



# **F-SEVESO**

## **Study of the effectiveness of the Seveso II Directive**

Contract n°070307/2007/476000/MAR/A3

### **Annex 1B**

## **Detailed analysis of the results of the surveys (interviews)**

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## 1 Introduction

This annex is based on the information collected through the 23 interviews carried out until 6<sup>th</sup> June 2008, during the second phase of the F-Seveso survey. It presents a detailed analysis of the inputs provided by all stakeholder categories: Industry associations, Industry operators, Competent Authorities (CA) and Others, from different EU Member States.

The distribution of the number of interviews was the following:

- Industry Associations = 6
- Industry operators = 9
- Competent Authorities = 5
- Others = 3

The aim of the interviews was to deepen some responses of the questionnaires and to obtain additional information about important issues related to the Seveso II Directive that could improve its implementation (risk communication, risk management, human factors, etc). Therefore, new questions were proposed to the participants, looking for more specific information. They dealt with technical aspects, regulations, the level of safety on Seveso sites, knowledge and skills of the different experts, communication between stakeholders, level of requirements, current situation related to safety performance, etc.

This annex is organized in 2 main parts.

First, the method and the approach implemented are described: Topics and questions proposed during the interviews and a short explanation of the procedure performed by the team of interviewers.

Then, the detailed analysis of the results is organized according to topics corresponding to the implementation of the Seveso II Directive. The information collected is summarized in two points: first, the analysis of the current situation and then, the proposed recommendations. For some other topics, the information collected is organized by sub-chapters in order to structure in a clear way the abundant information provided by the interviewees.

## 2 Method for the interviews

### 2.1 Topics for the interviews

The interviews were based on the topics presented in Table 1 and a series of new open questions (see Table 2).

The topics proposed for the interviews are structured according to the Risk Management Dimensions as proposed in the Shape-Risk project (see references in the main part of the report, and <http://shaperisk.jrc.it>).

The Table 1 indicates the topics selected by the participants (with a "√"), and the topics not covered (not selected by the interviewees) are marked with an "x". The list of topics was sent before the interviews. The participant had the choice to select 6 to 8 topics from the list of 17 topics.

The interviews were performed either by telephone or during face-to-face discussions lasting between 40 min to 1h30.

**Table 1: List of topics proposed for the interview**

Risk Management Dimension	Topics	Ref.	IND	CA	OTHER
<b>Technical/ Technological (T)</b>	Existence of guidance document, more or less specific, and relation of Seveso requirements with existing standards	T1	√	√	√
	Diversity of tools, data and methods versus need for reference tools, data and methods within EU	T2	√	√	√
	Diversity of tools to implement SEVESO and other "safety" Directives (safety at work, IPPC, ATEX...), and relations between the tools, consistency with BREF documents	T3	√	x	√
	Comparison between level of safety for Seveso establishments, upper and lower tiers and non Seveso establishments	T4	√	√	√
<b>Human/ Management (H)</b>	Education, training and accreditation of experts	H1	√	√	√
<b>Governance/ Communication (C)</b>	Risk communication towards the public	C1	√	x	√
	Involvement of the public and relevant stakeholders in the decision making process	C2	√	x	√
	Dialog with the population and creation of a risk culture, emergency culture	C3	x	x	√

Risk Management Dimension	Topics	Ref.	IND	CA	OTHER
<b>Policies/ Regulations (R)</b>	Consistency of Seveso with other Directives and important regulatory texts (safety at work, IPPC, ATEX, EIA Directives, REACH, GHS)....	R1	X	√	X
	The various uses of the safety report (different objectives to deliver the permit to operate or for land-use planning or emergency plans)	R2	√	√	√
	Real reduction of the major accident rate	R3	√	X	√
	Use of indicators to measure the performance related to major accident	R4	√	X	√
	Proportionality of the requirements / what are the most important requirements	R5	√	√	√
	Level of compliance between lower tiers and upper tiers	R6	√	√	√
<b>Financial/Costs/Resources (F)</b>	Costs and resources, education and level of knowledge required to prepare/review the safety reports, monitoring and management approaches (maintenance of the plans, the reports...)	F1	√	X	√
	Adaptability of the regulatory framework to the business dynamic	F2	√	X	√
	Analysis of possible market distortions	F3	√	√	√

**Legend:**

- √ : topic selected during the interview
- X: topic not covered during the interview

New open questions were prepared for the 3 stakeholder categories but not all were covered during the interview. The aim was to propose open questions to leave the interviewees talk.

The new questions are presented in Table 2. They were used as a guideline to perform the interviews but they were not asked *in extenso*.

**Table 2: New questions introduced for the interviews**

Reference	Topics	New questions introduced for the interview
T1	Existence of guidance document, more or less specific, and relation of Seveso requirements with existing standards	<ul style="list-style-type: none"> <li>What do you think about the approach(es) implemented in your country / in Europe? (2)</li> <li>If you consider more guidance is needed, what should it cover? (2)</li> <li>Do you think that some standards should be clearly identified or referred to in the Seveso Directive or in guidance for implementation: e.g. IEC 61508 &amp; 61511, ISO 31000...?</li> </ul>

Reference	Topics	New questions introduced for the interview
T2	Diversity of tools, data and methods versus need for reference tools, data and methods within EU	<p>Industry:</p> <ul style="list-style-type: none"> <li>▪ You know that the tools, the thresholds, the data used for risk assessment are not the same in all Member States. What do you think about this situation? about the diversity of tools used in Europe?</li> <li>▪ There was an initiative led by MAHB to create a common database with all relevant information for risk assessment in the context of Land-Use Planning  (<a href="http://landuseplanning.jrc.it">http://landuseplanning.jrc.it</a>). What do you think about the creation of a European database to be used by all Member States? Would you be ready to contribute to it and/or to use it? If yes, how? If not, why not?</li> </ul> <p>Others:</p> <ul style="list-style-type: none"> <li>▪ How do you manage with this diversity of available tools?</li> </ul>
T3	Diversity of tools to implement SEVESO and other "safety" Directives (safety at work, IPPC, ATEX...), and relations between the tools, consistency with BREF documents	<p>Industry:</p> <ul style="list-style-type: none"> <li>▪ It appears that there is a diversity of tools and approach to implement SEVESO and the other "safety" Directives (safety at work, IPPC, ATEX...). What do you think about this situation? about the diversity of tools used in Europe?</li> <li>▪ If there are unnecessary overlaps in legislation, what are they and how can these be reduced?</li> <li>▪ What do you think about the consistency of the BREF documents regarding safety issues? Do you see any improvement? If actions are needed, which ones? If not, why not? How do you see this topic linked to the new re-casted IPPC Directive and the current workload of IPPC-Bureau on the BREF reviews?</li> </ul> <p>Others:</p> <ul style="list-style-type: none"> <li>▪ How do you manage with this diversity of available tools?</li> </ul>
R1	Consistency of SEVESO with other directives and important regulatory texts (safety at work, IPPC, ATEX, EIA Directives, REACH, GHS)....	<ul style="list-style-type: none"> <li>▪ It appears that there is a diversity of tools and approach to implement SEVESO and the other "safety" Directives (safety at work, IPPC, ATEX...). What do you think about this situation? about the diversity of tools used in Europe?</li> <li>▪ What do you think about the consistency of the BREF documents regarding safety issues? Do you see any improvement? If actions are needed, which ones? If not, why not? How do you see this topic linked to the new re-casted IPPC Directive and the current workload of IPPC-Bureau on the BREF reviews?</li> </ul>
T4	Comparison between level of safety for Seveso establishments, upper and lower tiers and non Seveso establishments	<ul style="list-style-type: none"> <li>▪ Have you any information about the level of safety for Seveso establishments, upper and lower tiers and non Seveso establishments?</li> <li>▪ Do you think that the level of requirements for these types of establishments is proportionate? should it be improved?</li> </ul>
H1	Education, training and accreditation of experts	<ul style="list-style-type: none"> <li>▪ What do you think about the knowledge and skills required to manage risks in a Seveso establishment?</li> <li>▪ Would it be beneficial to have training of industry organized by the authorities to give common basis to prepare the safety reports? (like it is organized in the Walloon region of Belgian)?</li> <li>▪ What do you think about the accreditation of safety manager, or of consultants providing support to industry?</li> </ul>

Reference	Topics	New questions introduced for the interview
C1	Risk communication towards the public	<ul style="list-style-type: none"> <li>▪ How is the communication with the public and other stakeholders organized? Is there a structure, a committee to address major accident hazard prevention with the public? (example in France with CLIC)</li> <li>▪ Is there room for fine-tuning and need for new cost-effective and better targeted approaches?</li> </ul>
C2	Involvement of the public and relevant stakeholders in the decision making process	<ul style="list-style-type: none"> <li>▪ How are the public and other stakeholders involved in the risks decision making process? Is there a structure or a regulatory framework to consult and involve the public/stakeholders?</li> <li>▪ Do you take specific actions contributing to the creation of a risk or emergency culture?</li> <li>▪ Is there room for fine-tuning and need for new cost-effective and better targeted approaches?</li> <li>▪ Do you see any other possibility to involve the public and other stakeholders? (Investigate if people think that the more effective approach is "willingness based" or "framed by regulations")?</li> </ul>
C3	Dialog with the population and creation of a risk culture, emergency culture	<ul style="list-style-type: none"> <li>▪ How do you take part in the dialog with population?</li> <li>▪ Is there room for fine-tuning and need for new cost-effective and better targeted approaches?</li> </ul>
R2	The various uses of the safety report (different objectives to deliver the permit to operate or for land-use planning or emergency plans)	<ul style="list-style-type: none"> <li>▪ Do you think that specific reports should be elaborated for each purpose of the risk management: e.g. a report for the deliverance of the permit to operate (with the demonstration of the performance of the safety barriers...), a specific report for emergency plans (with worst case scenarios only), a report for Land-Use Planning (with scenarios considering some mitigating measures), a report on the benefits of the industrial activity (economics, employment, availability of goods...)?</li> <li>▪ According to the IRGC framework, it is proposed to assess the concerns (fears, emotions...) of the public to take them into account for the decision making process. What do you think about this suggestion?</li> <li>▪ Are the different roles/purposes of the SR, SMS and MAPP clear? Should they be clarified / streamlined?</li> </ul>
R3	Real reduction of the major accident rate	<ul style="list-style-type: none"> <li>▪ What do you think about the impact of the Seveso Directive on the overall accident rate in Europe?</li> <li>▪ Do you think that the improvement of the situation is the consequence of the technological progress or the impact of the regulations, or both? What is the main driver: regulation or competition?</li> </ul>
R4	Use of indicators to measure the performance related to major accident	<p>Industry:</p> <p>Do you communicate on your performance related to major accidents? If yes how, and to whom? What is the impact? the benefits?</p> <p>CA:</p> <ul style="list-style-type: none"> <li>▪ Are the frequency of industries controls based on the industrials' indicators? Other method?</li> <li>▪ Are the indicators of the competent authorities similar to the industrials' ones? If not, why not? If yes, how was this</li> </ul>

Reference	Topics	New questions introduced for the interview
		<p>achieved?</p> <p>Others:</p> <ul style="list-style-type: none"> <li>▪ Do you think that industrials' indicators are useful?</li> </ul>
R5	Proportionality of the requirements / what are the most important requirements	<ul style="list-style-type: none"> <li>▪ What are, for you, the most important requirements? What are the least important/necessary?</li> <li>▪ Which requirement should be addressed or improved in the framework of a new SEVESO Directive? (for example: human factor/behavior, integration of the risk perception in the decision making process...)?</li> </ul>
R6	Level of compliance between lower tiers and upper tiers	<p>Industry:</p> <ul style="list-style-type: none"> <li>▪ Do you think that having a SMS should be compulsory also for lower tiers establishments?</li> </ul> <p>Others:</p> <ul style="list-style-type: none"> <li>▪ Do you agree with the level of requirements between lower and upper tiers establishments?</li> </ul>
F1	Costs and resources, education and level of knowledge required to prepare/review the safety reports, monitoring and management approaches (maintenance of the plans, the reports...)	<ul style="list-style-type: none"> <li>▪ What is your opinion regarding the costs of fulfilling the requirements of the Seveso directive? and the benefits?</li> </ul>
F2	Adaptability of the regulatory framework to the business dynamic	<p>Industry:</p> <ul style="list-style-type: none"> <li>▪ Do you have any more information regarding the impact of the Seveso Directive on the European Industry competitiveness and the business dynamic?</li> <li>▪ Does Seveso improve the competitiveness of the European Industry or on the contrary, it has a negative impact on the business such as undue productivity losses, negative trade balance influences &amp; capacity to absorb new technologies within Europe – please elaborate, qualify and quantify, if possible?</li> </ul> <p>CA:</p> <ul style="list-style-type: none"> <li>▪ What is your opinion regarding the impact of the Seveso directive on the European Industry competitiveness and the business dynamic?</li> <li>▪ Does Seveso directive improve the competitiveness of the European Industry or on the contrary, it has a negative impact on the business such as undue productivity losses, negative trade balance influences &amp; capacity to absorb new technologies within Europe – please elaborate, qualify and quantify, if possible?</li> </ul>
F3	Analysis of possible market distortions	<p>Industry:</p> <ul style="list-style-type: none"> <li>▪ Do you have any further information to back up your views on market distortions?</li> </ul> <p>CA:</p> <ul style="list-style-type: none"> <li>▪ Do the differences in the implementation of the Seveso directive in Europe generate market distortion within Europe</li> </ul>

Reference	Topics	New questions introduced for the interview
		<p>because of reasons such as undue productivity losses, negative trade balance influences &amp; capacity to absorb new technologies within Europe or others (please elaborate, qualify and quantify, if possible)?</p> <ul style="list-style-type: none"><li>▪ What is your opinion regarding the level of requirements in Europe, compare to other countries? Is it higher or lower? Is it an advantage?</li></ul>

## ***2.2 Organization of the interviews***

The interviews were made as follows:

23 interviews were performed either by telephone or by face to face discussions lasting between 40 min to 1h30, from 21 April to 6 June 2008.

The topics and the new questions were sent to the participants a few days before the discussion in order to allow them to prepare the answers to the questions. They were asked in advance to select 6 to 8 topics to be covered during the time allocated.

The interview started with a presentation of the F-Seveso project and then the participant had the choice of the topic of preference to start the discussion.

Old questions from the questionnaire were sometimes reminded and the new questions were used as a guidance to perform the interview.

But, according to the discussion with the Steering Committee to prepare the interview phase, it was agreed to use as much as possible open questions and "let the interviewee talk".

During some of the discussions, good practices, problems and recommendations were asked when it was possible.

The interviewer took some notes during the discussions. The information was then validated by the participant for the later analysis.

At the end of the interview, to most of the participants, the question "do you have additional comments?" was asked to leave them express their opinion and wishes about possible improvements of the Seveso II Directive.

### 2.3 List of the interviews

In total, 23 interviews were performed, in order to have a representative sample from all EU Member States. The number of participants from each category and the type of organization are presented in table 3:

**Table 3: Categories of interviewees**

Categories	Organization	Industrial sector / Organization type
Industry associations: <b>6</b>	European Association from Oil Industry	Petrochemical
	European Association in the Chemical Sector	General Chemicals Manufacture
	European Association in the Gas Sector	Wholesale and retail storage
	European Association in the Process Industry	Several categories, but mainly "General Chemicals Manufacture"
	European Federation of Chemical Associations	General Chemicals Manufacture
	French Association in the Explosives and Pyrotechnical sector	Production and Storage of explosives
Industry: <b>9</b>	Industry representative in France	Petrochemical, Multinational Company
	Industry representative in Hungary	General Chemicals Manufacture, National Company
	Industry representative in Sweden	Chemicals, Plastics and Rubber Manufacture, SME
	Industry representative in UK	Chemical and Pharmaceutical Manufacture, Multinational Company
	Industry representative in France	General Chemical Manufacture, Multinational Company
	Industry representative in Spain	Petrochemical, National Company
	Industry representative in the Netherlands	Petrochemical, Multinational Company
	Industry representative in France	General Chemical Manufacture, SME
	Industry representative in Italy	General Chemical Manufacture, Multinational Company
CA: <b>5</b>	CA representative in Spain	National
	CA representative in France	Regional
	CA representative in Sweden	National
	CA representative in Italy	Regional
	CA representative in Germany	Regional
Other <b>3</b>	EU Non governmental organization	Not applicable
	EU trade union	Not applicable
	German Association	Not applicable

### 3 Analysis of the interviews

#### ***3.1 Topic T1. Existence of guidance documents, more or less specific, and relation of Seveso requirements with existing standards***

18 interviewees provided inputs for this topic, and 1 contribution from "additional comments" was included here.

9 interviewees expressed their vision about guidance documents: 4 CA from (Germany, Italy, France and Spain), 2 operators (from Hungary and France).

##### **3.1.1 European guidance documents**

7 of the interviewees (2 EU industrial associations, 4 operators and 1 CA) agree that guidance documents should be developed at EU level.

An EU industrial association states that the development of harmonized European wide guidance documents with the involvement of the industry would be beneficial. With Seveso II it is because it is a Directive, which will be enacted in different ways through out the 27 states only compounding the lack of harmonization. Therefore, National regulations become more important as to operate you need to comply within the national rules you operate in. However, it must be stated that we are not suggesting changing Seveso II into a Regulation. But then, enforcers (the competent authorities, especially at the local level) must be also in line with the guidance documents.

The costs for the development of guidance documents with the involvement of the industry is very high, therefore it is important to select the industrial sectors having priority. For example in UK there are 32 trade associations, they cannot all develop guidance documents.

The interviewees were not aware of the MAHB initiative to develop a Risk and Hazard Assessment Database, <http://landuseplanning.jrc.it/home.html>. The interviewees are in favor of such a process with a European working group involving industry.

The SRAM documents (COMAH - Safety Report Assessment Manual V2) revised in 2005 are mentioned as effective documents by the interviewee. See URL: <http://www.hse.gov.uk/comah/sram/index.htm>

Further comments collected during interviews are presented below.

- An EU industrial association points out that initiatives to develop common guidance documents always end up with the "lowest common denominator" guidance, because of the political behavior of the competent authorities. The actual method of work does not produce the outcomes expected. To reach a political consensus among the Member States will need a lot of effort.

If there is an initiative to work on the development of European guidance documents, this association will be willing to contribute, but with low expectations.

- A Swedish operator indicates that Seveso II brings benefits because even if the practices are different across Europe, the regulatory framework is comparable in the European countries. In the past, it was different, and more confused.

He states that it would be better to have a common European Guidance document. He mentioned his participation in the project SMMARTEN\*, and he said that it was helpful to share experiences within this project, and to see the necessity to have the same tools everywhere.

\* Relevant links related to SMMARTEN project:

<http://mahbsrv.jrc.it/antwerp/smmarten/sld001.htm>

<http://www.microrisk2001.gr>

<http://mahbsrv.jrc.it/smmarten.html>

[http://www.microrisk2001.gr/Medin\\_paper.doc](http://www.microrisk2001.gr/Medin_paper.doc)

- An operator in UK explains that there is a lot of quite detailed information made available by the CA in UK. He tells that for example, CA provides the manuals for inspectors which is very helpful to exactly know the expectations and the level of details.

See URL: <http://www.hse.gov.uk/foi/internalops/index.htm#class2>

- An operator in the Netherlands states that similar approaches across Europe would be better; he explains that in Netherlands the Land-Use Planning influence the choice of the approach for risk assessment. In the Netherlands, QRA is needed because of the lack of space, and it is not the case in other EU countries.

He mentions that in NL, the national transposition of Seveso II Directive is more severe than the original EU legislation.

He indicates that harmonization at EU level would be beneficial: to have the same rules in all EU countries (e.g. preparation of SR).

- A Spanish CA is aware of the EU and National guides and indicates that in Cataluña, the CA has developed guidance on land-use planning and QRA (Quantitative Risk Analysis).

The authority comments that EU guidance documents are general; some have been very useful for them (like "Safety Management System Guidance") to develop their own protocol but often they provide general recommendations and don't deep into details.

### 3.1.2 National guidance documents

- An EU industrial association says that the existence of guidance documents is necessary, because i) Industry need to be helped, and ii) regulation changes. He indicates that guidance documents should be developed with the involvement of the Industry.
- A German CA and a French industrial association point out that guidance documents should be developed at National level.
- A German CA representative comments that his institution is aware of the EU and national guidelines related to the application of Seveso II and related areas, like LUP, SR, etc.

General opinion about the EU additional documents and guidelines is that they are not necessarily (especially not directly) applicable for the need of daily work of CA and inspectors or other actors involved in the process (owners, operators, etc.)

In the daily practice, anyhow, the applicability and application of national law and regulations are a priority and everything what is used must be placed first into the procedures (e.g. review and approval of the safety reports, reporting of accident, etc.)

He indicates that an important point is that additional EU guides must be harmonized with the daily practices governed by the national legislation and "good practice". In the countries with "federal structure" the need for optimizing the whole system is even bigger, due to the existence of laws and regulation at both federal level and the level of each federal unit (region). If the administrative organization at the level of each federal unit is or can be different, like in Germany, the issue may become even more complex (different ministries responsible, different offices, etc.).

- A German association (Others category) comments to be aware of the national guidance documents prepared by the CA for the implementation of Seveso II Directive. He states that large industries have its own guides available at National or EU level but for small industries, it has to be developed.

### 3.1.3 Recommendations

Recommendations made during interviews are presented here.

- An EU industrial association suggests to develop guidance documents at 2 levels:
  1. A high level guidance document for Seveso II Directive to present an overview, the doctrine of what is needed to be done.
  2. Guidance documents for individual industries: Every industry/sector is different. It would be useful to have a specific document for each type of industry. (e.g. there are some good documents developed by HSE, in UK).

- Another EU industrial association suggests giving a legal status to the guidance documents as it is the case in UK of the "Approved Code of Practices" (ACOP). He states that for a EU guidance document to be effective, it may be necessary to develop it into a type of ACOP throughout Europe, and it must be assured that the National CA will use it. This type of document has a legal value as shown in the statement below:

*"This Code has been approved by the Health and Safety Commission with the consent of the Secretary of State. It gives practical advice on how to comply with the law. If you follow the advice you will be doing enough to comply with the law in respect of those specific matters on which the Code gives advice. You may use alternative methods to those set out in the Code in order to comply with the law. However, the Code has a special legal status. If you are prosecuted for breach of health and safety law, and it is proved that you did not follow the relevant provisions of the Code, you will need to show that you have complied with the law in some other way or a Court will find you at fault."*

- An operator in the Netherlands mentions that sharing data and best practices is important to reduce diversity of tools, methods at EU level. He suggests to organize working groups with different Member States because National CA don't know what other countries are doing, industry neither but it is not the priority.
- An EU industrial association says that standards could be referenced in the Seveso II Directive.
- Another EU industrial association indicates to improve the process with the following suggestions:
  - EU Guides should not be too detailed (only National guidance documents);
  - Before developing guidance documents, to check specific topics and define if it is worth to create a working group to go into details;
  - To estimate the costs and benefits of the harmonization of the implementation of the Seveso Directive before promoting the harmonization.

5 interviewees (4 CA and 1 operator) recommend developing new specific guidance documents at EU level:

- For a French operator: risk acceptability criteria and harmonized probability classes in Europe.
- For a French CA: a guidance document with principles for the performance of the risk analysis of a Safety Report.
- For an Italian CA representative: harmonize criteria to elaborate the Safety Report.

- For a Spanish CA representative: SMS, land-use planning, threshold limits for toxic substances and Carcinogens.
- For a German CA: training and education of inspectors.

Additionally, 2 EU industrial associations point out that guidance documents should be developed with the involvement of the Industry. A Spanish operator points out the need for guidance document to be practical.

### ***3.2 Topic T2. Diversity of tools, data and methods versus need for reference tools, data and methods within EU***

12 interviewees provided inputs for this topic, and 1 input from additional comments was included here.

#### **3.2.1 Current situation including problems and weaknesses**

A majority of respondents for this topic (1 EU industrial association and 3 CA) agree that developing common methods/tools/approaches at EU level would be useful to improve the quality of the information related to the Safety Report, SMS, especially the risk analysis issue. Some specific comments are presented here:

- An EU industrial association says that in Europe, there are a lot of practices and some people want to harmonize them and some others don't want to change. They recognize that the quality and credibility of the Safety Report (and process safety in general) would benefit from some standardization of methods and threshold values. However, to ensure high quality and to reduce the burden of updating the SR according to a new harmonized European standard, it should be developed in close cooperation with industry and implemented gradually over a long term.
- A French CA comments that there is a problem regarding the diversity of tools and guidance: there is no specific homogeneity.
- A Spanish CA points out the need of reference regarding the measurement of the quality of the implementation of the SMS. For example, inspections (annually mandatory for upper tier sites) include inevitable subjective valuations. He suggests the development of common indicators for the SMS performance. This suggestion could be articulated with a working group with representatives from CA and Industry from different Member States. He comments that experiences, tools, data, methods etc. developed in Europe or in other Member States are always welcome and useful as a reference. Additionnally he explains that each National CA has experience on Seveso II implementation and they have developed their own models (that will be in continuous improvement from experiences). Therefore, the applicability and adoption of new references would depend on multiple factors (the need of that reference by the Member State, the moment, the adaptability with legal frame and its opportunity).
- An Italian CA focuses in the probabilistic approach on his country. He suggests that large companies should perform research on failure data, and should provide these realistic data for the Fault Tree Analysis (FTA). Also he suggests that FTA should be improved with sensitive analysis (Monte Carlo) in order to achieve more realistic figures. Otherwise, results are not realistic (only medium values) and they are very important because CA have to use them for land use planning and to decide the thresholds values of the assessed risk. In the Seveso

Directive should be present a European common approach to decide the thresholds values of the assessed social risk taking also into account the possible domino effects.

### **3.2.2 Recommendations**

5 interviewees (2 industrial associations and 3 CA) suggest harmonizing criteria regarding the Safety Report, the SMS and the risk analysis in general.

An Italian CA makes some recommendations regarding the probabilistic approach used in Italy:

- For large companies to make a research on Failure data in order to obtain more reliable data for the Fault Tree Analysis (FTA).
- To improve the Fault Tree analysis with a sensitive analysis (Monte Carlo) in order to obtain more reliable data to be used for the land-use planning and to decide the thresholds values of the assessed risk.

Additionally he suggests to develop an EU common approach to determine the thresholds values for the assessed risk, taking into account the possible domino effects.

An Italian CA recommends the need to develop common tools, guidance documents and short cut methods for the application of the Seveso Directive on establishments with dangerous waste. The difficulty is the great variability of the waste in time.

### ***3.3 Topic T3. Diversity of tools to implement SEVESO II and other "safety" Directives (safety at work, IPPC, ATEX...), and relations between the tools, consistency with BREF documents***

9 interviewees provided inputs regarding this topic, and 2 inputs from additional comments were included here.

#### **3.3.1 Current situation, including problems and weaknesses**

6 interviewees (2 EU industrial associations and 4 operators) mention some overlaps or not clear links between Seveso II and other Directives. The links need to be clarified.

Additionally one of them points out that it is difficult to see the link between Seveso II Directive and the new GHS system (Globally Harmonized System of Classification and Labeling of Chemicals). He expresses the following questions:

- What are the links between the Seveso II classification and the GHS system?
- What will be the links between the French classification and the GHS system?

A consequence of the overlaps is pointed out by a Swedish operator who explains that there are 3 different legislations in Sweden for HSE. The authorities come every year on the site at the same time. They coordinate their visit. But the situation can be different in other regions. From his point of view, the focus during the inspections depends strongly of the inspectors.

He tells that there is always one inspector who has a stronger opinion than the others and in his case, the occupational health is leading, then safety and then the environment. Therefore, the inspectors are coordinated for the visit, but the approach is not integrated.

2 interviewees, an Italian operator and a German association (Other category) mention some aspects related to the consistency of Seveso II Directive and other Regulations and BREF documents. In particular, an Italian operator comments about the BREF documents, that it is difficult to include safety issues due to the great variety of installations, processes and products.

A Swedish operator points out that the Responsible Care Programme is very important in the Chemical Industry and is linked with ISO 14000 and 18000. Also the commitment from the managers is very important.

### 3.3.2 Recommendations

Regarding the overlaps between Directives, 3 interviewees express the following:

- An EU industrial association points out the need of more dialogue at government stakeholders. He adds that consultation to all stakeholders is needed but it should be faster and anticipated.  
Additionally he comments that the modification of an EU regulation should be an HAZOP-like process; it should be part of the impact assessment to anticipate the impacts on the other regulations.
- A German association states that unnecessary overlaps in legislation can be reduced especially using standardization.
- An operator in UK indicates that Seveso should come back to its original aims, based on the severity of potential consequences of major accidents (e.g. Buncefield and Flixborough) in order to avoid overlaps with other regulations.

2 interviews make some recommendations concerning the GHS system:

- A French operator recommends clarifying the link between the Seveso II Directive and the GHS System.
- An operator in UK recommends defining clearly the limits of Seveso with clear principles and directions and to lead this debate in Europe. He thinks that the industry fears the GHS classification and its impact on Seveso which might expand the number of establishments falling into the scope of the Directive.

About the relationship with BREF documents, 1 Italian operator suggests including safety issues in these documents; it would be useful in very specific installations like liquefied gases storage.

### ***3.4 Topic T4. Comparison between level of safety for Seveso establishments, upper and lower tiers and non Seveso establishments***

7 interviewees provided inputs for this topic and 1 input from additional comments was included here.

#### **3.4.1 Current situation including problems and weaknesses**

Opinions are divided on this topic. 2 CA interviewees indicate to notice differences in the level of safety between Seveso (upper and lower tiers) and non Seveso establishments.

Another CA comments to have a similar level of safety and an industry representative whose establishment became upper tier, states that the benefits of safety are not obvious compared to the money spent to prepare the Safety Report (comparing to the situation when he was a lower tier site).

Specific comments are presented hereunder:

- A Swedish CA representative thinks that Seveso requirements improve level of safety.  
Also, he comments about some difficulties to have a good level of safety in SMEs: There are some irregularities, e.g. 10 years ago, Chrome was not included. Now several SMEs from the coating or metal treatment industry have lower tiers, because of the risks to the environment related to Chrome. For them, Seveso requirements are difficult to fulfill, because in this sector, the safety standards are not so high compared to the chemical or petrochemical industry.
- A French CA representative feels that the safety performance is high for Seveso upper tiers. He indicates that the SMS has a very good impact for establishments with 10 or more workers; but below 10 workers, it is very difficult to maintain a good SMS.
- On the contrary, an Italian CA representative points out that the requirements for upper and lower establishments are quite similar. The interviewee points out that they do not appreciate differences on safety level between upper and lower establishments in the Veneto Region. In fact, they consider that they have more control on lower establishments because the regional CA (as they are) is responsible of the inspections of lower establishments, and the upper ones are inspected directly by the national environmental Ministry.  
For non Seveso establishments, the problem is workers health and safety and it is not a competence of this CA.

- An operator in UK tells that when they were a lower tier establishment, everything was in place but they did not need to report to the authorities; it was available in case of questions. He thinks that his company spent a reasonable amount of money to prepare the Safety Report, but the gain in terms of safety was not so obvious. He explains that the level of requirements is high in UK:

*"All necessary measures and the ALARP principle are a strong debate in UK. The level of details to be described in the SR is also not clear. You don't know where to stop... for the prevention, the mitigation measures. It can be interpreted in so many different ways".*

For the 1<sup>st</sup> submission, they did not have enough scenarios!... and they have seen the influence of Buncefield accident. The HSE is asking for more scenarios. The CA is extremely vigilant to consider the full potential of hazard and the worst case scenarios. The negotiation with the authorities has become more difficult.

If they compare with Switzerland, the authorities are more cooperative there. They implement a "partnership approach" with the industry.

*"In UK the situation has changed: Authorities used to behave like unpaid consultants bringing a lot of added value; now, they are more like policemen, regulators... because they received some criticisms to be too close to the operators. It might be a pressure from the public? from the media? a lack of resources or insufficient skills? The political climate has changed too. It is easier to be more regulators when there is a lack of skills and experience... and experienced people are rare".*

One Swedish operator says that it is difficult to understand threshold limits for the classification of sites as Seveso. He explains that having 9 or 10 tons of DTI should be the same but just with 9 tons the establishment escapes of Seveso requirements.

### 3.4.2 Recommendations

No recommendations were provided by the interviewees.

### **3.5 Topic H1. Education, training and accreditation of experts**

17 interviewees provided inputs to this topic and 6 inputs from additional comments were included here.

#### **3.5.1 Education and training**

14 interviewees provided inputs about the benefits of training.

- An EU association shows that, in some cases, the skills of the CA can be improved. The interviewee mentioned from his own experience, a lack of understanding and knowledge from the CA on practical safety issues can lead to request non appropriate measures, and then the negotiation can be very long. Safety discussions with experienced inspectors are more efficient.
- In the same sense, an industry representative in the Netherlands points out that inspectors should have spent time on site, or in an engineering bureau to learn the processes and how industry works before working as a CA.
- An EU industrial association agrees that training of experts is very beneficial. It could be advised to all Member States to train the inspectors, but also the industry (it could save time for the CA and industry).
- Another EU industrial association states that all potential of the work done to comply with the Seveso requirements is not exploited. To develop a proactive work, CA should have more resources and better skills.
- Regarding Eastern countries, this EU industrial association mentions that people are skilled and knowledgeable but they have less understanding of the basis of the Directive. They are also less familiar with the process to interact with the CA. If Authorities misinterpret the rules, you can have some critical situations.
- An operator in Sweden mentions that the competence is improving thanks to the new courses at the Universities. Also he explains that in the past, 25 years ago, Germany, Finland or the Netherlands were ahead in term of safety skills, but today there are no more differences.
- A Spanish operator, regarding experts, shows the need of more consultants with deep safety knowledge. Regarding industry, training organized by CA would be beneficial to provide common basis, but he doubts if administration would have resources for it.
- In the same direction, a French operator explains that there is a need for HSE personal skills to be recognized.
- An Italian operator shows that for large companies resources are enough (clear requirements and interchange workshops organized by industrial associations);

but he points out that for SMEs additional training organized by CA would be interesting.

He also indicates that good relationship among CA and industry is a key issue to succeed with the implementation of the Seveso Directive.

- A CA in Sweden mentions that consultants are competent. He shows that CA have enough skills, and they have programs to raise the level of expertise. But he mentions that people are better paid in the industry and it is difficult to have them within the authorities.  
He also comments that inspections are very important to rise the level of safety. He says that cooperation between industry and CA entail to a very positive dialogue during inspections.
- A CA in Germany raised the need to combine academic and the company (in-house) education. He also mentions as beneficial activities such as: events/workshops.., collaboration with academia, internal courses.
- A trade union representative from Germany states that training is a part of its primary activities: training and certification of experts responsible for safety. He points out that a good and well developed system suffers from not being recognized at the EU-level.
- A German association (others category) recommends to have training for industry to give common basis. He indicates that it should be a two way process in common agreement.
- An operator in Hungary comments that training is sufficient. However, he indicates that the time period given in Hungary to implement the Seveso Directive was too short because of the lack of experience of CA and consultants.
- An NGO represented by a German member mentions that, although technical and management level of knowledge has been increased, still there is a need to improve the communication towards the public and internally to workers.

### 3.5.2 Accreditation of experts

Regarding the accreditation of experts, there are inputs from 5 interviewees which expressed divergent views.

2 of them, an EU industrial association and a French operator agree with an accreditation of experts, with the following comments:

- Accreditation of experts in a reasonable time frame would improve the quality of the work on safety, and safety in the industry will improve.
- Accreditation of HSE experts will be a good evolution (it will be useful to implement in France by enlarging the IPRP accreditation (accreditation for occupational risks assessment)).
- Also a German association (other category) states that knowledge and skills to manage risks in Seveso establishments need a certification.

On the other hand, a French operator and a CA representative in Italy point out that HSE experts should not follow any accreditation or that accreditation is not important, with the following comments:

- Experts should not follow any accreditation, but they should be proposed by the director of a plant. This will permit to "give value" of the function HSE manager.
- Accreditation is not so important, but he underlines that it is important that inspectors belong to CA, because private consultants may not go so deeper in the analysis.

### **3.5.3 Recommendations**

No recommendations were provided by the interviewees.

### **3.6 Topic C1. Risk communication towards the public**

9 interviewees provided inputs for this topic.

#### **3.6.1 Reference and practices**

An EU industrial association indicates the importance of risk communication towards the public. But the interviewee points out that there are different approaches on risk communication between all EU countries and it is difficult to have a clear vision of the practices. They think that the approach of risk communication has to be elaborated at National level. It needs to take into account the national particularities because the culture and the national context are different in each EU Member State. This association informs about some guidance and practices:

- OECD guidance document (The "OECD Guiding Principles (2002)", which provides recommendations related to risk communication. It gives the basic requirements). URL: <http://www.oecd.org/dataoecd/10/37/2789820.pdf>.
- Germany practices: the industry distributes leaflets about the hazards of a plant and explains the behavior in case of an incident. Additionally a guidance document has been elaborated by the German Chemical Industry Association. The communication deals essentially with emergency preparedness, to reduce the consequences of an incident.
- This EU industrial association informs about an on-going infringement procedure against Italy on this topic. The reason for this is that the Public Authority (PA) has failed to properly organize the provision of information to the public (under PA responsibility and missing or incomplete in some cases), notwithstanding the availability of required elements from industry.

Two French operators explain that the complexity of the Safety Report (very technical) made difficult the communications toward the public (it is difficult for them to understand the information) and it is difficult to involve the public.

One of them explains that concerning the emergency exercises, they have proposed to the public neighbors to participate in the exercises. However, people are reassured by this proactive approach and they do not participate in the exercises (only spectators, not actors).

Another French operator points out the need to reinforce the article 13 of the SEVESO II Directive: "Member States shall ensure that information on safety measures and on the requisite behavior in the event of an accident".

An Italian operator shows that the communication towards the public must be done by qualified CA in order to have a clear understanding of the risks. He explains that

in Italy the Safety Report is sent to municipalities and these CA are in charge of the risks communications towards the public. Most of the time, the public is comfortable with the information but sometimes the CA is not so well qualified and public is not well informed about the risks.

### 3.6.2 Frameworks to improve risk communication

An EU environmental NGO represented by a German NGO provides information about current practices in the Netherlands, France and Germany. See URL for the Netherlands: [www.risicokaart.nl](http://www.risicokaart.nl)

He says that there is no clear vision of the situation related to the dialogue and communication with the public in the EU. He explains about the main problems in risk communications:

- It is difficult to have access to the information of the Safety Report, emergency plans, etc.
- The quality of the information it is not what it is expected (some of them are very superficial, not completed or too much paper; most have only few and "small" scenarios). He emphasizes that the access to the information by the public is important, but also its quality.

About other frameworks to improve risk communications, he refers to:

- In Germany: there are some committees (One in Stade, Dow Chemical close to Hambourg, and another in Francfort, on the industrial park). There are groups with a structure to dialog.
- In France: there is a framework for the dialog with the CLIC URL: <http://www.ecologie.gouv.fr/Information-et-concertation-du.html>
- In the Netherlands: there is "The Expertisecentrum Meetinstrumenten voor Revalidatie URL: <http://www.dcmr.nl>". However, he indicates that Seveso II is often not the main point because it is just one part of the regulations applying to the whole site. There is more interest on REACH and IPPC regulations.

About recommendations to improve dialogue, for Germany he recommends more transparency in permit processes, more participation, and more access to data. He points out as a reference the work done with EPRTTR (European Pollutants Release and Transfer Register) which aims at improving public access to information on the environment and thus contribute in the long term to the prevention and reduction of pollution. He mentions the document prepared by the commission to apply to EPRTTR (see Aarhus-Convention) URL: <http://unece.org/env/pp/treatytext.htm>.

He informs about Germany and Italy having an infringement procedure for the emergency plans, because they are not done or communicated.

A German CA representative explains about the German practices. He says that risk communication involves very much other ministries, e.g. of Environment or Labor Affairs. On the Federal level in Germany the communication like those of the specially designated committees of working group are of great importance. He provides data on the following sources (sample):

- Community Advisory Panel / Kontaktgruppe Bürger-Dow (Dow Deutschland) In existence since 1991 in Rheinmünster (SW Germany), since 1993 in Stade (N. Germany),
- Community Advisory Panel (BASF) since 2000 in Ludwigshafen, Germany,
- Sicherheitsdialog (Bayer Industry Services) ca. 1100 visitors (43 target groups). In 2004, there were 48 "infomobil" events, experimental lectures "Fascination Chemistry", theatre on "Safety Dialogue" with over 700 school children.  
Medical professionals (local doctors, pediatricians) directly informed of all chemical releases.

Two German interviewees, a representative of an EU trade union and an association inform about the means of communication, the priority still is on conventional means (paper, events...) and that the committees to address major accident hazard prevention with the public are associations and conferences. One of them says that there is a room for fine-tuning and need for new cost-effective and better targeted approaches (e.g. national and EU project).

### 3.6.3 Recommendations

In the interviews two recommendations are mentioned:

- An Italian operator recommends improving external communication towards the public. He suggests the creation of working groups with different experts from CA and industry to perform the risk communication towards the public.
- An EU environmental federation recommends more transparency in permit processes, more participation, and more access to data. He points out as a reference the work done with EPRTR (European Pollutants Release and Transfer Register) which aims at improving public access to information on the environment and thus contribute in the long term to the prevention and reduction of pollution URL: <http://europa.eu/scadplus/leg/en/lvb/l28149.htm>

### ***3.7 Topic C2. Involvement of the public and relevant stakeholders in the decision making process***

10 interviewees provided inputs for this topic.

#### **3.7.1 Current situation including problems and weaknesses**

Regarding how the public and other stakeholders are involved in the risk decision making process (including also opinions and problems about this process):

- An EU industrial association speaks about the benefits and the problems in this process. They say that it is beneficial for industry to explain to the public what is done to control the risks. They also indicate that it is important to assess the concerns of the public at the beginning of the decision process to save time and money. The awareness of the concerns allows the industry to be better prepared, to implement the adequate measures to control the risks and to develop the right arguments to communicate.

They refer to two problems:

- The interest of the public is quite often very limited,
  - Sometimes the meetings are not conducted in a fair manner because some individuals with peculiar political ideas or specific interest can pollute the dialog.
- An EU industry association says that public should not be more involved in the decision making process. But they point out that there is a need for a better involvement of the public in the external emergency plans.
  - A French operator speaks about the French practices (CLIC). He explains his experience with CLICs: after three CLIC meetings they stopped because people were not interested anymore ("they already know what they wanted to know"). He thinks that CLICs are too formalized meetings (need to have members of the competent authorities). Therefore, it is not adapted to discuss with the public. He explains that the "Open day" on site is more adapted as the public can really see the industrial site and there is no administrative frame.
  - Another French operator speaks about communication with industrial neighbours and domino effects. He points out that it is difficult to have documents and information about neighbors' safety, particularly when the site is not a SEVESO site. He states that a similar approach to the Italian one, where domino effects are treated by all the sites concerned in a separate document, would be interesting.

He also explains that visits of the industrial neighbors on their site (to visit it and for them to present the evolutions of the site) has been a good opportunity to discover that risks are not well-known by the neighbors.

- An operator from the Netherlands speaks about their practices and also the problems: before a company presents a new permit demand to the authorities/government, the "neighborhood council" is asked to give its opinion on the project. It is a group of 5-10 persons; people interested to join them can apply on voluntary basis. It is not a national requirement; for industry the interest is to have someone to dialog with. He also indicates that before having the permit, the public can consult the Safety Report and the draft permit during 8 weeks.

However, he shows that two frequently situations appear when people have difficulties to understand the information of the Safety Report:

- People complaining, but on the high of the flame at the flare...,
- Little interest in major risk because they don't understand,

He explains that the approach works well on a voluntary basis and not to make it a legal requirement ("it will be too rigid and complicated").

- An environmental NGO represented by a NGO in Germany explains the situation in Germany: there are few new Seveso establishments but more often the old ones are extended. If changes are less than 50% the public is not involved. When there is a change, the Safety Report has to be reviewed by the authorities, but it is not always accessible to the public.

### **3.7.2 Recommendations**

3 suggestions were provided by the interviewees:

- An EU industrial association recommends: a better involvement of the public in the external emergency plans.
- Another industry representative from France says that a similar approach to the Italian one concerning the Domino Effects would be interesting.
- An environmental federation represented by a NGO in Germany suggests:
  - To involve and inform the public when and old or new installation is rebuilt, installed or extended.
  - To develop in Germany and new Members States a process similar to the CLICs in France.

### ***3.8 Topic C3. Dialogue with the population and creation of a risk culture, emergency culture.***

An environmental NGO represented by a German NGO provided inputs for this topic.

#### **3.8.1 Current situation including problems and weaknesses**

In some European countries the level of risk culture seems to be acceptable. The interviewee points out the actual situation in Sweden, Norway and Denmark: He explains that the safety culture is higher because of several reasons: A good education, the proximity to the nature, lower density of population, less chemical and metal industry.

#### **3.8.2 Recommendations**

They recommend to the public to be more aware about the risks. He suggests improving the following aspects:

- Education to young people because they are more receptive,
- Publicity, advertisement in the media,
- Participation of all stakeholders,
- The information of dangerous substances, products and accidents.

### ***3.9 Topic R1. Consistency of Seveso II with other directives and important regulatory texts (safety at work, IPPC, ATEX, EIA Directives, REACH, GHS)....***

NOTE: See also Topic T3.

4 interviewees provided inputs for this topic and 1 input from additional comments was included here.

#### **3.9.1 Explicit common framework for Seveso II and Environment and Safety-related Directives**

3 CA interviewees indicate that there are no overlaps between Seveso II and other regulations. They explain the following:

- Two CA representatives in Spain and Italy indicate that no overlaps between Seveso II and IPPC Directives are found at National level. The Spanish CA explains that, for new establishments or significant modifications in existing sites, these two regulations are under a same framework and they are not duplicative.

Regarding Seveso II and other Safety regulations, both CA mention that they are not duplicative. The Spanish CA states that the objectives are different and it helps to go deeper on the different subjects. He comments that maybe in the future with more experience on the different matters, regulations could be integrated. The Italian CA explains that these 2 regulations are managed by different CA.

- A German CA indicates that there are no overlaps between Seveso and IPPC and ATEX Directives but he points out the need to harmonize Seveso with all the regulations like GHS, IPPC at operational level. Additionally he explains that Seveso knows only hazards and this can be a difficulty to integrate it with other regulations knowing different criteria (not hazards).

#### **3.9.2 Consistency of BREF documents and the safety issues**

Regarding the consistency of the BREF documents and Safety issues, 3 CA interviewees make the following comments:

- 2 CA in France and Spain recommend to include safety issues in the BREF documents (see below the recommendations).
- On the other hand, an Italian CA says that including safety issues in the BREF documents will not be useful for them because safety measures should be

studied specifically for each case, and the evaluation of the inspector in each case is the most important key.

### **3.9.3 Recommendations**

2 CA indicate that the safety issues should be included in the BREF documents as follows:

- 1 CA in Spain suggests developing BAT for technological safeguards (for installations and dangerous substances) with working groups from CA and industry from different EU Member States. Also he recommends studying if these BATs can be integrated in the available BAT for IPPC or if new developments should be necessary. Additionally he suggests carrying out the study with working groups formed with representatives from CA and industry from different Member States.
  
- 1 French CA shows the need to address a Safety chapter in the Refineries BREF document.

### ***3.10 Topic R2. The various uses of the safety report (different objectives to deliver the permit to operate or for land-use planning of emergency plans)***

9 interviewees provided inputs for this topic.

#### **3.10.1 Impact of the Safety Report & various uses of the SR**

6 interviewees comments about the usefulness of the SR as follows:

- A Swedish industry representative comments that the potential of the safety report could be greater, in particular if the CA would be more proactive. It seems that they do not have the time or the resources to take all the benefits of the information of the safety report.  
The company does not use the safety report itself for internal safety purpose, but use the information that is also provided in the safety report.
- A French operator mentions that people who are involved in some scenarios know these scenarios and the existing safety measures; but he explains that it is not appropriate to present the safety report to some employees, to personal delegates or to direction because of the technical level required.
- An EU industrial association mentions that SR is a document that is not used by the workers and that this could be improved.
- An operator in Spain (multinational) indicates that the preparation of the Safety Report has not resulted in the implementation of additional and new safety measures or procedures, although they consider very rewarding the collaboration with the consultants. For instance, he explains that Safety Report is being used for training in the internal emergency plan, but this task was already implemented in the plant before the Seveso Directive.  
They mention that the elaboration of the SR has lead to systematize information regarding activities, procedures and safety measures already implemented in the industry, for the use of the Competent Authority, to develop the external emergency plan. In this sense, the SR has been useful mainly for the work of the CA and, derived from it, for the society. He added that a QRA is being performing nowadays so its impact is not yet known.
- A German association (other category) reports that internal inspections are performed on the basis of the results of the SR.
- Regarding the quality of the SR, a French CA representative says that the quality of the information in the Safety Report is often low. He mentions the situation in France where the government has taken some actions to improve the level of knowledge of experts: The government organized one day training

for consultants in order to show mistakes and recommendations to perform a good Safety Report.

### **3.10.2 The various uses of the Safety Report - Possibility of different Reports**

4 interviewees make the following comments:

- An EU industrial association indicates to have just one SR.
- Also a German association think that specific reports should not be elaborated.
- In the same direction, a Swedish CA representative comments that several reports could be beneficial for the authorities, but for the establishments they prefer only one.
- On the other hand, a Spanish CA representative agrees to develop different approaches depending on the purpose. He explains that they have two different approaches: one to deliver the permit to operate (QRA analysis) and other for the external emergency plans (Safety report scenarios are selected based on three criteria, representativeness, realism and specific accidents, in order to obtain realistic distances).

### **3.10.3 Environmental issues of Seveso II**

Regarding the SR and environmental risks, a Spanish CA representative indicates that the actual Safety Report format is not well adapted to establishments with high level of environmental risks (aquatic). He explains that in Spain new Seveso establishments of this type appeared with the application of the second Seveso Directive. The problem is that distances for external planning cannot be calculated and the quality and credibility of the results are not as expected: The qualitative methodology used always indicates that the measures adopted are suitable. The interviewee comments the need to adapt the format of the safety report to these specific cases, in the way that more relevant and useful conclusions could be achieved.

### **3.10.4 Recommendations**

A Spanish CA representative recommends to adapt the format of the SR to the establishments with high level of environmental risks, to achieve more relevant and useful conclusions.

### **3.11 Topic R3. Real reduction of the major accident rate**

12 interviewees provided inputs for this topic and 1 input from additional comments was included here.

#### **3.11.1 The impact of Seveso II Directive in the major accident rate**

5 interviewees state the following:

- 3 of them point out a positive impact: A EU industrial association, a German association (other category) and an Italian operator indicate that Seveso II has a good impact for the prevention of major accidents. In fact, the Italian operator explains that Seveso II implementation has led to a reduction of the probability of accidents over the time on his site.
- On the contrary, 2 operators (in France and Hungary) indicate that there has been no improvement with Seveso II. One explains that Seveso II doesn't bring benefits because safety measures were already implemented before 2004.

#### **3.11.2 Important drivers in the reduction of major accident rate**

6 interviewees mention as the main driver for the improvement of the situation related to safety the following issues:

- 2 EU associations think that both, regulations and technical progress are the drivers to have good impacts on safety, with the following comments:
  - One interviewee explains that safety success is the result of the combination of efforts from the authorities and the company. But this is the company primary interest to reach a high level of safety. For example, his company has signed the Responsible Care charter but it does not generate a visible activity, and there is no public interest on this matter.
  - The other EU industrial association explains that, as industry needs to reach a certain level of performance, risks are addressed anyway, and continuous improvement are necessary; so Seveso II is supporting and to a certain extend harmonizing this process.
- 4 interviewees mentioned other drivers with the following comments (related to competitiveness):
  - An EU industrial association makes a difference and explains that for "good companies" the regulation is not a driver (they would have done it anyway; Seveso II was not difficult to implement, there was no fundamental changes). But, for other companies, it helps certainly. He mentions as main

drivers for the reduction of major accidents: Avoidance of personnel injury, environmental issues and property damage and loss of reputation, economic interests and, interest of the implementation of good business practices ("we are in a technical driven industry and people doesn't want accidents")

- In the same sense, another EU industrial association explains that the main driver is the commitment of the top management internally, but he points out that this is different for SMEs, which often wish to meet only the basic requirements.
- An operator from Sweden reported that good image of the company is the main driver for safety performance. He explains that Regulation provides the basis..., but the internal requirements, because of the safety culture in the chemical industry, are stronger than the regulation.
- An operator in Spain explains that safety culture is a key factor for the safety performance of a plant. And he explains that, although Seveso requires a MAPP and a SMS, to develop a safety culture, management commitment is considered a very significant feature. He points out that managers with inherited and deep knowledge in the sector and policies for the long terms are seemed crucial.

### **3.11.3 Learning from experiences**

2 EU industrial associations indicate that the exchange of information on best practices and lessons learned from past accidents have a positive impact on the level of safety of companies.

### **3.11.4 Recommendations**

No specific recommendations were provided by the interviewees

### **3.12 Topic R4. Use of indicators to measure the performance related to major accident**

14 interviewees provided inputs regarding this topic

All interviewees comment about their practices regarding indicators, showing great differences, from no specific indicators related to major accidents (more related to occupational safety), passing from incident collection to very formal major hazard indicators. There are different inputs regarding approaches/tools and reference documents related to indicators: CCPS, OECD, UK HSE methodology HSG254, RIDDOR... Also, there are different opinions for harmonized indicators or the need of specific indicators for each company.

#### **3.12.1 Reference documents to develop indicators - approaches**

2 interviewees indicate using the following reference documents for developing their indicators:

- An EU industrial association mentions the list of indicators developed in the CCPS document as the most largely agreed among its members. Predominantly oil and gas/petrochemical sectors declared an affinity to those indicators. On the other hand, companies in the chemical sector use the methodology HSG254 (Developing process safety indicators), by HSE in UK. See:
  - [URL:http://www.aiche.org/uploadedFiles/CCPS/Metrics/CCPS\\_metrics%205.16.08.pdf](http://www.aiche.org/uploadedFiles/CCPS/Metrics/CCPS_metrics%205.16.08.pdf)
  - [URL: http://www.hse.gov.uk/pubns/books/hsg254.htm](http://www.hse.gov.uk/pubns/books/hsg254.htm)

This association explains that industry wants to harmonize indicators and comes with a single set of indicators, but it should not appear in the regulation.

- Another EU industrial association explains that performance indicators is not so useful for the public and it is difficult to compare the results among companies and industrial sectors. They indicate to be aware of the CCPS guidance and of the OECD "Safety performance indicators" guide.  
[URL:http://www.umweltbundesamt.de/anlagen/OECD\\_SafetyPerformanceIndicators.pdf](http://www.umweltbundesamt.de/anlagen/OECD_SafetyPerformanceIndicators.pdf)

This association comments that each company needs to implement its own system. Company indicators have to fit their business and they are related to their own products, process and location.

Regarding the approaches/tools/methods to develop the indicators performance, 3 participants mention the following practices:

- An EU industrial association comments that as part of the Responsible Care programme all incidents are collected, not specifically those related to major accidents.

- This association informs about the RIDDOR system in UK (Reporting of Injuries, Diseases and Dangerous Occurrences Regulations) to report work-related deaths, major injuries or over-three-day injuries, work related diseases, and dangerous occurrences (near miss accidents).  
[URL: http://www.hse.gov.uk/riddor/riddor.htm](http://www.hse.gov.uk/riddor/riddor.htm)
- Another EU industrial association comments that no specific indicators are recommended. They measure injuries in general, but the incidents are reported in the working groups, covering safety related issues. There are discussions/exchanges within the group to analyze in details the incidents, but they remain confidential.
- An EU industrial gas association indicates not to have specific indicators related to major accidents, but concerning occupational safety.

### 3.12.2 Indicators used in the industry

6 interviewees (1 EU industrial association and 5 operators) mention their own indicators (from incidents to formal indicators) as follows:

- An EU industrial association uses lagging indicators (Number of fires, explosions and releases and Number of unplanned shutdowns) and leading indicators (Number of observations walks made by manager, supervising). They are only for internal use and showed during CA inspections.
- A Hungary operator mentions indicators for accidents and incidents, leading indicators for quality and environment management systems. Also lessons learnt from accidents are reported to increase the experience.
- A Swedish industry representative only uses lagging indicators: number of accidents, frequency index... He points out having difficulties to get the inputs from everybody in his plant, and in particular to have the reports from the subcontractors.
- A Spanish operator indicates collecting and categorizing all industrial incidents (used internally).
- A company in the Netherlands reports the use of lagging and leading indicators as KPIs: Lagging indicators for incidents in general, not specifics for major accidents (Environment and safety indicators). Leading indicators for the SMS, and with HSE specific critical processes (inspections, maintenance, permit to work, etc). No public documentation about these indicators has been developed.
- An Italian operator explains that Italian legislation requires 2 types of indicators to be measured: "negative indicators" (incidents, occupational health and safety accidents...), and "positive indicators" (efforts made in prevention: training time, time spent in risk analysis, etc.). Some examples are for safety process:
  - Number of near misses,

- Number of lost time incidents (also per worked hours),
  - Numbers of complaints;
  - Number of audits,
  - Number of HSE training hours per worked hours.
- Two German interviewees, a trade union representative and an association (others category), indicate that no specific indicators to measure performance with major accidents are used (only the statistical ones: Eurostat: Nr. Of accidents / 1 mio hours).

### **3.12.3 Recommendations**

2 industry representatives recommend establishing a set of indicators that would be collected in all industries in a consistent manner, or at least define recommendations to establish indicators specific to an industrial sector.

4 interviewees suggest improving safety performance indicators as follows:

- A French CA recommends developing a new indicator for CA: the number of failures of preventive measures.
- An EU industrial association suggests revising the MARS reporting system. They explain that incidents are missing for several reasons and when they are reported it is done late.
- A Spanish operator suggests sharing knowledge of past incidents among industries in the same sector (with CA or industrial associations) but it must be accompanied with changes in the culture to avoid punishment or damage of the industry image.
- A German CA suggests having the OECD guidance document as the main reference for HSE issues. (They indicate that it will be discussed in the EU meeting in Bordeaux October 2008).

### ***3.13 Topic R5. Proportionality of the requirements / what are the most important requirements***

13 interviewees provided inputs for this topic and 2 inputs from additional comments were included here.

#### **3.13.1 The most important requirements**

None of the interviewees informs about any requirement less important than others.

- 5 of the interviewees explicitly mention that the Seveso requirements are well balanced.
- 6 of the interviews (operators and CA) mention that the most important requirements are:
  - SMS (mentioned 4 times),
  - Risk analysis, safety studies, scenarios (mentioned 4 times),
  - Inspections (mentioned 3 times).

#### **3.13.2 Proportionality of requirements**

4 interviewees make the following comments:

- A French industry representative states that the proportionality principle should be applied; in other words, not too much requirements should be imposed to establishments generating low risks.
- 2 participants from Germany (a CA and a trade union representative) comment that it would be desired, but difficult to implement into practice. The CA points out that "It seems that the countries like France or Switzerland might have made more progress in the direction of creating "tailored", more proportionate solutions than Germany, where the "one-size-fits-all" is often the case in the practice. However, the "tailored solutions" need competence and time to be devoted to them, both possible in short".
- An EU industrial association indicates that the level of requirements in Sweden is fine. Some smaller organizations may wish less formalism but the requirements are reasonable if they have major hazards.

### 3.13.3 Recommendations

8 interviewees suggest addressing or improving the following issues in the Directive:

- An EU industrial association mentions the need to improve “learning form experience”.
- A French company suggests that occupational safety and health should be treated at the same level as Seveso II studies.
- An EU industrial association suggests discussing if the security issue must be addressed in the Seveso II Directive. He explains that the security of transport topic was already discussed with the EC.
- An Italian operator suggests improving external communication toward the public.
- 4 interviewees (2 operators in France and Italy, 1 Swedish CA and 1 EU industrial association) recommend including Safety Culture and Human Factors (HF) in the Seveso Directive. The Swedish CA suggests including it in the SMS, and the EU industrial association thinks that some criteria could be developed to assess both issues. Nevertheless, the Italian operator indicates some difficulties to include HF in Fault Tree Analysis due to the uncertainty of the data and the lack of sensitive analysis.

An EU industrial association points out that the industrial associations should be consulted in the following cases:

- About any change of legislation, with adequate time to respond,
- To provide information for the elaboration of guidance documents.

### ***3.14 Topic R6. Level of compliance between lower tiers and upper tiers***

7 interviewees provided inputs to this topic.

#### **3.14.1 Current situation including problems and weaknesses**

2 interviewees mention their situation regarding the level of requirements between lower and upper sites. A Swedish CA and a EU industrial association mention that , SMS are required to both (lower and upper), but the SMS is not described in the same way (lower tiers have to implement an "action plan"). The Swedish CA points out that there are more requirements for upper tier sites; for example; the development of scenarios is mandatory; not for lower tiers. The EU industrial association indicates that the requirements are less strict for SMEs.

#### **3.14.2 Recommendations**

Concerning the question about making SMS as a mandatory requirement for lower tiers, 6 interviewees think the following:

- Three participants (an EU industrial association, a French operator and a German association – Others category) disagree with the idea of extending the requirement of SMS.
- On the other hand, 3 interviews (a Sweden operator and 2 CA in Germany and France) agree to extend the requirement of SMS to lower tier establishments.

An NGO representative in Germany suggests requiring the Safety Report also to lower tier establishments.

### ***3.15 Topic F1. Costs and resources, education and level of knowledge required to prepare/review the safety reports, monitoring and management approaches (maintenance of the plans, the reports...)***

11 interviewees provided inputs for this topic.

#### **3.15.1 Costs of a Safety Report**

3 interviewees (1 EU industrial association and 2 operators) comment about the costs related to the preparation of the Safety Report:

- An EU industrial association says that the preparation of the Safety Report and the compliance with the Seveso II regulation generate a lot of bureaucracy. They explain that UK has changed the process to evaluate the Safety Reports in order to reduce the time taken for the approval. An audit programme can be agreed between CA and operators. They try to combine inspections and audits programmes to reduce duplication and time because the company must pay for all the time spent during the control of the site.
- A French operator considers that the Safety Report is not the most important cost, but the costs due to updating the installations.
- A Spanish operator says that costs of the Safety Report are considered as expensive (contract with consultant + high dedication of employees), but acceptable for a multinational. This situation may not be the same for a SME. He adds that the implementation of the Safety Management System or the emergency plans has not meant additional costs as they were already implemented in the industry as internal requirements.

#### **3.15.2 The most costly part of a Safety Report**

3 interviewees comment about the most expensive part of a Safety Report:

- An EU industrial association and an operator in France refer to the modeling.
- A German association (Others category) points out the identification of hazards phase, in the risk analysis.

### 3.15.3 Estimation of the costs for implementing the Directive

A German association (others category) estimates that the costs for the operator related to the implementation of the Seveso directive are between 50 000 – 100 000 €.

Regarding the costs of a Safety Report, 3 interviewees provided the following figures:

- An EU industrial association reports that UK companies spent between 15 000 and 30 000 GBP on the preparation of the Safety Report, depending on the complexity of the operations (18 900 to 37 800 €).
- An EU industrial association in France points out that the costs for updating the Safety Report are approximately 12 000 €.

### 3.15.4 Costs of CA control activities for companies

Regarding the costs of the CA for companies, there are inputs from 2 interviewees (regarding UK and Germany):

- An EU industrial association explains the fee system in UK, where the costs of the competent authorities spent on the control of a company have to be covered by the company, adding that this is a great burden for the industry. For lower tier sites, it is charged per hour, and for top tier sites (COMAH sites) it is charge on any topics discussed with the CA. The cost is 155 GBP (195 € approximately) per hour. He gives an example, where a colleague reported recently that he has received a bill of 6 000 GBP (7 527 € approximately) for a 2 day visit made by 2 inspectors. They charged the preparation of the inspection, the inspection itself and the redaction of the report.
- A German CA points out that the costs of monitoring are currently not charged to the end-user in Germany. Also, he mentions the use by the CA of outsourcing for inspections where the costs involved are usually about 20 k€ per plant.

### 3.15.5 Studies related to costs of Seveso II requirements

A Swedish CA indicates that Nutek, the Swedish Agency for Economic and Regional Growth has performed a study addressing also the costs of Seveso II requirements.  
[URL: http://www.nutek.se/content/1/c4/35/35/R\\_2006\\_01\\_webb.pdf](http://www.nutek.se/content/1/c4/35/35/R_2006_01_webb.pdf)

### **3.15.6 Recommendations**

An European industry association suggests that inspections and audit programmes should be combined to reduce duplication of work and to optimize time and resources for industry.

### **3.16 Topic F2. Adaptability of the regulatory framework to the business dynamic**

9 interviewees provided inputs for this topic and 1 input from topic F3 was included here.

The information provided by the participants was related to the impacts of the Seveso II Directive on the EU industry competitiveness.

#### **3.16.1 Impacts related to Seveso II Directive**

3 interviewees (1 operator, 1 NGO and 1 EU industrial association) think that Seveso II has influenced the competitiveness in Europe:

- An operator in UK gives examples of delocalization of the production in his company, due to regulations in Europe, but also due to costs of manpower and transport:

*"The active compounds and dangerous intermediates are produced elsewhere and then transported to UK. They are produced in countries where the translation of IPPC is not so strong compared to COMAH.*

*There are some large factories in UK, but the exothermic reactions are performed in other countries. The policy of the company is to operate world scale factories, and the medium size factories are closing.*

*A lot of the production is now made in Brazil or Mexico. The main reasons are the low costs for manpower and transport. It has stimulated the transfer of the activities to these countries.*

*Moreover, world wide operators can found in other non EU Countries skilled workers to operate plants that have the same safety features as in Europe. For example, in India the factories use the same standards as in Switzerland.*

*The cost of compliance to Seveso is at the margin, but it is another argument which does not help to improve the situation in Europe."*

- A German association (others category) agree that: "too high safety requirements in Europe" represent a significant factor in delocalization of production, or part of the delocalization of the production towards third countries.
- An EU industrial association speaks about the impact of CA on the costs and competitiveness of the companies: the various members mention different practices of CA in EU Member States:
  - A participant explains that an estimation of the costs of a safety report in various member states was provided during the CCA meeting in Dublin. The cost of a Safety Report varies in a range of 40 for the same type of industry/plant.

- For a petrochemical plant, it was said that some authorities spend 1.5 man.day, and other 60 man.days.
- Several participants indicate that in UK and in France, the operators have to pay for the consultants to help for the preparation of the Safety Report, for the CA to review the Safety Report or for the consultant hired by the authorities to provide a second opinion. Participants wonder if the use of subcontractors by the authorities to provide second opinion is related to the lack of resources or if it is a question of responsibility.
- There is an agreement among the participants to ask for better skilled CA to improve the quality of the dialogue with the operator.
- A participant indicates that "the word demonstrate is the word that kills the industry" because there is no limit for the demonstration.

### 3.16.2 Impacts not related to Seveso II Directive

4 interviewees (2 EU industrial associations and 2 operators) explained that the impact in the EU industry competitiveness is more related to costs for operating a site than Seveso II implementation:

- A EU industrial association says that the Seveso II Directive really doesn't affect the competitiveness of the industry. Most of the work required has to be done by the industry anyway.  
The participant shares his own personal experience: if there is additional bureaucratic burden, it is low for the 2 refineries that they operate. For the oil depots that were recently reclassified, there were some negative bureaucratic burden, and extra work that did not bring any added value for safety.  
Nevertheless, it is mentioned that in UK the requirements are higher, and that it can create exasperation.
- An operator in Sweden thinks that the regulatory requirements have less impact than the internal requirements. The corporate system is stronger than the regulations. For instance, (he gives the example of a new plant acquisition) the same Directive in Europe is an advantage for the company operating in several Member States. But, when there is an acquisition of a new plant in Europe, the compliance to the internal standards is more difficult than the compliance to the regulation.
- An operator in the Netherlands states that the severity of the transposition of IPPC and Seveso II are important factor within Europe. However, if you consider the global market, costs related to safety are not the most important to choose the location of a site. It is the proximity to the feed stock and the market.
- An EU industrial association thinks that there is a cost for Seveso II compliance, but that an industrial gas plant would not relocate a plant because of the costs of Seveso II Directive. He explains that there are differences in the Member States, but points out that local requirements are not a major issue for companies:

*“When the CA have experience and strong requirements, like in the Netherlands, you have to comply with their demands even if sometimes beyond Seveso II requirements. In other non EU countries, it can be less demanding.*

*But the designs of the plants are generally the same. The local requirements are not a major issue for the companies.”*

*Also they explain that for a sustainable business, it is necessary to comply with regulations. He worked in Asia, and explains that “there are some local companies not following regulations, (not main stream organizations) and it has a short term impact, but for a sustainable business, you need to comply with the regulations, which is in any case a requirement to be a member of the association.”*

Finally the interviewee mentions that he is not aware of any study on this subject.

### **3.16.3 Recommendations**

No specific recommendations provided by the interviewees

### 3.17 Topic F3. Analysis of possible market distortions

16 interviewees provided inputs for this topic and 2 inputs from topic F1 and additional comments were included here.

#### 3.17.1 Market Distortions

Regarding possible market distortions, there are 9 inputs from the interviewees:

4 interviewees comment about existing market distortions because of the Seveso II Directive:

- An EU industrial association explains about the different practices of the CA in the different MS and concluded that:

*"It is not the Seveso Directive that create the market distortions but the implementation by the Member States. The same rules in Europe will certainly contribute to have a single market."*

- An industrial representative from UK mentions about the competition with Eastern EU countries (regarding costs and regulations). He says that the competition with Eastern EU countries has increased and that there are some benefits for some companies to move there because of lower costs and lower regulation requirements.

He comments that *"if you compare the direct costs (electricity, manpower...) for example in CZ Republic, with the cost in UK, and if you include the additional costs that we have with HSE, the additional safety measures... UK is not a competitive place to operate a plant"*.

- A German association (Others categories) agrees that the different level of implementation in MS has led to significant market distortions within Europe.
- An EU industrial association shows a case related to the state aid to relocate a plant in one Member State as a market distortion: Several participants mentioned that, within the European Working Group on Land-Use Planning, there was a case where a company received state aid to relocate a plant in one Member State. Since there was no common regulation on this case, it is considered as a market distortion.

2 participants mention minor market distortions.

- An EU industrial association says that there are minor market distortions within Europe. He explains that in Europe, the companies have learned to compensate the difference of treatment by the CA in the different countries. There might be specific impacts made by individual inspectors, but it is generally not essential

at the country level. They suggest that a study to analyze possible market distortions should be made by European authorities.

- Also a Hungarian operator says that no relocations of companies have been observed in Hungary at the moment for Seveso II regulation reasons. He explains that in Eastern countries the regulations are implemented as required by the Seveso II Directive and it is not less severe.

2 operators in France and Sweden indicate that no market distortions due to Seveso II Directive have been noticed at national level. The Swedish operator explains that his previous site (he left his previous company recently), is closing and the production is sent to the Netherlands because of VOC constraints (environmental aspects). The market and the process to produce resins have changed to replace organic solvents by water.

### **3.17.2 Comparison of market distortions with other third countries**

2 interviewees refer to the existence of market distortions in a short term but not in a long term:

- An EU industrial association explains that there are countries not comparable to the West European state of the art to operate safely a plant: China, India, Russia... in particular when they are operated by local operators and are SMEs. He mentions that in a short term perspective, Seveso II requirements create market distortions. But on a long term perspective and with globalization, these companies will have to comply with the current and further developing safety requirements.
- Also, an EU environmental NGO represented by a German NGO comments about their view of the situation in the world related to environment protection: She explains that there are a lot of accidents in China and a few in Africa, but there are less industry like fertilizers in Africa because of the climate, the culture and the experience... He thinks that in the next 10 years, the situation will change and that the level of awareness and the expectations related to environment protection and safety will improve in these countries like China, Africa... Already she has observed that in China it is difficult to deal with hazardous wastes.

### **3.17.3 Studies on market distortions**

None of the interviewees indicate to be aware of any study on market distortions due to the Seveso II Directive.

### 3.17.4 Recommendations

5 interviewees made the following suggestions:

- According to the interviewees, no study on market distortions due to Seveso II Directive has been made in Europe; therefore, a EU industrial association recommends to European authorities to carry out a study to analyze possible market distortions.
- 3 interviewees indicate that the market distortions within EU are a consequence of different implementations of the Seveso II Directive between the Member States.
- 3 participants from France point out the need to harmonize EU approaches to avoid market distortions at European level.
- Regarding market distortions with other countries, one interviewee in Germany (Others category) suggests that the programs from UNITAR are a good framework to assist developing countries to help them to reach quickly the same expectations as for developed countries. URL: [www.UNITAR.org](http://www.UNITAR.org)