sites

The potential unavailability of cover for ELD liabilities for waste management and waste disposal sites raises the issue as to whether the financial security that landfill operators must possess for obligations under their permits pursuant to article 8(a) of the landfill Directive (1999/31/EC) should provide cover for ELD liabilities. The appropriate mechanism for financial security for permit obligations for landfills is not solely liability insurance. Insurance provides cover for fortuities, not certainties. Whilst the risk of environmental damage from landfills is a fortuity, the closure and aftercare of landfills is a certainty.

In other words, operators of landfills are obliged to have financial security for obligations imposed by the conditions of their permits, including the costs of closure and aftercare. Liability insurance cannot fulfil this requirement by itself; some form of finite risk mechanism is also required in order to establish a fund during the operational phase of the landfill to provide funding for closure and aftercare costs. The potential for the finite risk mechanism to be expanded to cover ELD liabilities,
therefore, should help in offsetting the potential unavailability of liability insurance for waste management and waste disposal sites that are required to have evidence of financial security.

The providers of such financial security mechanisms may potentially also be prepared to offer products, such as letters of credit, to operators of waste management and waste disposal sites that are not required to have evidence of financial security under the landfill Directive.

5.2.1.3 Extractive industries
As regards waste management and waste disposal sites, the potential unavailability of cover for extractive industries raises the issue as to whether the financial guarantee that operators of facilities for waste from the extractive industries must possess for operations pursuant to article 14 of the Directive on the management of waste from extractive industries (2006/21/EC) should provide cover for ELD liabilities.

5.2.1.4 Use of chemical and other hazardous products in the agricultural sector
The use of chemical and other hazardous products in the agricultural sector is an Annex III activity. We consider that the potential unavailability of insurance for ELD liabilities from this activity raises the potential for taxpayers to bear the cost of remediating environmental damage. As indicated throughout this report, however, we question whether many persons in the agricultural sector would purchase policies for ELD liabilities that may arise from chemical and other hazardous products due to the lack of public awareness of the ELD. As the public awareness issue is hopefully resolved, insurers will have gained experience with ELD liabilities and may well have overcome their initial reluctance to offer policies to this sector.

5.2.1.5 Nuclear activities
Virtually all insurance policies, including GTPL policies, exclude cover for losses that result from nuclear radiation. We do not, therefore, consider that insurers will agree to provide cover for nuclear environmental damage under the ELD.

Article 4(4) of the ELD provides that the ELD does not cover environmental damage caused by nuclear risks and activities if such liability is covered by the Community legislation or by the major nuclear Conventions, i.e. the Paris and Vienna Conventions and the Brussels Supplementary Convention. The Conventions contain stringent financial responsibility requirements for operators of nuclear installations. Insurance for operators (which is part of a multi-layered system which also involves direct funding by the relevant government and funds contributed by governments that are party to the Brussels Supplementary Convention), is provided by pools which work together in insuring and reinsuring nuclear risks.

The Conventions impose liability for bodily injury and property damage. This is changing, however. In 2004, the Paris Convention and the Brussels Supplementary Convention were amended, among other things, to increase the scope of damage for
which claims may be brought. The 2004 Protocol includes, among other things, liability for the costs of “measures of reinstatement” of significant environmental impairment, loss of income from a direct economic interest in any use or enjoyment of the environment, and the cost of “preventive measures” including any further loss or damage caused by such measures. The “insurance or other financial security” requirements under the Conventions will be increased to include the additional liability. The 2004 Protocol has not, as yet, been ratified and entered into force.

Nuclear activities involving nuclear installations are, therefore, not covered by the ELD and do not constitute Annex III-activities.

5.2.1.6 Extent of cover for non-ELD liabilities in policies that provide cover for ELD liabilities

Some environmental insurance policies provide cover only for ELD liabilities. Operators who purchase one of these policies may encounter difficulties because of the high likelihood for the ELD to trigger other environmental legislation. For example, an operator may cause environmental damage to a river or groundwater that is already polluted. In such a case, the operator who caused the ELD damage may not be liable for remediating the pollution that already exists either because it was caused by other persons and/or occurred prior to 30 April 2007. It would not be feasible, however, for the competent authority to require the operator partially to remediate the environmental damage without also requiring persons who are liable under other legislation for non-ELD pollution to remediate it (provided, of course, that they can be identified or still exist). If those persons are financially distressed and do not have insurance or other financial security, taxpayers may be required to pay the costs of remediating the non-ELD pollution.

Alternatively, the operator itself may have caused environmental damage to, say, a river or groundwater, before 30 April 2007. In such a case, the ELD-only insurance policy would not cover such costs.

Still further, the environmental damage caused by the operator may not, after further consideration by the competent authority, reach significance in terms of the ELD. In such a case, the operator may be required to remediate the damage under other environmental legislation but the ELD-only insurance would not cover the costs.

The gaps will, for example, require competent authorities to determine the extent of multi-source contamination caused by ELD and non-ELD activities as well as identifying persons responsible for remediating each type of contamination. If liquid hazardous substances have commingled and produced daughter substances, this is likely to prove difficult to accomplish. Further, if such operators cannot be identified and liabilities to be assigned or if they do not have sufficient assets to carry out remedial actions, the state may face difficulties, including finding the money necessary, to remediate the ‘orphan’ contamination. The ELD does not require MS to establish dedicated funds for
carrying out preventive and remedial measures – or for implementing and enforcing the ELD.

Although the gaps indicated in this section do not say anything about the implementation efficiency of the ELD because they relate only to non-ELD liabilities, they are important in the context of gaps / limitations in ELD-related insurance cover.

### 5.2.1.7 Overlap of current GTPL policies and ELD-specific policies

Most insurers stated that their GTPL policies exclude ELD liabilities. Due to the lack of standardisation of GTPL policies in most MS, however, the reality may well be that insurers cannot state with any certainty that their GTPL policies exclude all ELD liabilities unless the policies specifically exclude them, which most do not. Further, there may be a difference of opinion about the cover provided by GTPL policies in that some insureds may not be aware that their insurer considers that their GTPL policy does not cover ELD liabilities.

As far as we are aware, there are no reported cases on the extent of cover for ELD liabilities in GTPL policies. The extent of cover for ELD liabilities in GTPL policies is, therefore, an open issue that is likely to cause problems both for operators and brokers as well as insurers. In our view, the issue can only be resolved by increasing public awareness of the ELD, the availability of environmental insurance policies that cover ELD liabilities, and the potential gap in cover for such liabilities in GTPL policies. Resolution of this issue does not, of course, address the potential that taxpayers may have to pay the costs of environmental damage if a company does not have adequate assets – or financial security – to remediate the damage but it may lead to a narrowing of the gap in cover for ELD liabilities by operators.

### 5.3. RELEVANT GUIDELINES AND MODELS

As discussed above, the most important barriers to further developments of ELD-related insurance products were named to be the current lack of data about ELD incidents and the inability to quantify potential losses. Especially for European insurers, providing cover for environmental liabilities remains a relatively new concept and there is limited experience in underwriting and claims management. Hence, because new approaches may have to be formulated, product development to cover environmental liabilities under the ELD has often proved to be a relatively time-consuming process. For example, providing cover for the cost of compensatory remediation measures requires the development of new tools. This is because such measures are not directly connected to the cost of restoring the baseline condition or the original environmental benefit, but are, rather, concerned with compensation for the loss of availability of the services provided by the damaged natural resources for the period of time needed to restore them to their baseline condition. At this point there are no guidelines for, nor experience in, calculating this kind of loss under the ELD although there is experience in calculating such losses in respect of insurance for natural resource damage under Superfund in the USA, including computer models.
As the European insurance and reinsurance federation (CEA) points out, insurability will be enhanced through the creation of clear and consistent guidelines that can be applied to all EU MS and all cases of environmental damage. Isolated efforts have been undertaken by different stakeholders in the insurance business to develop guidelines but these efforts are largely restricted to national efforts that might not be applicable to other MS. In Germany, the main insurance industry association (GDV) adapted a 1993 model for insurance policies covering environmental risks to take into account the new requirements under the German transposition of the ELD. Institutions providing for reinsurance of environmental risks such as ASSURPOL in France and the Pool Español de Riesgos Medioambientales in Spain also developed guidelines for members of their pool. Various stakeholders in the insurance industry have expressed the view that the working relationship with competent authorities should cover the development of methodologies to assist in determining and calculating the level of compensatory remediation required. It is not clear to what extent the REMEDE (Resource Equivalency Methods for assessing Environmental Damage in the EU, a project funded through the Sixth Framework Programme of the European Commission\textsuperscript{16}) toolkit can fulfil the insurance sector’s expectations to provide an effective way to reliably estimate the amount of compensatory remediation due, and the cost thereof, as a basis for premium calculation (CEA, 2208). The goal of REMEDE was to develop, test and disseminate methods appropriate for determining the scale of complementary and compensatory remedial measures necessary to adequately offset environmental damage. Thus, the REMEDE toolkit can provide useful insight into the assessment of natural resource damage and can serve as a starting point for the further refining of other models, both by MS and insurers. REMEDE was designed to produce a toolkit for the benefit of MS rather than the insurance sector, but the calculation methods it provides could still be of relevance to insurers as it provides them with some insight into the methodology MS might rely on to choose appropriate remediation measures as outlined in Annex II of the ELD. As the ELD is not the only directive that requires measures to be taken to offset the loss of protected natural habitats and species (e.g. the EIA directive and Wild Birds and Habitats Directives do so as well) the REMEDE toolkit is expected to also be applied to cases that do not necessarily fall under the ELD. If closely scrutinised with regard to their costs, the complementary or compensatory remediation projects which could arise under these directives could provide some insights into the costs potentially arising from complementary and compensatory remediation measures that would need to be undertaken to conform to the ELD. This could help the insurance sector to further refine the models it uses to quantify the risks generated by the requirements in the ELD. The training and dissemination period for the REMEDE toolkit was completed in June 2008 but it is foreseen that the report will be turned into a book. Furthermore, training events have taken place on request after the project’s end.

\textsuperscript{16} For further information, please see \url{http://www.envliability.eu/}
As the REMEDE toolkit has not yet been frequently applied, guidelines and models provided by national authorities, national insurance associations, or insurers themselves, will continue to serve as a reference in product development, potentially fuelling the development of new products, especially in organisations which can only spend limited amounts on the development of new methodologies.

Further MS that have developed guidelines to cover e.g. available thresholds are Belgium (Walloon Region), Czech Republic, Hungary, Ireland, Latvia, Malta, the Netherlands, Poland, Slovenia, Slovakia, and the UK.

5.3.1. NATIONAL AUTHORITIES

As part of the MS consultation, it was asked whether national guidelines on product development existed. Only Austria, France, and Germany reported being aware of such national guidelines on product development in their country. In no case have these guidelines been developed by the national authorities themselves however. The only country which reports having been involved in the development of guidelines is Germany, which carried out several research and development projects that lead to a better understanding of the ELD and transposing acts. The outcomes of the projects have been discussed with the German Insurance Association to inform its members about the legal framework of environmental liability and help insurers to develop guidelines. This cooperation concluded in general insurance conditions issued by the German Insurance Association.

Regarding guidelines or models for calculations relevant to the ELD, e.g. the calculation of environmental damage, Denmark reported having guidelines for assessing environmental damage in place. France reported currently developing guidelines on the assessment of environmental damage of which two versions would be distributed: one to help regional competent authorities in assessing the damage and the other one to operators, to bring into focus the ELD requirements. Hungary indicated that in addition to the guidelines on methodology, values and costs that have been incorporated into the legislation, the authorities encourage stakeholders to consult the REMEDE website. In the UK, the guidance for England and Wales contains a section on the assessment approaches including a step-by-step guide to assessing remedial options.

In Spain, a technical committee on the prevention and remedying of environment damage was established and started operating in April 2009. Representatives of corporate organisations and trade unions are part of expert groups which work together with the committee. As part of its advisory function, the committee deals with methodological guidelines and recommendations and supports information exchange on studies on risk analysis and remediation projects. These activities are believed to contribute to the development of models by the private sector. Currently

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17 It should be noted that Portugal is currently developing guidelines in this context. However, as Portugal did not participate in the MS consultation, no further information on this work is currently available.
the committee is involved in environmental risk analysis by sectors based on methodological guidelines and MIRAT (Standard Environmental Risk Report Model). Tools for the calculation of remedial values are also under development as part of the ‘VANE Program adaptation’, which aims at developing guidelines for the calculation of required financial guarantees and the calculation of remedial values using best available technologies.

In Bulgaria, no guidelines have been developed specifically with regard to ELD compensatory remediation calculations, but guidelines for the estimation of remediation measures for past environmental damage have been endorsed by the Ministry of Environment and Water. The Bulgarian Ministry also mentioned the REMEDE toolkit, which adopts a methodology that is similar to the one that was already used in Bulgaria for the evaluation of environmental damage in the past. The focus of the guidelines endorsed by the Ministry might however not suit the ELD completely as it is concerned more with soil pollution and is, thus, not satisfactory for the assessment of other liabilities under the ELD such as damage to biodiversity.

5.3.2. National Insurance Associations

The importance of available guidelines is underlined by the fact that 40 percent of insurers that were interviewed stated that they base their product development on external guidelines. Almost all German insurers reported that the model policy provided by the German Insurance Federation (GDV) served as a basis for their own product development. Even a Polish and a Swedish insurer reported that the German solution (and the German approach more generally) had served as guidance in the development of their products. However, only a limited number of insurers have worked with their national associations in developing common guidelines on issues such as the calculation of compensatory remediation, the assessment of natural resource damage or risk indexes.

For reinsurers, external guidelines seem to play a less important role with no reinsurer reporting their use.

5.3.3. (Re)Insurers

Eleven insurers (eighty percent of respondents to this question) stated that they developed their own guidelines to facilitate further product development and claims management. It should be noted, however, that the scope of these guidelines varies significantly, ranging from general advice on ELD-related product development to complex guidance on the assessment of natural resource damage (mostly in cases where an internal expert group has been set up). However, out of the companies that had such guidelines, not many would be prepared to make them publicly available.

The use of models to determine limits and sub-limits of liability for these products does not seem to be very common. No insurer reported the use of a particular model or tool
and several insurers mentioned that the limit generally depends on the client’s request.

Only one insurer thought that the lack of risk assessment models is among the main barriers/obstacles to providing more far-reaching products. A potential starting point to build a risk assessment tool that was named was the NACE Classification (Classification of Economic Activities in the European Community) database. One insurer reported that, until a more sophisticated risk assessment tool would be developed by his company, different levels of risk would be associated with the different NACE categories of economic activity, this approximate information being used as an element, among others, in the evaluation of potential losses of an operator under scrutiny.

A number of reinsurers stated that they had collaborated with insureds on the development of policy guidelines. An example of a document of this kind comprises guidance on wording, pricing, and risk assessment. If insurers follow this guidance in their product development, they can expect to obtain reinsurance from the author company. It should be pointed out that, although there seems to be collaboration at varying degrees between reinsurers and reinsured, no insurer reported having based their product development strictly on guidelines developed by reinsurers.

5.4. FUTURE DEVELOPMENT OF THE ENVIRONMENTAL INSURANCE MARKET

The critical issue regarding the future development of the environmental insurance market in respect of the ELD is whether operators who cause environmental damage may obtain cover for ELD liabilities so as to avoid taxpayers being required to pay to remedy the damage. Although the ELD does not place a duty on an MS to remedy environmental damage if the responsible operator fails or refuses to do so, a MS may be obliged to remedy a damaged European site or a seriously polluted river, for example, due to public pressure. If a trend develops in which taxpayers, rather than operators, pay substantial costs to remedy environmental damage, the fundamental principle of the ELD that the operator whose activity has caused the damage is financially responsible for remediating it will have failed.

As noted in section 5.1, insurance is widely available for ELD liabilities. Indeed, a growing number of insurers have entered the environmental insurance market as a result of the enactment of the ELD. Rather than there being a problem in obtaining insurance for ELD liabilities, the reverse appears to be the case. That is, some insurers have stated that operators have shown a general lack of interest in purchasing cover for ELD liabilities. They have also stated that it may need extensive media coverage of a case of significant environmental damage falling under the ELD to increase uptake substantially. These comments indicate that many operators are unaware of the ELD, do not consider that it applies to them, or consider that their GTPL policies provide cover for it. In order to ensure the continued development of the environmental insurance market, therefore, these three issues need to be addressed. Unless this
occurs, insurers that have developed and currently offer policies for ELD liabilities may decide that it is no longer commercially feasible or advantageous to continue to do so due to insufficient demand for them.

It is not possible to state the percentage of insurers that offer policies that provide cover for ELD liabilities or that provide cover for ELD and non-ELD environmental liabilities. The percentage is, however, small in relation to the insurance market as a whole. This does not mean that a large percentage of insurers have decided not to enter the market. The insurance market is huge and many insurers do not offer the type of policies with which environmental insurance would provide a logical fit. As noted above, the introduction of the ELD has resulted in European as well as more US insurers offering cover for ELD and other environmental liabilities.

The small percentage of insurers offering environmental insurance also does not mean that the introduction of compulsory financial security under the ELD would not be feasible. The environmental insurance market and financial security provisions have existed in the USA for about 30 years. There was a problem in the availability of financial security products for hazardous waste landfills in the 1980s but, as far as we are aware, there has not been a problem with the availability of environmental insurance since that time. Further, although only a small percentage of insurers offer environmental insurance in the USA, we understand that this has not been, and is not, a problem.

The active marketing of their environmental insurance policies by insurers will not, by itself, educate a sufficient number of operators throughout the EU about the ELD and its potential application to them although it will, of course, help to do so. Similarly, the marketing of policies by insurers to brokers will not, by itself, result in most operators becoming aware of the ELD, its application to them, or the gap in cover for ELD liabilities in GTPL policies. In order for the growth of policies that provide cover for ELD liabilities to occur, further efforts must be made by other entities.

The obvious entities to promote awareness of the ELD, its application to operators and the availability of insurance to bridge the gap of cover in GTPL policies are the MS. Article 14 of the ELD directs MS to “take measures to encourage the development of financial security instruments and markets by the appropriate economic and financial operators, including financial mechanisms in case of insolvency, with the aim of enabling operators to use financial guarantees to cover their responsibilities under [the ELD]”.

If MS fail to encourage the development of insurance for ELD liabilities, the result will be more serious than the lack of expansion of the environmental insurance market. We consider that unless public awareness of the ELD and associated insurance issues increases substantially, insurers who have entered the market may leave it, thus increasing the potential that taxpayers will be required to bear the costs ofremedying environmental damage in lieu of operators who are uninsured for ELD liabilities and who do not have sufficient assets to fund remedial works.
6. ALTERNATIVE FINANCIAL SECURITY INSTRUMENTS

As discussed above, when it comes to financial security instruments to cover ELD-related liabilities, MS as well as operators largely concentrate on insurance as opposed to alternative products. Among operators, for example, more than fifty percent stated that they were not aware of financial security instruments other than insurance to cover ELD-related liabilities. The perception seems to be that alternative instruments would need to be developed especially for ELD-related liabilities, as was the case for insurance products, though in fact many of these instruments already exist and can be used for this kind of risk with no or limited adaptation efforts. Furthermore, financial security instruments other than insurance have the potential to cover a number of the gaps and limitations discussed above. However, in many cases, these instruments are less easily available to SMEs than to larger companies as, for example, they might require the operator to set aside substantial amounts of money (as for escrow agreements) or be directly linked to the net working capital of a company (as for corporate guarantees). Availability of these kinds of instruments to SMEs can be expected to decrease further in times of economic crisis.

6.1. ASSESSMENT OF STAKEHOLDERS

MS named bank guarantees as the most interesting alternative to insurance products. However, only three MS were in a position to name providers of this kind of instrument (compared to 13 who were in a position to name three providers of ELD-related insurance products). Furthermore, only a limited number of MS could assess whether this kind of alternative financial security instrument was readily available in their country to all types of companies (including SMEs). Out of those who did answer this question four MS were of the opinion that these instruments were indeed readily available (Bulgaria, Estonia, Netherlands and Sweden) compared to two MS that were not (Czech Republic and Hungary).

Among operators, more than fifty percent stated that they were not aware of any financial security instruments other than insurance to cover ELD-related liabilities. Among those operators who were aware of other forms of liability cover, most named bank guarantees as well as parent company guarantees as the most important ones. Insurers and brokers also mentioned bank guarantees as the most pertinent alternative to insurance to cover ELD-liabilities, followed by self-insurance.

6.2. OVERVIEW OF DIFFERENT INSTRUMENTS

There exist a large number of different instruments that could be of interest in the context of ELD-liability cover. The choice of instruments discussed below is largely based on the most commonly used alternative security instruments in the USA as well
as those most frequently named by stakeholder groups of this study as pertinent alternatives to insurance in the European context.

6.2.1. **FINANCIAL TEST AND CORPORATE GUARANTEE**

The financial test and corporate guarantee are available only to larger regulated companies or regulated companies with a large parent or other affiliate.

The financial test generally includes criteria to determine a minimum level of the regulated company’s net working capital or net worth, a minimum level of its current assets to its current liabilities, a minimum ratio of net income or tangible net worth to the estimated costs of complying with required works, a minimum rating for the company’s bonds by a recognised rating company, and the location of a substantial proportion of the company’s assets in the relevant jurisdiction. The net worth of a company is its total assets minus its total liabilities, that is, the equity of shareholders in the company. The working capital is the company’s current assets minus its current liabilities. A company that has an investment grade bond rating in the USA may satisfy one criterion of the financial test by using tangible net worth. A company that does not have investment grade bond rating must satisfy the criterion by evidence of its net working capital. The data provided by the regulated company must be supported by a report from an independent auditor.

A corporate guarantee enables a company with a large parent or other affiliated company to provide the above evidence regarding its parent or other affiliate on behalf of the regulated company.

A governmental authority’s acceptance of the above mechanisms is based on its satisfaction that the regulated company’s, or its affiliate’s, financial strength sufficiently minimises the likelihood that public funds will be required to pay to remedy environmental damage or other harm caused by the regulated company. Another reason in respect of very large regulated companies is that the third party from which the company would obtain financial security could be less financially viable than the regulated company itself.

Companies that satisfy the financial test or corporate guarantee can do so at low cost because they do not have to purchase a financial security mechanism from a third party. The competent authority, however, must regularly monitor the company’s financial position to ensure its continued financial viability and its potential failure. As discussed in section 6.1.2 above, the continued use of the financial test and corporate guarantee in the USA has been questioned and enforcement of them has increased.

6.2.2. **TRUST FUNDS**

A trust fund is administered by a trustee on behalf of a beneficiary, to which the trustee owes a fiduciary duty. The beneficiary of a trust fund for environmental liabilities, into which the regulated company has placed assets, is the governmental
entity. The assets may include a letter of credit. Legislative provisions permitting the use of trust funds as financial security mechanisms in the USA may specify the express or minimum format of the deed of trust. They typically require the trust fund to be irrevocable in order to prevent the regulated company terminating it without the agreement of the governmental entity.

6.2.3. **LETTERS OF CREDIT / BANK GUARANTEES**

A letter of credit which may be used as a financial security mechanism for environmental liabilities is an agreement by the financial institution that issues it to pay money from it to the governmental entity when requested to do so by the entity. The financial institution bases a decision to issue a letter of credit on the creditworthiness of the company to which it is issued. The institution may require the company to provide collateral in the form of securities, bonds or other monetary instruments for the entire face value of the letter of credit. In the USA, letters of credit used as mechanisms for financial security provisions in environmental legislation must generally be irrevocable.

A bank guarantee differs from a letter of credit in that the amount of the guarantee is only paid if the regulated company does not fulfil stipulated obligations.

A problem may arise if the regulated company cannot obtain financial security mechanisms such as letters of credit or bank guarantees due to economic circumstances. Indeed, the current economic crisis has resulted in some US companies that traditionally met financial security requirements by letters of credit purchasing insurance policies to do so instead because of the difficulty in obtaining the former.

6.2.4. **SURETY BONDS**

Surety bonds are instruments under which banks and other financial institutions (including insurance companies), agree to pay a certain amount in case a regulated company (or other person) does not or is not in the position to pay itself.

Performance as well as payment bonds are used as evidence of financial security for environmental liabilities. A performance bond covers the cost of completing the specified works; a payment bond provides the necessary funding to do so. If the surety for the bond is a lending institution, the regulated company’s borrowing capacity is affected because the bond is offset against its borrowing facilities. If the surety is, say, a subsidiary of an insurance company, its decision to issue the bond is based on the regulated company’s creditworthiness and may include a charge on the company’s assets or the requirement for a guarantor. Legislative provisions mandating financial security in the USA may set out the express, or minimum, terms and conditions of the agreement establishing the bond. Typical terms and conditions provide for the governmental entity to step into the shoes of the regulated company if it defaults on its obligations to the entity.
The availability of bonds is affected by economic conditions. For example, during the early 2000s, some surface mining companies in the USA were unable to obtain bonds for reclamation works due to the withdrawal of sureties from the market. The problem may be particularly acute for bonds that must be provided for lengthy periods, in some cases over fifty years, for the post-closure period of a landfill.

6.2.5. ESCROW AGREEMENTS

Under an escrow agreement, deposits are made with a third party, such as a bank, that can only be released under conditions pre-determined in the agreement. This kind of agreement ensures that the necessary means will be available for preventive or remedial measures, provided that the amount in escrow has been adequately calculated. A disadvantage of this kind of agreement, as with letters of credit, bank guarantees and bank surety bonds, is that it requires the operator to set aside a substantial amount of money, which might make this a difficult option for SMEs.

6.2.6. GOVERNMENTAL SCHEMES

The legislation requiring financial security for environmental liabilities may, in some cases, establish or enable a scheme by which regulated companies may meet the requirements if commercial financial security mechanisms are generally unavailable. The legislation may, for example, establish a fund into which taxes levied on the regulated companies themselves or other persons are paid. An example in the USA was the establishment of state funds during the 1990s to enable owners and operators of USTs to provide evidence of financial security in respect of environmental damage from their USTs. Many of the USTs were already leaking and, thus, required replacement under the applicable legislation, which made the financial security requirements particularly difficult to apply. The EPA and state environmental agencies were concerned that many small petrol stations would have to close because, although insurers had developed and offered policies to cover the financial security requirements, they (obviously) only offered policies to satisfy the requirements to owners and operators whose USTs had been tested to ensure that they did not leak. Monies for the funds were generally raised by taxing petrol introduced into, delivered or sold in the state and by annual registration fees on the ownership and operation of USTs. Most funds quickly became insolvent due to the large number of claims to clean up contamination from USTs. Another major problem was the effect of the funds on policies offered by insurers to satisfy the requirements due to the lack of interest in such policies whilst the funds existed. Another problem with funds is that they do not encourage regulated companies to reduce environmental risks from their operations.
6.3. ALTERNATIVE FINANCIAL SECURITY INSTRUMENTS VERSUS ENVIRONMENTAL INSURANCE

As became evident in the discussion above, the difference among alternative financial security instruments is significant. Their use in covering ELD-related liability in comparison to insurance products will depend largely on the individual situation of an operator, such as its sector, its assets, risks, etc. An in-depth comparison of different financial security instruments to cover ELD liabilities is beyond the scope of this study. However, this section aims at providing a preliminary and very basic understanding of the different factors that will play a role in this analysis. Insurance that is provided pursuant to legislative mandatory financial security provisions is briefly discussed in sections 4.1.1 and 4.1.3.

The deciding factors in whether an instrument is appropriate in the context of ELD liability cover are the following:

- Will the instrument ensure that environmental damage will be remediated or prevented at the operator’s costs, i.e. will it ensure the effective implementation of the polluter-pays principle that is at the heart of the Directive?

All financial security mechanisms that are obtained from a third party, such as a bank or a surety company, and all corporate guarantees are subject to the limit specified in the mechanism or guarantee, a limit that must be determined prior to a potential incident. There is, therefore, a risk that the pre-determined amount will not suffice for full remediation. In the case of self-insurance such as financial test, no company can provide that unlimited funds will be made available because, obviously, no company has unlimited assets.

ELD-related insurance cover will provide the means to remediate environmental damage. However, as discussed above, this is limited to the activities that insurers are willing to cover, the agreed liabilities, the agreed level of indemnity, etc. Insurance can therefore be an effective way of meeting the cost of remediating environmental damage, subject to its limitations. Alternative financial security mechanisms, such as escrow accounts, surety bonds, letters of credit and bank guarantees are, as indicated above, subject to the amount of the mechanism. Further, their use might be limited if operators experience difficulties in obtaining them.

One means to ensure a specified level of financial security for all mechanisms would be to establish minimum levels of financial security required for ELD liability, as in the USA (see section 6.1).

- Will it be available to operators (with a special focus on SMEs) at reasonable costs and conditions, as required in Article 14(2) of the Directive?

As discussed above, insurance premiums are generally regarded by the different stakeholder groups as commensurate to the service provided.
Furthermore, a reduction in premiums is not generally seen as a factor that could increase the take-up of ELD-related insurance products. It should be kept in mind that insurance premiums are tax deductible.

On the other hand, there are a number of alternative financial security products, such as the financial test and corporate guarantee that are not generally available to SMEs. They might, however, make financial sense for larger companies, e.g. as no insurance premiums need to be paid. As discussed in section 4.1.2, however, any legislative provisions authorising such mechanisms must ensure their adequacy and continued viability.

- Will the instrument be effective in preventing pollution by providing an incentive to operators to limit it?

A financial security instrument will only provide incentives to prevent an incident, if the related charges are linked to the specificities of the operator, such as the risk management scheme in place or preventive measures that are taken. Insurance premiums, for example, will depend on these operator-specific issues and can therefore be expected to provide the necessary incentives.

Funds, however, which are based on the levy of taxes or equal contributions of all participants irrespective on their individual situation, do not encourage operators to take measures to reduce environmental risks beyond what is legally required.

It becomes clear from the above, that the decision for insurance or an alternative financial security instrument (or a combination of these) will need to be made on a case-by-case basis. Nevertheless, further research into the different instruments currently available in the EU based on the three criteria outlined above, could significantly facilitate the decision-making process for operators. In addition, as discussed above, only a financial security instrument that actually leads to the remediation or prevention of environmental damage at the operator’s costs will ensure the effective implementation of the polluter-pays principle. Further research into the identification of those instruments can help the European Commission and/or MS to promote the ones that are most effective in implementing the ELD and the polluter-pays principle.
7. OPERATORS

As identified in the 2008 report on “Financial Security Issues in ELD”, further information on the needs and expectations of operators regarding the ELD implementation is required to further analyse this stakeholder group’s role in the implementation effectiveness of the Directive. Operators have generally been perceived as being largely unaware of the ELD and the liabilities it entails. This section provides further information on this issue as well as the question how operators currently cover their ELD-related risks.

Although efforts were concentrated on sectors for which the ELD was of particular relevance such as agriculture, waste and recycling, water supply and treatment, and manufacturing, the consultation did not result in the number of responses that was expected. A total of 122 national and European industry associations and federations were contacted in early July with the request to disseminate questionnaires to their members. However, at the time of writing, only eleven operators and two national industry associations representing farmers have responded. It should also be noted that only three out of the eleven responding operators were SMEs. Although it cannot be said with absolute certainty, it can be assumed that the main reason behind this low reply rate is a general lack of interest and resulting low level of awareness of the ELD on the side of operators. A national farmers’ association, for example, which decided not to circulate the questionnaire among its members, explained that it preferred not to do so because of the low level of awareness among farmers about the ELD and its impacts. The association explained that its communication efforts about the ELD had been focused on the importance of preventing environmental damage, the need to contact the competent authority in case such damage occurs, and the fact that remediation costs might be high in case of an incident falling under the ELD. The association did not believe that its members were in a position to provide information beyond this.

Furthermore, several industry associations explained that their members were unlikely to respond over the summer period and that an extension of the deadline, which requested answers by late August/early September, might need to be envisaged to allow their members to respond. In addition, French industry associations stressed that a translation of the questionnaire might be necessary for operators to respond. Both issues were addressed as the stakeholder questionnaire was translated into French and operators were explicitly encouraged to respond to the questionnaire even if they could only do so after the deadline set early September. The low response rate can therefore not, or at least not largely, be attributed to the timing of the questionnaire.
7.1. AWARENESS OF ELD AND RELATED LIABILITIES

The results of the operators’ consultation show that every single respondent was aware of the ELD. However, this is clearly not representative as operators filling in the questionnaire are likely to have been familiar with the issue beforehand. It can be assumed that for operators to whom the ELD is unknown the questionnaire was irrelevant and hence they did not answer it. The sectors from which completed questionnaires were received were rather diverse: Four responses were received from the waste sector, two from the agricultural sector, two from the transport sector and one response each from the environmental technology, chemicals, petroleum, pulp and paper, and metal sectors. This diversity suggests that the awareness and perception of ELD-related risks do not currently differ significantly among the sectors chosen for this consultation. It can rather be assumed that risk awareness and perception depends on the individual circumstances of the operator, irrespective of the sector. This assumption is supported by the fact that almost half of the respondents reported that their business is located near a Natura 2000 site and/or a site that is protected under similar legislation in the country in which they operate. These operators run significantly higher environmental risks than others and are therefore more aware of ELD-related liabilities and in turn more likely to answer the questionnaire.

In this regard it is also important to differentiate between an awareness of the ELD and an awareness of its related risks. Even though all consulted operators stated that they were aware of the ELD, none were of the opinion that their environmental risks have changed as a result of its implementation. This assessment was made irrespective of the fact that six out of the thirteen respondents stated that their business was located next to a Natura 2000 site or other sites covered by the national ELD transposition. According to AON’s Global Risk Management Survey 2009, despite the introduction of the ELD, environmental risk ranked lower as a concern in Europe than in any other region covered. In fact, environmental risk only ranked 32nd as a concern in the survey. (News Insurances, 2009)

Insurers and brokers largely agreed on the assessment that the level of awareness of the ELD among operators is low. In addition to those insurers that participated in the consultation process, it should also be noted that the International Underwriting Association stated in February 2009 that the awareness of ELD-related liabilities is still relatively low amongst some clients and regional brokers (IUA, 2009). This statement is also supported by, among others, a partner at international law firm Freshfields Bruckhaus Deringer, who said in February 2009 that many firms still remain unaware of their new liabilities (BusinessGreen, 2009).
However, insurers and brokers differentiated between different types of operators, saying that larger companies tended to be more likely to be aware of their liabilities and that in MS with a compulsory financial security scheme operators tended to be more pro-active. Spain is therefore regarded as an exception in terms of operators’ awareness of the ELD. Furthermore, according to an insurance broker operating in several countries, the level of awareness differs significantly according to the legal environment: the longer the ELD had been in force in a MS, the more operators are aware of their liabilities. Several insurers reported that the number of sold policies increased as the ELD transposition status changed. Also, operators with activities in high risk sectors appeared to be more likely to seek cover for the risks than companies who were exposed to lower environmental risks.

Furthermore, the assessment of operators’ awareness depends on the MS. Whereas insurers in Germany reported that industry associations, insurers, and brokers had provided operators with a large amount of information and that most clients are aware of the need to get ELD coverage. In contrast, a Finnish insurer explained that while many companies in Finland are aware of the existence of the ELD, they had difficulties understanding the risks and the concept of ‘significant damage’. Unfortunately, at this time the number of operators’ responses remains too low to make a meaningful statement about differences in awareness among MS based on the operators consultation.

In different stakeholder interviews, discussions during the workshop, as well as last year’s report brokers were often mentioned as being partially responsible for the lack of awareness among operators. During this year’s consultation process brokers claimed that they considered it part of their job to increase operators’ awareness of the new risks and that they had made efforts to provide their clients with the required information early on. However, a British broker pointed out that the degree to which brokers can be of help is actually limited as operators have to be in a position to quantify their risks and to determine the limits of cover they want. Therefore, operators cannot rely solely on brokers but will need to reach a certain understanding of their liabilities under the ELD in order to make the right choices. It is also noteworthy that eight out of ten respondents to the operators’ consultation that use insurance products to cover their ELD liabilities stated that their broker is sufficiently familiar with this kind of product.

Eight out of thirteen responding operators indicated that they expected their industry association to be the primary source of information with regard to their environmental liabilities. This percentage was especially high among SMEs, while larger companies also mentioned their insurers and/or brokers as their expected source of information on this matter. Only three operators stated that they expect their insurer or broker to be the primary source of information. Just over a third (five out of thirteen) of operators also considered that administrative authorities and risk management consultants should play a role in the process. Finally, one major multinational
company, specialised in environmental services, mentioned that it expects its internal councillors to be the primary source of information on their environmental liabilities.

Regarding the sectors that seem to be most aware of the ELD, insurers reported that they sold most products to operators active in the waste, petroleum, chemical, transport, and manufacturing sectors (where market penetration was reported as being the highest, in particular by German insurers). This suggests that these are also the sectors in which awareness of the ELD is highest. However, the overall picture remains that, with the notable exception of Spain and to a lesser extent Germany, operators are generally not particularly concerned about acquiring cover for their ELD-related risks. A factor that needs to be taken into account here, as discussed above, is the current economic crisis that was named by many as an important reason for operators not seeking cover for ELD-related liabilities, even when they are aware of them.

7.2. RISK COVERAGE

It should be kept in mind that operators stated that their risks have not changed following the implementation of the ELD. It can therefore be assumed that this means that the risk coverage on which they provide information relates to all their environmental risks, not ELD-specific ones.

As presented by Figure 8 below, around 80 percent of respondents indicated that they currently cover their risks through insurance. Alternative financial security instruments and government schemes are employed by four operators each, whereas a pool as a means to cover ELD-related risks was only mentioned by one operator. It is important to note that more than one of these instruments are often used together. More specifically, insurance products and government schemes were the only instruments that are actually used on their own, whereas alternative financial security products and pools are only used in combination with other instruments.
More than fifty percent of operators indicated that they were not aware of other financial security instruments than a commercial insurance policy to cover their ELD-related risks. Those who were aware of such alternatives to insurance mentioned both parent company guarantees and bank guarantees as instruments they might consider using in the future. Operators from the waste sector also mentioned pools as a possibility to cover their liabilities.

Regarding the type of insurance policy that operators chose to cover their liabilities, almost half indicated having chosen a stand-alone operational risk environmental insurance policy that includes cover for ELD liabilities. More than half had chosen a policy that is part of, or an endorsement to, their GTPL policy. None opted for a stand-alone ELD-specific policy. Interestingly, only a quarter of insurers reported offering cover integrated in or as endorsements to GTPL products. This suggests that at the moment there is a discrepancy between the type of product demanded and offered. We understand, however, that more insurers are responding to the demand by introducing endorsements that offer environmental cover that includes ELD cover to GTPL policies.

Sixty percent of operators (eight out of thirteen) considered that all of their ELD-related liabilities are fully covered by their insurance policy. However, this assessment largely depends on the sector, with the notable exception being the agricultural sector. The German Farmer’s Union (Deutscher Bauernverband e.v.) explained that although insurance solutions are increasingly being developed for ELD-related liabilities, many of them are inadequate to cover the risks for farmers and alternative security instruments to cover those environmental risks do not exist. The British National Farmers Union considered that certain aspects are not covered by the insurance products available to them. The German Farmers Union reported that damage to a farmer’s own land are not captured by the basic insurance and that other risks, such as those related to
pesticides, are not covered at all. The British National Farmers Union reported that the currently available products do not cover measures that may have to be undertaken to prevent damage from occurring (imminent threat) and that the cover only applies once the damage has occurred. Hence, the farmers’ associations indicated that if certain liabilities remained uncovered it is due to a lack in appropriate products on the market.\(^7\)

### 7.3. GAPS AND LIMITATIONS FROM OPERATORS’ PERSPECTIVE

As discussed above, ten out of the thirteen operators stated that they use insurance policies to cover their ELD-related risks. Out of those ten, eight are of the opinion that all their ELD-related risks are covered by this insurance product. Those respondents that do not agree with this statement are both farmers unions that identified the lack of cover for the prevention of imminent threats, incidents concerning their own land, and damages such as those in connection to the use of pesticides. Regarding the former, the question is raised whether, in certain cases, this could not create an incentive for insured operators to remediate environmental damage rather than undertaking all necessary actions to prevent it. One farmers union explicitly notes that no alternative financial security products exist to cover some of these liabilities. It should be stressed that also in regard to financial security products more generally none of the respondents highlighted specific gaps in the products on offer (e.g. exclusion of GMOs or gradual pollution in ELD-related insurance policies). This might be surprising, given that a German broker, for example, reported about twenty-five such exclusions in the insurance products on offer in Germany. According to this broker, operators who do not benefit from the services of a broker who has more leverage to negotiate tailor-made insurance policies directly with insurers, will remain exposed to a higher level of risk.

### 7.4. AWARENESS RAISING

While the level of operators’ awareness on the ELD appears to be rather low, the consultation suggests some ways in which operator’s awareness of their new liabilities could be increased. All operators reported that their activities require a permit under environmental legislation. This shows once again that many operators affected by the ELD are already in contact with public authorities. This contact could be leveraged to increase awareness on the ELD of operators. The responses of operators suggests that in fact, administrative authorities have so far only played a small part, if any, in making them aware of the ELD. In fact, out of the 11 operators which responded, only three reported that administrative authorities had contributed to making them aware of the ELD and its transposition into domestic law in their country or the country(ies) in which they operate.

\(^7\) Please note that in the meantime the National Farmers Union Mutual extended all of its products and public liability policies in order to cover some environmental and ELD-related liabilities.
Industry associations seem to have played by far the most important part in informing operators about their liabilities under the ELD, at least in the sample of operators which responded to the questionnaire. This result should of course be considered with some caution, as most questionnaires were actually distributed to operators through their industry association. It does, however, suggest that industry associations can be an effective channel which could be further exploited to inform operators. If information material is to be distributed through industry associations, care should be given to making this material as relevant as possible to the respective sectors that would be targeted in the context of an information campaign. Generic publications on the ELD are unlikely to attract an operator’s attention and provide him with enough information relevant to the handling of environmental risks arising in his specific sector. The specific environmental risks that arise in different sectors also suggest that awareness raising events targeted at operators that would take place at the European level would be more effective if they were to be organised for specific sectors rather than to provide information on the new environmental liabilities arising from the ELD in general.
8. ELD CASES

The 2008 ELD study highlighted the importance of compiling incidents falling under the ELD to illustrate how implementation works in practice and to facilitate the assessment of the performance of currently available financial security products. The establishment of such a database can also be considered useful for the establishment of best practices for the handling of claims. In addition, the information on claims and losses gathered in such a database would help insurers in their risk assessment and hence product development.

Furthermore, this ELD case database was to serve as a tool for the European Commission in its report on the effectiveness of the Directive in terms of actual remediation of environmental damages due in 2010.

8.1. INFORMATION GATHERING

To deal with the problem of data availability, some insurers have started doing active loss monitoring and are gathering data from claims. The CEA started collecting cases which have occurred since April 30th 2007 in MS and that are publicly available.

As the 2008 study had already attempted to collect such cases, an increased effort was made to identify ELD cases in different MS, to update the available information about ELD cases, and to construct a database for information about ELD cases.

It was expected that the first source of such cases would be newspapers and published literature. This did not, however, prove to be the case in practice. When potential cases were identified in the media, no mention was generally made of the regime under which the environmental damage might fall. It became clear that the best and most reliable sources with regard to the development of the cases and to obtain the most accurate data on losses and incidents were the national competent authorities. Thus, when a potential case was identified in the media, additional information on each case was sought through interviews by the establishment of direct contact with the key players. Where applicable, further information with regard to ‘solutions’ achieved in terms of remediation as well as the process of how the case has been resolved was sought. For each case, a detailed template was sent by mail and active communication with the stakeholders involved in the cases was maintained in order to obtain the requested information.

As it became clear that ELD cases remained rare, even as transposition of the ELD across MS increased, more targeted research was carried out to find new case studies by means of web and literature search and communication with relevant contacts. The stakeholder consultations undertaken turned out to be one of the main sources of information on possible ELD cases and proved, in several cases, to be the only source of information on potential ELD cases.
8.2. ELD CASE DATABASE

Media coverage of significant environmental incidents that fall under national law transposing the ELD will have an important effect on the development of the financial security market. The occurrence of such incidents will not only raise awareness but will allow insurers to develop expertise in handling ELD claims. It is thus important that key information about this case will quickly be made available to all relevant stakeholders. In order to facilitate this communication, a template for ELD case information gathering as well as a database was developed.

The case template was developed sought to contain information such as:

- type of incident;
- type of operator;
- the remediation project;
- methods and approaches used for valuing the appropriate remedial measures as well as modalities used to implement the remediation project; and
- co-operation between national authorities, operators and other stakeholders.

The template can be sent to one or more stakeholder(s) involved in the case for completion.

Based on this information, the ELD case database can be populated. The database will allow stakeholders to sort cases according to their specific interest, such as the type of damage, remediation project, operator, or financial security.

8.3. ACTUAL AND POTENTIAL ELD CASES

Actual and potential cases that have been reported to us or of which we have otherwise become aware are discussed below. There are, however, only a limited number of such cases either because only a few ELD cases have occurred or because competent authorities in the MS have not treated them as ELD cases. It should be noted, however, that information differs according to the stakeholder providing it, i.e. the number of stated ELD cases seems to differ significantly according to whether it is provided by competent authorities or insurance companies. Even if an insurance company treats a case as falling under the ELD, what is ultimately of importance for this report is whether the national competent authority has treated it as such or not.

Due to the small number of cases that were reported, the discussion includes cases that occurred prior to the deadline for transposition of the ELD but which could have been ELD cases if they have occurred after that date. Furthermore, the discussion includes cases that could potentially have fallen under the ELD but that, for one reason or another, ultimately do not do so. These cases are of interest as they highlight certain shortcomings of the Directive that lead to cases of environmental damage not being followed-up.
8.3.1. **ENGLAND**

In March 2009, a large tank at a chemical factory located next to the English coast ruptured spilling approximately 350,000 litres of solvents onto a site located next to a river estuary and a site of special scientific interest (‘SSSI’). The site was potentially impacted by the solvent during the first couple of hours following the event (with some possible escape into the estuary via the drainage system) but this is not confirmed and the operator locked down all systems very quickly. The factory is currently regulated under the Integrated Pollution Prevention and Control Directive and the Seveso II Directive, as a result of which the operator immediately reported the incident to the Environment Agency, the competent authority. The operator co-operated with the Agency and the local authority in recovering most of the solvent.

The Environment Agency subsequently concluded that the incident was not an ELD incident. Any solvent which had entered the estuary did not result in a lowering of its status under the Water Framework Directive due to dilution by the tidal flush, and had thus not exceeded the threshold for water damage under the English ELD legislation. The Agency further concluded that the risk of harm to aquatic life in the estuary and coastal waters was low.

It was known during the investigation of the incident that the groundwater near to the factory was already contaminated and competent authorities were already applying other environmental legislation to that contamination. The losses to ground (being land and groundwater) as a result of this solvent spill appear to be minimal as much of the solvent was recovered and the monitoring has not shown an adverse impact over and above the previous background status.

The monitoring undertaken between the incident site and the SSSI did not show any notable influence on the SSSI.

8.3.2. **FRANCE**

In August 2009, over 4,000 cubic metres of crude oil spilled from an underground pipeline onto two hectares of the Coussouls de Crau nature reserve, which is adjacent to the Camargue national park in Southern France. The competent authority, the Ministry of Ecology, Energy and Sustainable Development and the Sea, is consulting with the operator and its insurers regarding remediation of the environmental damage. Due to the operation of the pipeline not being an activity under Annex III of the ELD, however, the operator will be liable under the ELD only if it was negligent.

8.3.3. **GERMANY**

An accident at a clarification plant on an industrial site resulted in mud being discharged from the site onto one square kilometre of a bog forest. The mud caused environmental damage to the soil and groundwater and threatened to cause environmental damage to a river which it entered via a ditch. The bog forest
and the section of river that was damaged by the mud is a Flora-Fauna-Habitat (FFH) site that is protected under the Natural Habitats Directive (Directive 92/43/EEC). In addition, the section of river is protected under the Water Framework Directive (Directive 2000/60/EC).

The competent authority ordered the operator to remove the contaminated soil and to take measures to prevent and remediate water damage. The cost of the preventive and remedial works totalled EUR 290,000, a figure which was kept to a minimum due to good co-operation between the operator, its insurer and the competent authority.

8.3.4. **Hungary**

8.3.4.1 **Hungarian case I**
Whilst carrying out an inventory at a cement factory during the second half of 2007, the operator discovered that oil had been spilled during refuelling activities. The operator notified the competent authority, the South-Transdanubian Inspectorate for Environment, Nature Conservation and Water, and instructed environmental consultants to investigate the spill. The competent authority subsequently determined that neither the groundwater nor the soil had been damaged by the oil spill but that the operator had caused previous oil pollution. Due to the location of the factory above a highly sensitive aquifer, the competent authority required the company to establish and carry out a monitoring plan and to report to it annually, with a final report to be submitted by 30 June 2012. Depending on the results of the monitoring, the operator may be required to remediate the contamination in the public interest.

8.3.4.2 **Hungarian case II**
In late 2007 / early 2008, damage to vegetation was caused by the excavation of approximately 200 cubic metres of rubble from an area near several stone mining pits. The rubble had been used to construct spoil banks around an area of approximately 1,000 square metres on which about 1,000 cubic metres of construction and other waste had been illegally deposited. A member of the public notified the Nature Reservation Guards of the Balaton Uplands National Park Directorate which required the operator to cease the activity and investigate the damage caused by it. The operator instructed two consultancies to carry out the investigation and to assess the ecological damage. The operator is remediating the damage by grading the rubble and waste and covering it with soil. The reclaimed area is being planted to re-establish the biodiversity of the vegetation. The competent authority, which is monitoring progress, has begun enforcement action due to the operator failing to submit the remediation plan by the deadline for it.

8.3.4.3 **Hungarian case III**
Towards the end of 2008, the Central European Rally took place on a route that crossed several protected areas including Natura 2000 sites. The car racing had been authorised by the Central-Transdanubian Inspector for Environment, Nature
Conservation and Water and was monitored by that authority and National Park Directorates. The Balaton Uplands National Park Directorate subsequently determined that the racing had damaged protected vegetation at 41 sites of which seven were Natura 2000 sites. The Duna-Ipoly National Park Directorate determined that the racing had damaged protected vegetation and species in 10 sites. The operator of the rally was required to establish a remediation plan by 30 June 2009. The competent authority has begun enforcement action due to the operator failing to submit the plan by the deadline. The operator has argued that other persons also caused the damage, including organisers of former car rallies, the military having carried out army training in the area, and members of the public having also caused environmental damage.

8.3.5. **MALTA**

In October 2008, cement seeped into a valley resulting in environmental damage. The competent authorities requested the operator to remove the contamination and pay compensation for the damage caused by it. The damage, which was partially caused by flooding, occurred despite the operator having up-to-date machinery, facilities and safety measures in place. The competent authorities have required the operator to increase its pollution control measures and to remediate the damage.

8.3.6. **POLAND**

Poland notified us of several incidents involving the transport sector, most of which were spillages from trucks. We do not, however, have information on any individual incidents.

8.3.7. **SPAIN**

8.3.7.1 **Spanish case I**

In October 2007, a pipeline carrying fuel oil from a refinery to a water desalination plant ruptured on a beach at Las Palmas in the Canary Islands. Fifteen tons of oil entered the sea and subsequently contaminated the sandy beach due to being washed ashore by the tide. The competent authority immediately cleaned up the contamination on the beach and accessible rocks during the month following the spill. Contamination on other rocks was not carried out due to the threat of damage from the remedial works to nearby protected plant species.

The authority also cleaned up waste that had been washed up onto the beach prior to the incident. The authority then carried out a study to investigate whether the remediation had resulted in achievement of the environmental baseline of the damaged natural resources, in particular, whether hydrocarbons remained in sediment and soil. In order to determine whether the baseline had been reached, a sample of sediment from a nearby area was examined.
Spain reported the above incident, not as an ELD incident but as an illustration of the use of the Resource Equivalency Analysis methodology under the ELD and, specifically, the use of Law 26/2007 on Environmental Liability.

8.3.7.1 Spanish case II

In the summer of 2009, smoke was observed from former wetlands and shallow lagoons at the Las Tablas de Daimiel national park. The smoke came from fires that had self-combusted in the dried-out peat beneath the park. The park, which covers 1,928 hectares at the confluence of the Guadiana and Cigüela Rivers in the plain of La Mancha, is underlain by Acuífero 23 (Aquifer 23) which extends over 500 square kilometres.

In 1981, UNESCO had named the park as a biosphere reserve; in 1982, it was designated as a Ramsar site. In 1988 it was designated as a special protection area under the Birds Directive.

In the 1970s, meanwhile, farmers had begun growing water intensive crops such as cereals and sugar beet in the area surrounding the park and had begun irrigating them by various methods, including pivot sprinklers, from wells sunk deep into the aquifer. Some wells as legal, others are illegal. The park began to dry out as the wells drained water from it, resulting in a dramatic lowering of the water table. The Guadiana River subsequently stopped flowing into the park. Water currently covers only about one per cent of the park. Spanish authorities, which were obliged to respond to the lack of water at the park under the Ramsar Convention, introduced various measures to combat the problem. The measures included transferring water to the park, constructing structures to retain water in it, designating wells for emergency supply, and assisting farmers in introducing measures to conserve the wetlands. The EU has funded some of the measures. Subsequent plans to restore water to the park include diverting water to the park in 2010.

The Spanish authorities do not seem to treat the environmental damage to the Las Tablas de Daimiel national park as an ELD matter. The damage would, however, appear to fall under the ELD in respect of the ongoing part of damage caused after 30 April 2007. If the matter is treated as an ELD matter, issues will include:

- differentiating between pre- and post- 30 April 2007 environmental damage;
- identifying responsible ‘operators’;
- establishing negligence for operators of non-Annex III activities (noting that some wells are legal and others are illegal); and
- determining the proportion of remedial costs to be paid by responsible operators and responsibility for the remainder.
8.3.8. CONCLUSIONS

Based on this low number of actual and potential ELD cases and the little information available on each case, conclusions can only be of a preliminary nature. What does, however, seem to be apparent from the above-mentioned cases is the following.

Firstly, the ELD can have an important triggering effect on other environmental legislation. The notification requirements under the ELD can lead to the discovery of damage that requires action under other environmental legislation, even if the damage does not fall under the ELD itself. An example of this kind of triggering effect is the first Hungarian case, which did not fall under the ELD but which showed that the operator had caused previous oil pollution for which, as a first step, he was required to establish and carry out a monitoring plan. The English case also showed the potential for triggering other environmental legislation if it had not already been applied.

Secondly, the potential ELD cases discussed above show that there is a potential for the Directive to miss out on large polluting incidents if these are not caused by activities under legislation in Annex III. The French case in Coussouls de Crau is an example of such an incident, which will only fall under the ELD if it can be proven that the operator was negligent. It should be noted, however, that based on the currently available information on actual and potential ELD cases, it has not been possible to assess the significance of this potential for major incidents of environmental damage to fall outside the scope of the ELD.

The limited number of ELD cases and the incomplete information currently available on actual cases means that assessing the effectiveness of the ELD in the sense of actual remediation measures that are taking/have taken place is not possible at this point in time.
9. CONCLUSIONS

Based on the discussions in this report, the following conclusions can be made.

9.1. TRANSPOSITION OF THE ELD AND APPROACHES TO FINANCIAL SECURITY

The ELD leaves a large degree of flexibility to MS in its transposition and thus implementation of which a number of MS have made full use. As of October 2009, 25 MS had transposed the Directive, with France, Luxembourg, the UK, Slovenia and Greece being the most recent ones. Austria and Finland have still not fully transposed the ELD. The most common country-specific features of ELD implementation are an extension of the scope of biodiversity beyond that of the ELD and the absence of state-of-the-art and/or permit defences.

Regarding the obligation under Article 14(1) of the Directive that requires MS to take measures to encourage the development of markets for financial security instruments, MS have taken only limited actions so far. In most cases these actions have been restricted to discussions with insurers and/or their trade associations. Discussions with providers of other financial security instruments have been virtually non-existent. Furthermore, it is doubtful that one-off discussions with insurers and/or their trade associations will lead to the expected results.

Mandatory financial security schemes, in the sense of a scheme that is set up in anticipation of environmental damage to ensure that remediation measures will be paid for, will be put in place by a number of MS from 2010 onwards. All these schemes allow for insurance as well as various other instruments as evidence of financial security.

Furthermore, every single mandatory financial security scheme that is set up by MS employs a form of gradual approach, exclusion of low-risk activities, or ceilings for the financial guarantee in order to facilitate its implementation. From the stakeholder consultation it became clear that the exclusion of low-risk activities might be controversial as these activities can be the source of significant environmental damage. As no widely recognised definitions exist, a number of possible options for a gradual approach, ceilings for financial security, and the exclusion of low-risk activities were discussed. Whereas it was established that some form of ceilings for financial security would necessarily be part of a compulsory financial security scheme, the other two mechanisms are options that might or might not be employed in such a scheme. This decision will need to be based on a thorough analysis as their employment can facilitate the implementation of the scheme on the one hand, but can also lead to a scheme that is less effective in covering environmental damage falling under the ELD.
9.2. DEVELOPMENTS IN THE USA

As financial security provisions for environmental liabilities have been established in the USA for over 20 years, experiences gained in their use are of interest to the different stakeholder groups in Europe. These experiences will be of particular interest to the European Commission and MS when deciding whether a mandatory financial security scheme should be implemented.

The federal and state governments in the USA have introduced a wide range of financial security provisions whose implementation and enforcement have revealed important issues. These include criticisms about the adequacy of some financial security mechanisms such as financial tests and corporate guarantees, the adequacy of insurance provided by captive insurance companies, and the inadequate enforcement of some requirements. Rather than these issues resulting in the demise of financial security requirements, however, the provisions have been refined, their enforcement has been increased and the requirements are being substantially extended because of the significant costs of cleaning of contamination that has been paid for by taxpayers when some operators have not had adequate funding to pay the costs themselves.

9.3. THE ELD INSURANCE SECTOR

Despite the fact that the ELD has only been in force for a very short time in many MS, the overall assessment of the ELD-related insurance market has been positive. It is generally described as a growing and competitive market that provides good cover for most liabilities under the ELD. Furthermore, finding reinsurance is described by the largest part of insurers as not causing any problems. What seems to hinder further growth of the market at this point is not the un-insurability of certain risks but rather the lack of interest from operators in this type of product. Equally, it is currently not the amount of premiums, as often assumed, that seems to hinder further growth of this market.

The most frequently named limitations of currently available insurance products are the exclusion of gradual environmental damage, sub-limits or exclusions for compensatory remediation, and the limitation of cover for environmental damage to damage from pollution events rather than also including non-pollution events. As a reason for these limitations stakeholders most frequently named the current lack of data about ELD incidents and the inability to quantify potential losses. As the discussion on these limitations shows, they are not universal to all ELD-insurance products. Furthermore, as the market gains experience with ELD-related claims, it is expected that these limitations will become a thing of the past.

Activities that were most frequently mentioned as not being covered (explicitly or implicitly) are: GMOs, waste management/waste disposal sites, extractive activities, the use of chemical and other hazardous products in the agricultural sector, and nuclear activities (please see section 5.2.1.5). Whereas more insurance products might
cover these activities in the future when more experience on related risks under the Directive has been gained, there might be other activities for which insurance is not the appropriate instrument to cover ELD-related liabilities. However, alternative financial security instruments, such as a letter of credit or a trust fund, might well be an appropriate instrument. It should therefore not be assumed that ELD-related liabilities of these activities cannot currently be covered.

Given the lack of experience in ELD-related incidents, different stakeholder groups have stressed the importance of clear guidelines and models in order to facilitate insurance product development for this market. In particular, this concerns guidelines for the assessment of natural resource damage and the amount of compensatory remediation due. Furthermore, guidelines and models are also of high importance to MS competent authorities that will need to define the same issues. At the point of writing, there are only a very limited number of guidelines available. Further guidelines and models are, however, in the process of being developed. It needs to be stressed, though, that current guideline development is largely restricted to national efforts that might not be applicable to other MS. A notable exception to this is the REMEDE (Resource Equivalency Methods for assessing Environmental Damage in the EU) toolkit.

9.4. ALTERNATIVE FINANCIAL SECURITY INSTRUMENTS

As discussed in various sections in this report, a general focus on insurance products as an instrument to cover ELD-related liabilities has been observed. MS authorities as well as operators only have limited knowledge about alternatives to insurance. However, there is a wide range of alternative products that are suitable to cover ELD-related liabilities. Furthermore, significant experience has been gained with these products in the context of other environmental legislation requiring financial security, both in the EU and USA, and no or limited adaptation efforts need to be undertaken to make the instrument suitable for ELD-related risks. How suitable a specific instrument is depends on the individual circumstances of the operator, such as its particular activity, its risks, assets, etc. It should be noted that a number of these alternatives to insurance are far more suitable for large operators with significant assets than for SMEs. Furthermore, the availability of these alternative instruments is likely to be affected by the current economic crisis, especially when it comes to SMEs.

How suitable a financial security instrument is in the context of the ELD implementation will depend on its efficiency in terms of covered remediation costs, its availability to operators, and its effectiveness in terms of preventing pollution. The discussion shows that there is no one instrument that fulfils all three requirements for all ELD-liabilities and sectors concerned. A decision on the suitability of an instrument will therefore have to be made on a case-by-case basis.
9.5. OPERATORS

Operators are perceived by other stakeholder groups as being largely unaware of the ELD. Importantly, the operator consultation showed that even if operators are aware of the Directive, they generally do not believe that their environmental risks have changed as a result of its implementation. However, awareness of the ELD depends to some extent on the different types of operations and their related risks. In particular, awareness tends to increase with the size of the company as well as the risks associated with the industrial sector of the operator. Furthermore, ELD awareness is related to the length of time the Directive has been in force in a MS and to the financial security requirements in place.

Currently the majority of operators cover their environmental risks through insurance products and believe (perhaps incorrectly) that their environmental liabilities are sufficiently covered by these. The notable exception here is the agricultural sector, whose members note that most available insurance products are not suitable to cover their liabilities.

9.6. ELD CASES

A number of actual and potential ELD cases were discussed during the project and at the workshop. We have described these cases with the caveat that information about them is scarce and that most of them either do not appear to meet the threshold for application of the ELD or occurred before the deadline for its transposition by MS.

The limited information that has been made available by the different stakeholders has been included in the ELD case templates as well as the ELD case database. The latter can be found in Annex II of this report.

The low number of potential ELD cases means that assessing the effectiveness of the ELD in the sense of actual remediation measures that are taking/have taken place is not possible in any detail at this point in time.

Two trends can however be noted that may – or may not – continue. The first is the triggering effect of the ELD on other environmental legislation. The second is the potential for major incidents of environmental damage to fall outside the scope of the ELD. As noted in section 8.3.7, the Hungarian and English cases illustrate the effect of the ELD in triggering other environmental legislation. In essence, an operator whose activities cause environmental damage must contain and abate it under the ELD. In doing so, the operator – or the competent authority – may discover that the natural resource is already damaged. If this damage occurred before 30 April 2007, the competent authority would need to apply environmental legislation other than the ELD to ensure its remediation. Other instances in which the damage would fall outside the ELD and, therefore, other legislation would be triggered, include the operation of the permit defence and damage having been caused by a non-Annex III operator who is strictly liable under other environmental legislation.
The potential for large polluting events to fall outside the ELD arises if, say, a non-Annex III operator whose activities caused the damage was not negligent (as in the Coussouls de Crau incident) or if it is not possible to establish a causal link between cumulative damage and specific operations.

9.7. FUTURE WORK

During the course of this project, a number of issues have been identified, whose further analysis would further facilitate an effective and possibly more efficient implementation of the ELD. These aspects are presented below.

9.7.1. RAISING AWARENESS OF OPERATORS

As discussed in the report, the response rate to the operators’ questionnaire has been disappointing. Being such an essential stakeholder group in this process, it will be difficult for the Commission to take further steps without gaining additional insight into the operators’ reaction to the ELD.

However, operators will only be in a position to comment on the ELD and their reaction to it if they are sufficiently informed on the issue. Operators will therefore need to be made more aware of their ELD-related liabilities and the need to cover them. It cannot be in the interest of the European Commission to rely on one significant ELD case to be covered in the media for operators to take action. Besides further efforts of insurers to market their ELD-related products, MS authorities (and perhaps the European Commission itself) will need to significantly increase their communication efforts in this respect. It should be stressed that this is not only in the interests of the efficient implementation of their national ELD transposition but also an obligation under Article 14(1) of the Directive that has been insufficiently targeted or ignored by many MS so far.

Based on the experience gained during this project, it is proposed to tackle this issue in the following way:

- Keep the same sector focus: The questionnaire that was part of this study was sent to the industry associations and federations of the following sectors: agriculture, waste and recycling, water supply and treatment, and manufacturing (food and beverages, chemicals, coke and petroleum, and metals). All of the stakeholders that this selection was presented as part of this study agreed that these are the most important sectors in this context. It is therefore proposed to further concentrate on these sectors in future operator consultations.

- Develop sector-specific information material for operators: This material should include general information about the ELD but also sector-specific implications of the Directive as well as examples of ELD cases in each specific sector, whether real or fictitious (see further below). The information material
should be distributed to the national federations and associations for their own consultation as well as for further distribution to their members.

- Organise sector-specific workshops with industry associations and federations with a twofold goal: Firstly, the workshops should be used to inform industry associations and federations about the ELD and its implications based on the information material provided to them beforehand and to discuss any questions and comments. Other stakeholders, such as competent authorities and providers of financial security instruments should be invited in order to ensure a fruitful discussion. Secondly, industry associations and federations need to be made aware of the role they should play in informing their members about the ELD and its implications.

- Depending on the outcome of these workshops, industry associations and federations might be approached with a new questionnaire. In line with the above, this should be sector-specific in order to ensure the highest response rate possible. Furthermore, it might be advisable to focus on these associations and federations instead of trying to reach their members directly as it can be anticipated to take time for the associations and federations to provide their members with the required information regarding the ELD.

- Organise workshops for brokers: The workshops, which could be organised with the assistance of brokers’ trade organisations, insurers and multinational brokers, would have a two-fold goal. Firstly, they would provide brokers with information about the ELD and potential gaps in cover for such liabilities under GTPL policies to enable them to provide such information to operators when they place insurance for them. Secondly, the workshops would encourage operators to insure themselves against ELD liabilities by making them aware, through brokers, of potential gaps in their insurance cover.

- Provide operators with information on financial security products for ELD liabilities: The Commission could prepare a publication, to be placed on the internet, that sets out details of providers of insurance policies and other financial security instruments for ELD liabilities. The publication could also include basic details about the ELD and financial security requirements in those MS that are adopting such requirements. The existence of the publication would help raise operators’ awareness of the ELD by making them aware that they are vulnerable to ELD liabilities as well as providing guidance on how to fill gaps in cover for such liabilities. As an illustration, the US EPA has prepared, and periodically updates, a List of Known Providers for Underground Storage Tank Owners and Operators to assist operators in complying with financial security requirements for USTs. The EPA publication includes details of brokers
and insurers who offer such products as well as basic information about the requirements.

- Furthermore, providers of alternative financial security instruments would need to be made aware of the market potential the ELD offers them. They could, for example, be provided with information about the activities that are currently excluded from most ELD-related insurance products, which would allow them to approach operators in these sectors directly.

### 9.7.2. Better Communication Among Stakeholders

The need for better communication among stakeholders was already pointed out in the previous study on “Financial Security Issues in ELD”. It has not become less relevant in the year that has passed since it was issued. What became apparent in this report is that the perception of the same situation can differ significantly depending on the stakeholder group that was questioned, e.g. the different assessment of the EU environmental insurance market by MS authorities and insurers. An important example in this context is also the lack of awareness on the part of MS authorities and operators of alternative financial security instruments. It can be said that this lack of communication is hindering the efficient implementation of the ELD, which is why the European Commission and/or MS authorities might want to think of providing a platform for this kind of communication.

Increased communication among stakeholders could also provide MS authorities with important information on how to encourage the development of a market for financial security instruments. As outlined above, this requirement of Article 14(1) of the Directive might require increased effort from MS authorities in the future.

### 9.7.3. Increased Focus on Alternative Financial Security Instruments

As discussed throughout the report, MS authorities as well as operators strongly focus on insurance regarding cover for ELD-related liabilities. In many cases stakeholders are not even aware of the availability of other instruments. However, as discussed above, depending on the activity in question and the type of operator, alternative financial security instruments might be the preferable or indeed the only option to cover liabilities under the ELD. Further information on these kinds of products should therefore be gathered and made available with a special focus on cover for SMEs. If applicable, this information would also assist MS in setting the terms for their mandatory financial security scheme.

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20 For further information, please see: [http://www.epa.gov/oust/pubs/inslist.htm](http://www.epa.gov/oust/pubs/inslist.htm)
9.7.4. **Further Development of ELD Case Database**

Media coverage of significant environmental incidents that fall under national law transposing the ELD will have an important effect on the development of the financial security market. The occurrence of such incidents will not only raise awareness but will allow insurers to develop expertise in handling ELD claims (provided, of course, that the operator has insurance for the damage). It is thus important that key information about this case will quickly be made available to all relevant stakeholders. It is therefore recommended that the ELD case database is further populated as cases appear and that information on them is made available to all stakeholders. Please see Annex II for the ELD case database.

An important point that might require further analysis is the difference in perception of and communication about ELD cases depending on the stakeholder. As discussed above, the number of stated ELD cases is significantly lower (or non-existent) for MS authorities than it is according to insurers. This difference can be a source of confusion for policy makers and operators who rely on accurate information on the number and nature of ELD cases in their MS and/or the EU. Ultimate sources of information on ELD cases will most likely remain to be MS authorities, as they will finally decide whether a case falls under the ELD or not. Although it is recognised that this has already been done in the past, further collaboration with these authorities is recommended in order to obtain the required information. It might be useful to request regular updates from MS authorities in this regard, which could consist in each MS filling in the ELD case template and the ELD case database for all cases reported within this period. The importance of these documents will need to be emphasised, as accurate ELD case information will play an important role in the efficient ELD implementation. In order to raise the awareness of operators, details of the cases (perhaps without identifying operators or precise locations) could then also be provided to national federations and associations, brokers and insurers. The information could also be provided to newspapers and journals whose readership is directed to operators, insurers and brokers.

Approaching other stakeholders in this regard might not be time and resource efficient, as experience has shown that more often than not stated ELD cases do actually not fall under the Directive according to the MS authority.

Finally, the ELD remains a new piece of legislation in many MS. Although the low number of currently available ELD cases complicates the European Commission’s reporting requirements, it should be kept in mind that further information on these cases will become available as they occur and as they are handled by the relevant stakeholders.
9.7.5. **DEVELOPING COMMON GUIDELINES AND MODELS**

As discussed in the report and mentioned by numerous stakeholders, a pan-European effort in the development of guidelines and models for ELD-relevant assessments and calculations would be a significant step in facilitating an efficient implementation of the Directive.

While calculations and models for complementary remediation, for example, were beyond the scope of the REMEDE project and still need to be further looked into, the REMEDE toolkit can provide useful insight into the assessment of natural resource damage and can serve as a starting point for the further refining of other models, both by MS and insurers.

9.7.6. **FURTHER RESEARCH INTO A GRADUAL APPROACH, CEILINGS FOR FINANCIAL SECURITY, AND THE EXCLUSION OF LOW-RISK ACTIVITIES**

Further research into the options of a gradual approach, ceilings for financial security and the exclusion of low-risk activities and their impact on ELD implementation might need to be conducted. This could provide the European Commission as well as MS authorities with more detailed knowledge of how the introduction of a compulsory financial security scheme could be facilitated without a significant decrease in the effective cover of environmental damage under the scheme.

Many of the different options of how to design a gradual approach, ceilings for financial security and the exclusion of low-risk activities discussed above are being (or are planned to be) implemented by MS that set up a compulsory financial security scheme. Further research into the feasibility and effect of these approaches could be conducted in close contact with those responsible for their implementation in order to gain further understanding of the reasons for their adoption.

What has become evident is that all MS that do implement a compulsory financial security scheme employ some form of the above-mentioned mechanisms in order to facilitate the introduction of the scheme. It will therefore be of importance to collaborate with these MS in ensuring that the chosen mechanisms are the right ones.
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ANNEX I – RELEVANT DEFINITIONS

Some of the definitions relating to financial security are taken from the 2008 CEA publication *Navigating the Environmental Liability Directive: A practical guide for insurance underwriters and claims handlers*.

- **Alternative financial security instruments**
  Instruments other than insurance that provide evidence of financial security for the costs of potential ELD-related liabilities.

- **Application of the ELD**
  The ELD requires operators to prevent an imminent threat of environmental damage and to remediate environmental damage when this occurs. Where environmental damage occurs, the operator is required immediately to take all practicable steps to control, contain, remove, or otherwise manage the pollutants or damage and to minimise the effects. In the longer-term, the operator is required to restore the damaged natural resource to the condition it was in immediately before the event giving rise to the damage occurred (in the case of water and protected species and natural habitats) or to remove the significant risk of an adverse effect on human health (in the case of environmental damage to land). The ELD provides for a range of remediation techniques from minimal intervention through “natural recovery”, to active remediation.

  The ELD provides that remedying of damage to protected species, natural habitats and water requires restoration of the environment to its baseline condition through primary and complementary remediation. Compensatory remediation may also be required.

- **Bank guarantee**
  An agreement by the financial institution that issues it to pay money from it to the governmental entity when requested to do so by the entity. A bank guarantee differs from a letter of credit in that the amount of the guarantee is only paid if the regulated company does not fulfil stipulated obligations.

- **Bank bonds**
  An instrument by means of which a bank agrees to pay a certain amount in the event that the person on behalf of which the bond is issued does not or is not in the position to pay itself.

- **Captive insurers/insurance companies**
  Captive insurance companies are insurance companies established with the specific objective of financing risks emanating from their parent group or groups, but they sometimes also insure risks of the group’s customers as well. Using a captive insurer is
a risk management technique by which a business forms its own insurance company subsidiary to finance its retained losses in a formal structure.

**Compensatory remediation (of environmental damage)**

Any action or combination of actions to compensate for interim losses of natural resources and/or services that occur from the date of damage occurring until primary remediation has been achieved.

**Complementary remediation (of environmental damage)**

Complementary remediation: Any remedial measure taken in relation to natural resources and/or services to compensate for the fact that primary remediation does not result in full restoration of the damaged natural resources and/or services.

**Competent Authority**

A competent authority, which is designated by a MS, is responsible, among other things, for:

- establishing which operator caused the damage or the imminent threat of the damage;
- assessing the significance of the damage; and
- determining which remedial measure should be taken (with reference to Annex II).

The competent authority is authorised, among other things, to require the responsible operator to carry out its own assessment, to provide information and necessary data, and to require responsible operators to carry out necessary preventive or remedial measures.

The aim of the ELD is remedying damage to the environment. Therefore it does not deal with traditional civil damages such as compensation for personal injury, property damage or economic loss.

**Determination of remedial measures**

Annex II to the Directive sets out a common framework to be followed in order to choose the most appropriate means to remedy damage. It is divided into two sections:

- Remediation of damage to water and protected species or natural habitats
- Remediation of land damage

An operator shall identify potential remedial measures and submit them to the relevant competent authority for its approval. The competent authority makes the final decision on the measures to be taken “with the co-operation of the relevant operator” as required. The competent authority can also prioritise which steps should be taken first - having regard to certain factors. Finally, the competent authority shall invite persons who are affected or likely to be affected by the environmental damage or who have a sufficient interest in it and the person on whose land the remedial measures
would need to be carried out, to submit their observations and take them into account. Any decision taken pursuant to the ELD which imposes preventive or remedial measures shall state the grounds on which it is based.

Such decision should be notified forthwith to the operator concerned, who shall, at the same time be informed of the legal remedies available to him/her under the laws in force in the MS concerned and of the time limits to which such remedies are subject.

- **Endorsements**

An endorsement is a written document attached to an insurance policy that modifies the policy by changing the coverage afforded under the policy. An endorsement can add coverage for acts or things that are not covered as a part of the original policy and can be added at the inception of the policy or during the term of the policy.

- **Environmental damage**

Environmental damage is defined by the ELD as damage to EU-protected species and natural habitats, water falling within the scope of the Water Framework Directive, and land contamination which presents a significant risk of an adverse effect on human health.

  - Damage to protected species and natural habitats is defined as:
    
    \[
    \text{any damage that has significant adverse effects on reaching or maintaining the favourable conservation status of such habitats or species}
    \]

  The significance of the effect is determined by reference to:

  - the conservation status at the time of the damage
  - services provided by the amenities produced by such habitats or species
  - their capacity for natural regeneration

  Annex I provides guidance in relation to how significant adverse changes to baseline conditions should be determined

  - Water damage is defined as:
    
    \[
    \text{any damage that significantly adversely affects the ecological, chemical and/or quantitative status and/or ecological potential, as defined in Directive 2000/60/EEC, of the waters concerned.}
    \]

  - Land damage is defined as:
    
    \[
    \text{any land contamination that creates a significant risk of human health being adversely affected as a result of the direct or indirect introduction, in, on or under land, of substances, preparations, organisms or micro-organisms.}
    \]
- Damage is defined as:

  a measurable adverse change in a natural resource or measurable impairment of a natural resource service which may occur directly or indirectly.

- Escrow agreements

  Under an escrow agreement, a deposit is made with a third party, such as a bank, that can only be released under conditions pre-determined in the agreement.

- Exceptions

  ELD does not apply various specified activities. They include an imminent threat of environmental damage arising from an incident in respect of which compensation falls within the scope of the international conventions listed at Annex IV and liability or compensation under nuclear conventions listed at Annex V.

- General third party liability (GTPL) Policies

  GTPL policies cover the insured’s civil liability to compensate third parties for bodily injury or property damage suffered by them, and in some cases financial losses incurred by them, arising from the business activity or property ownership of the insured party.

- Government schemes

  A scheme by which a regulated company may meet the requirements if commercial financial security mechanisms are generally unavailable (e.g. a fund into which taxes levied on the regulated companies are paid).

- Grade bond rating

  A grade given to bonds that indicates their credit quality. Private independent rating agencies such as Standard & Poor’s, Moody’s and Fitch provide these evaluations of a bond issuer’s financial strength, or its the ability to pay a bond’s principal and interest in a timely fashion.

- Gradual damage/pollution

  Environmental damage that occurs over a period of time, eg gradual leakage from a container, and is not caused by a sudden and accidental event such as a fire, explosion, etc.

- Hazardous materials

  Solids, liquids, or gases that can harm people, other living organisms, property, or the environment.

- Letters of credit
An agreement by the financial institution that issues it to pay money from it to a specified person (such as a governmental entity) when requested to do so by the entity.

- **Limits and sub-limits of liability**
  A specified amount in an insurance policy or other contract that limits the amount and/or aggregate amount, to be paid in the event of a claim(s) against the contract.

- **Occupational activities**
  Under the ELD operators of certain “occupational activities” are held strictly liable for any environmental damage caused by such occupational activities or any imminent threat of such damage. The term “Occupational Activities” has a wide definition which includes public and private activities, business and undertakings, regardless of whether these undertakings are for profit.

- **Operator**
  Any natural or legal private or public person who operates or controls the occupational activity or, where this is provided for in national legislation, to whom decisive economic power over the technical functioning of such an activity has been delegated, including the holder of a permit or authorisation for such an activity or the person registering or notifying such an activity.

- **Permit defence**
  When environmental damage is caused by an emission or event expressly authorised by, and fully in accordance with the conditions of, an authorisation conferred by or given under MS legislation listed in Annex III.

- **Prevention and remediation costs**
  An operator shall bear the costs for the preventative and remedial actions taken, with following exceptions:
  
  - If the operator can demonstrate that the environmental damage or threat of such damage was caused by a third party and occurred despite the fact that appropriate safety measures were in place
  
  - If the operator can show that the environmental damage resulted from compliance with a compulsory order or instruction emanating from a public authority (save where such an order was a consequence of an emission or incident caused by the operator’s own activities)

  In such cases the MS must indemnify them. At the option of a MS, an operator is not responsible if he was not at fault or negligent and the damage was caused by:
  
  - An emission or event which was authorised by national laws (the permit defence)
• An emission or activity which due to the state of scientific or technical knowledge at the time it was not believed it would cause the harm (the state-of-the-art defence)

A competent authority has discretion to recover, via security over the property or through other appropriate guarantees, the costs it has incurred in relation to the preventive or remedial actions. There is a limitation period of five years from the date of which remedial works have been completed or the liable operator or third party has been identified (whichever is later), within which time the competent authority must recover such costs.

**Preventive actions**

An operator has a duty to take preventive action to avoid environmental damage which has not yet occurred but of which there is an imminent threat.

If the operator’s measures do not eliminate the imminent threat, the operator must notify the competent authority of the situation.

The competent authority may, at all times:

- require the operator to provide information on any imminent threat of environmental damage or in suspected cases of such an imminent threat
- require the operator to take the necessary preventative measures
- give instructions to the operator to be followed
- take the necessary preventative measures itself, if it believes appropriate

The competent authority has a duty to require a liable operator to take preventive measures if it does not do so.

If the operator fails to comply with its obligations, or cannot be identified or is not required to bear the costs under the ELD, the competent authority may take these measures itself.

• **Remedial actions**

If damage has occurred, the liable operator has a duty without delay to take all practical steps to control/contain/remove or otherwise manage the relevant contaminants and/or any other damage factors, in order to limit or prevent other environmental damage and adverse effects on human health or further impairment of services.

The competent authority may

- require the operator to provide supplementary information about any damage that has occurred
- take all practicable steps to control/contain/remove or otherwise manage the contaminants to limit or prevent further damage
• require the operator to take such steps
• provide advices to the operator concerning all such steps

The competent authority has a duty to require a liable operator to take remedial measures if it does not do so.

Again, the competent authority may act itself if the operator fails to comply, cannot be identified or is not liable under the ELD.

- **Stand-alone environmental insurance policy**
  A separate insurance policy that covers liability for ELD and other environmental risks.

- **State-of-the art defence**
  When environmental damage is caused by an emission or activity which the operator demonstrates was not considered likely to cause environmental damage according to the state of scientific and technical knowledge at the time the emission or activity took place.

- **Self-insurance**
  A financial security instrument that depends on the financial position of the regulated company and for which the company does not purchase a third-party financial security instrument.

- **Surety bonds**
  Instruments under which banks and other financial institutions (including insurance companies) agree to pay a certain amount in the event that a regulated company (or other person) does not or is not in the position to pay.

- **Trust fund**
  A fund administered by a trustee on behalf of a beneficiary, to which the trustee owes a fiduciary duty. The beneficiary of a trust fund for environmental liabilities, into which the regulated company has placed assets, is the governmental entity.
## ANNEX II - ELD CASE DATABASE

### ELD Case Database

<table>
<thead>
<tr>
<th>Case code</th>
<th>Country</th>
<th>Location</th>
<th>Sector</th>
<th>Size of operator</th>
<th>Type of damage</th>
<th>Status</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES/07/1</td>
<td>ES</td>
<td>Canary Islands</td>
<td>Manufacturing (Coke and petroleum)</td>
<td>n/a</td>
<td>Combination of damages Damage to land</td>
<td>Not falling under ELD</td>
<td>Spain reported the above incident, not as an ELD incident but as an illustration of the use of the Resource Equivalency Analysis methodology under the ELD and, specifically, the use of Law 26/2007 on Environmental Liability. The Spanish authorities do not seem to treat the environmental damage to the Las Tablas de Daimiel national park as an ELD matter. The damage would, however, appear to fall under the ELD in respect of damage caused after 20 April 2007.</td>
</tr>
<tr>
<td>ES/09/1</td>
<td>ES</td>
<td>Las Tablas de Daimiel National Park</td>
<td>Agriculture</td>
<td>n/a</td>
<td>Damage to protected species and natural habitats</td>
<td>Assessment ongoing</td>
<td></td>
</tr>
<tr>
<td>FR/09/1</td>
<td>FR</td>
<td>Coussous de Crau nature reserve, Southern France</td>
<td>Manufacturing (Coke and petroleum)</td>
<td>n/a</td>
<td>Damage to protected species and natural habitats</td>
<td>Not falling under ELD</td>
<td>Due to the operation of the pipeline not being an activity under Annex III of the ELD, however, the operator will be liable under the ELD only if it was negligent. The competent authority subsequently determined that neither the groundwater nor the soil had been damaged by the oil spill but that the operator had caused previous oil pollution.</td>
</tr>
<tr>
<td>HU/07/1</td>
<td>HU</td>
<td>South Transdanubia region</td>
<td>Manufacturing (Other)</td>
<td>n/a</td>
<td>n/a</td>
<td>Not falling under ELD</td>
<td>The competent authority is monitoring progress, has begun enforcement action due to the operator failing to submit the remediation plan by the deadline for it.</td>
</tr>
<tr>
<td>HU/07/2</td>
<td>HU</td>
<td>Central Transdanubia region</td>
<td>Waste and recycling</td>
<td>n/a</td>
<td>Combination of damages</td>
<td>Remediation ongoing</td>
<td>The competent authority has begun enforcement action due to the operator failing to submit the required remediation plan by the deadline.</td>
</tr>
<tr>
<td>HU/08/1</td>
<td>HU</td>
<td>The Central Region</td>
<td>Other</td>
<td>n/a</td>
<td>Damage to protected species and natural habitats</td>
<td>Remediation ongoing</td>
<td>The Environment Agency concluded that the incident was not an ELD incident. Any solvent which had entered the estuary did not result in a lowering of its status under the Water Framework Directive due to dilution by the tidal flush, and had thus not exceeded the threshold for water damage under the English ELD legislation. The Agency further concluded that the risk of harm to aquatic life in the estuary and coastal waters was low.</td>
</tr>
<tr>
<td>MT/08/1</td>
<td>MT</td>
<td>n/a</td>
<td>Other</td>
<td>n/a</td>
<td>Combination of damages</td>
<td>Remediation ongoing</td>
<td></td>
</tr>
<tr>
<td>UK/09/1</td>
<td>UK</td>
<td>Next to the English coast</td>
<td>Manufacturing (Chemicals)</td>
<td>n/a</td>
<td>n/a</td>
<td>Not falling under ELD</td>
<td></td>
</tr>
<tr>
<td>Case code</td>
<td>Description of Incident</td>
<td>Stakeholders Involved</td>
<td>Description of collaboration of stakeholders involved</td>
<td>Method used to decide on extent of damage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>-------------------------</td>
<td>-----------------------</td>
<td>--------------------------------------------------------</td>
<td>------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DG/09/11</td>
<td>An accident at a clarification plant on an industrial site resulted in mud being discharged from the site onto one square kilometre of a bog forest. The mud caused environmental damage to the soil and groundwater and threatened to cause environmental damage to a river which it entered via a ditch. The bog forest and the section of river that was damaged by the mud is a Flora-Fauna-Habitat (FFH) site that is protected under the Natural Habitats Directive (Directive 92/41/EEC). In addition, the section of river is protected under the Water Framework Directive (Directive 2000/60/EC).</td>
<td>Competent authority, operator, insurer</td>
<td>Cooperation between the operator, its insurer and the competent authority was described as good, which led to the costs for preventive and remediation actions being kept to a minimum</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES/07/1</td>
<td>A pipe line carrying fuel oil from a refinery to a water decontamination plant ruptured on a beach at Las Palmas on the Canary Islands. Fifteen tons of oil entered the sea and subsequently contaminated the sandy beach due to being washed ashore by the tide. In the summer of 2009, smoke was observed from former wetlands and shallow lagoons at the Las Tablas de Daimiel national park. The smoke came from fires that had self-combusted in the dried-out peat beneath the park. The park, which covers 1,288 hectares at the confluence of the Guadiana and Cigüela Rivers in the plain of the Mancha, is underlain by Aucifer 23 (Aquifer 23) which extends over 300 square kilometres. Farmers had been growing water intensive crops such as corn and sugar beet in the area surrounding the park and had begun irrigating them by various methods, including pivot sprinklers, from wells sunk deep into the aquifer. Some wells as legal, others are illegal. The park began to dry out as the wells drained water from it, resulting in a dramatic lowering of the water table.</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FR/08/1</td>
<td>Over 4,000 cubic metres of crude oil spilled from an underground pipeline onto two hectares of the Coussouls de Grau nature reserve, which is adjacent to the Camargue national park in Southern France.</td>
<td>Competent authority, operator, insurer</td>
<td>The competent authority, the Ministry of Ecology, Energy and Sustainable Development and the Sea, is consulting with the operator and its insurers regarding remediation of the environmental damage. The operator notified the competent authority, the South-Transdanubian Inspectorate for Environment, Nature Conservation and Water, and instructed environmental consultants to investigate the spill.</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HR/07/1</td>
<td>Whilst carrying out an inventory at a cement factory during the second half of 2007, the operator discovered that oil had been spilled during refuelling activities.</td>
<td>Competent authority, operator</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

- Following government decree of 15/7/2007, which develops the methodology of how to decide the extent of the damage and the appropriate remediation measures to take for the case of the oil spill that occurred near Las Palmas on the Canary Islands.
- The competent authorities have required the operator to increase its pollution control measures and to remEDIATE the damage.
## ELD Case Database

**Remediation measure(s)**

<table>
<thead>
<tr>
<th>Case code</th>
<th>Method used to decide on remediation measure</th>
<th>Type of remediation</th>
<th>Expected length of remediation measure(s)</th>
<th>Actual length of remediation measure(s)</th>
<th>Expected costs of remediations measure(s)</th>
<th>Actual costs of remediations measure(s)</th>
<th>Further information on the remediation measure(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE/09/01</td>
<td>n/a</td>
<td>Primary</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>&lt; €1m</td>
<td>n/a</td>
</tr>
<tr>
<td>ES/07/1</td>
<td>n/a</td>
<td>Primary</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>ES/09/1</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>FR/08/1</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>HU/07/1</td>
<td>n/a</td>
<td>Primary</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>The operator is remediating the damage by grading the rubble and waste and covering it with soil. The reclaimed area is being planted to re-establish the biodiversity of the vegetation.</td>
</tr>
<tr>
<td>HU/07/2</td>
<td>Following government decree of 91/2007, which develops the methodology of how to decide the extent of the damage and the appropriate remediation measures to take</td>
<td>Primary</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>HU/08/1</td>
<td>Following government decree of 91/2007, which develops the methodology of how to decide the extent of the damage and the appropriate remediation measures to take</td>
<td>Primary</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>MT/08/1</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>It was known during the investigation of the incident that the groundwater near to the factory was already contaminated and competent authorities were already applying other environmental legislation to that contamination.</td>
</tr>
<tr>
<td>UK/07/1</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>
### ELD Case Database

#### Financial security

<table>
<thead>
<tr>
<th>Case code</th>
<th>Availability of financial security</th>
<th>Type of financial security</th>
<th>Percentage of damage covered by financial security</th>
<th>If financial security did not cover full remediation costs, who came up for them</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE/09/01</td>
<td>Yes</td>
<td>Insurance</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>ES/07/1</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>ES/09/1</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>FR/09/1</td>
<td>n/a</td>
<td>Insurance</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>HU/07/1</td>
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## ELD Case Database

Contact details for key stakeholders

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