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REPORT FROM THE COMMISSION

Report on the application in the Member States of Directive 96/82/EC on the control of major-accident hazards involving dangerous substances for the period 2012-2014

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REPORT ON THE APPLICATION IN THE MEMBER STATES OF DIRECTIVE 96/82/EC ON THE CONTROL OF MAJOR-ACCIDENT HAZARDS INVOLVING DANGEROUS SUBSTANCES FOR THE PERIOD 2012-2014

Contents

1. INTRODUCTION

Major accidents involving dangerous substances pose a significant threat to humans and the environment. Furthermore such accidents cause substantial economic losses and disrupt sustainable growth. At the same time the use of large amounts of dangerous substances is unavoidable in some industry sectors which are vital for a modern industrialised society. To minimise the associated risks, measures are necessary to prevent major accidents and to ensure appropriate preparedness and response should such accidents nevertheless happen.

Council Directive 96/82/EC[1] on the control of major-accident hazards involving dangerous substances ("Seveso-II-Directive") provides for the relevant framework on

[1] Directive 96/82/EC, OJ L 10, 14.1.1997, p.13; amended by Directive 2003/105/EC, OJ L 345, 31.12.2003, p.97

risk management measures to prevent major-accidents and to limit their consequences. The Seveso-II-Directive was meanwhile replaced by Directive 2012/18/EU[2] ("Seveso-III-Directive") that had to be transposed by Member States by 31 May 2015.

Under Article 19(4) of the Seveso-II-Directive, Member States shall provide the Commission with a three-yearly report on the implementation of the Seveso-II-Directive. The Commission shall publish a summary of this information every three years. The present report primarily provides this summary for the period 2012-2014. In addition, the replacement of the Seveso-II-Directive by the Seveso-III-Directive also provides for an opportunity to assess not only the latest reporting period but also to consider the overall progress made during the lifetime of the Seveso-II-Directive.

Chapter 2 of this report summarises the information provided by the Member States on the basis of a questionnaire[3], which focussed on earlier identified problem areas. The aim of this summary is to assess the level of implementation and to identify any shortcomings that need to be addressed. Chapter 3 supplements this with data on accidents resulting from an analysis of the eMARS[4] database, operated by the Major Accident Hazard Bureau of the Joint Research Centre of the European Commission, on the basis of information supplied by the Member States. Conclusions and the way forward follow in Chapter 4.

Like for previous assessments, the Commission contracted an external service provider to analyse the reports provided by Member States, as well as other relevant data. The study produced by the contractor is available in the EU Bookshop[5] and provides a detailed analysis of the information reported, including an analysis for each Member State, and other available information.

The full contributions of the 28 Member States and the voluntary contribution from Norway, as well as the questionnaire, the previous reports for the periods 2000-2002[6], 2003-2005[7], 2006-2008[8], and 2009-2011[9] can be found online in CIRCABC[10].

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[2] Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC Text with EEA relevance, OJ L 197, 24.7.2012, p. 1–37

[3] Document (C(2011) 4598 final, Commission Implementing Decision of 30.06.2011

[4] Major Accident Reporting System (https://emars.jrc.ec.europa.eu)

[5] http://publications.europa.eu/en/publication-detail/-/publication/26c9aa63-523e-11e7-a5ca-01aa75ed71a1

[6] Document C(2004)3335

[7] Document C(2007)3842

[8] Document C(2010)5422 final

[9] Document C(2013) 4035 final

[10] https://circabc.europa.eu/w/browse/4cc9ca17-0920-4d8a-8796-6ffa170612b7

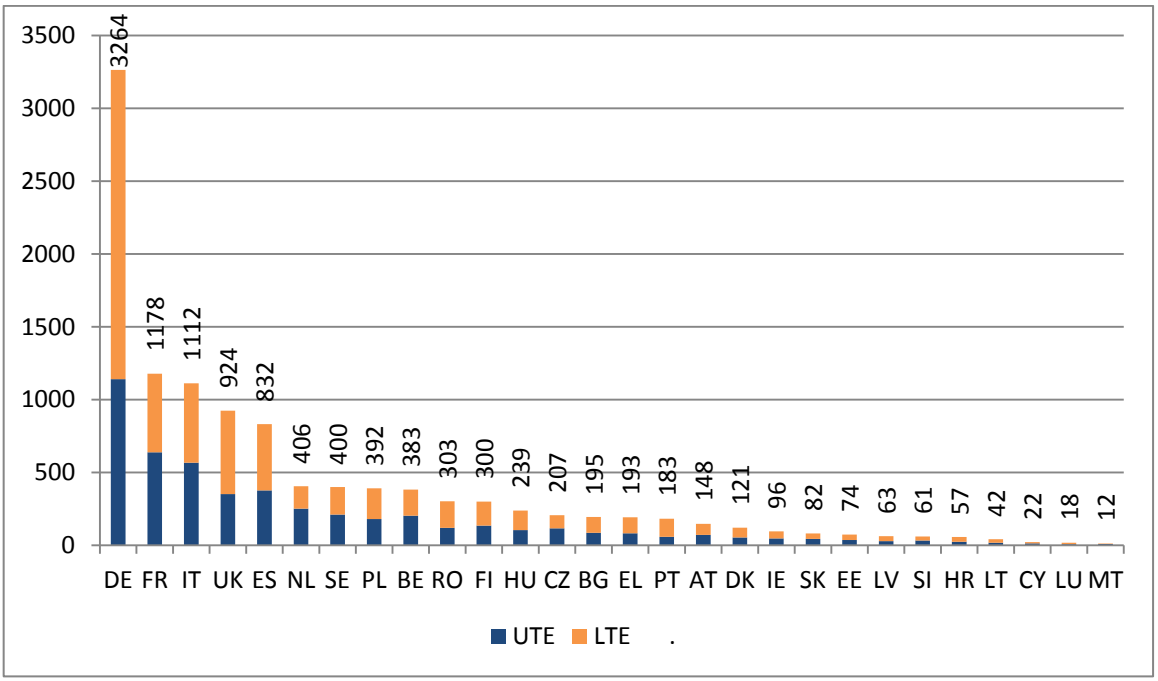
2. SUMMARY OF THE REPORTS BY MEMBER STATES

All 28 Member States submitted their triennial reports to the European Commission.

2.1. Number of establishments[11]

Member States reported a total of 11297 establishments as falling under the Seveso-II-Directive. This constitutes a net increase by 983 establishments compared to 2011 (10314 establishments), most of which are lower-tier establishments (LTE) (756) and the remaining upper-tier establishment (UTE) (227). While almost all Member States reported an increase, a significant share of this increase occurred in Germany (+859 establishments). The data available does not allow understanding why the increase occurred (possible reasons could for example be economic expansion, better implementation, or stricter classification of dangerous substances).

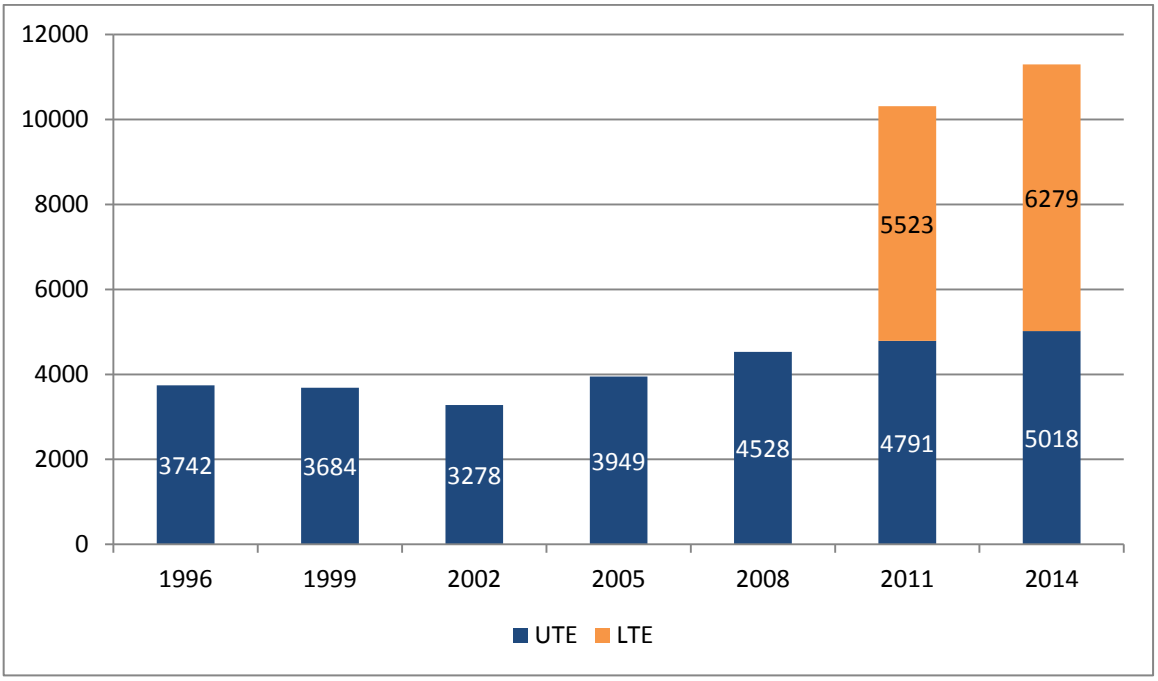
Figure 1: Number of Seveso establishments in 2014



As shown in Figure 2, a slow but steady increase can be observed in the number of establishments covered by the Directive. This needs to be put in context with three enlargement rounds during this period (2004, 2007 and 2013), continuously increasing knowledge on dangerous substances, economic growth and improving implementation. Data on lower-tier establishment was only reported as of the reporting period 2009-2011.

[11] Based on Member States' reports

Figure 2: Evolution of the number of establishments reported[12]



Among 48 activities used to categorise Seveso establishments, four activities account for almost 40% of establishments:

(1) General chemicals (763 establishments = 12,3%)

(2) Fuel storage (650 establishments = 10,5%)

(3) Wholesale and retail (553 establishments = 8,9%);

(4) LPG production, bottling and bulk distribution (465 establishments = 7,5%)

2.2. Risk management measures

The preparation of safety reports (which includes conducting a risk assessment), emergency plans for upper-tier establishments, as well as measures to inform the public and inspections are key pillars of prevention of and preparedness for major-accidents.

Earlier assessments of the application of the Seveso-II-Directive showed no systematic shortcomings of operators in the preparation of safety reports and internal emergency plans. Therefore, this issue was no longer part of the questionnaire during the reporting period 2011-2014.

The Seveso-II-Directive imposes several obligations on competent authorities, of which the most important are: to examine the safety reports and to communicate their conclusions to the operator, to draw up external emergency plans (EEP), to ensure that

[12] Data on 1996 and 1999 is not fully comparable due to differing definitions on establishments and installations. Several installations in the same establishment may have been reported individually which explains the apparent decrease in 2002.

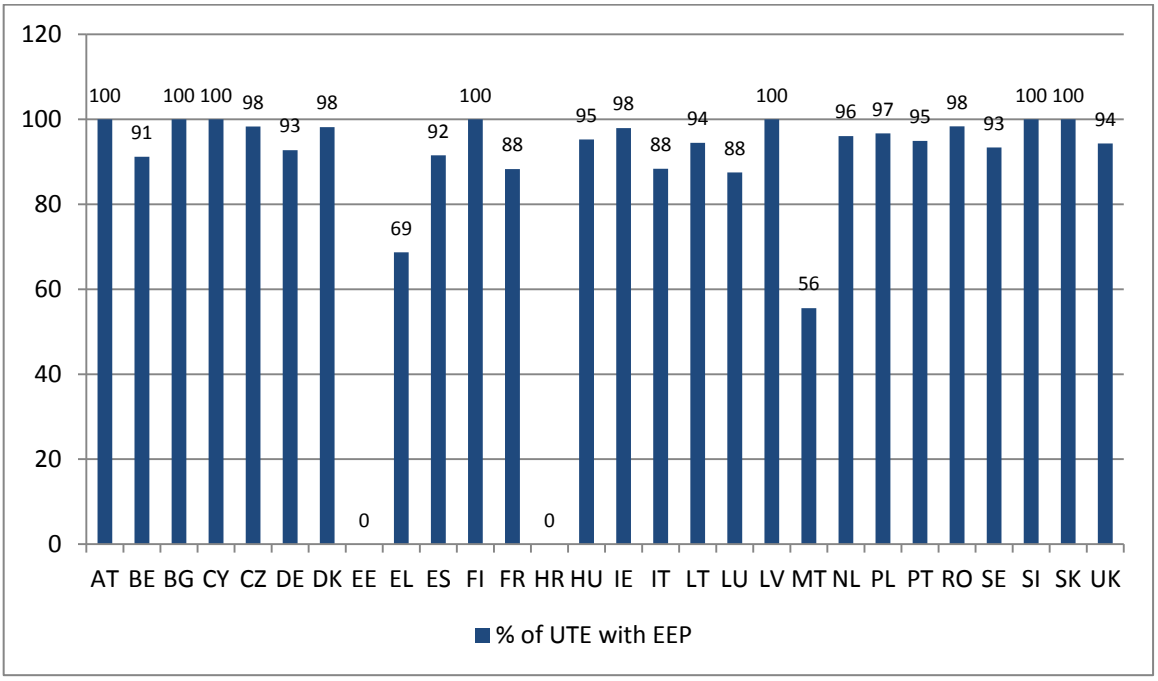
the public liable to be affected is informed on safety measures, to carry out inspections, to identify groups of establishments with possible domino effects, and to take into account land-use planning implications of major-accident hazards.

2.2.1. Preparation of external emergency plans (EEP)

EEPs are to be prepared by authorities for upper-tier establishments. These plans are important to allow rapid and coordinated response to major accidents and play a vital role in minimising their effects.

Most Member States have made good progress over the last reporting periods in ensuring that EEP are drawn up, but on average, there was no further progress compared to the last reporting period. By the end of the reporting period, 407[13] upper-tier establishments were not covered by an EEP, which represents 8% of the total upper-tier establishments at EU level (2010: 7%).

Figure 3: Upper-tier establishments with external emergency plans



There may be well-founded reasons why an EEP is not available, e.g. in cases of new establishments or when major changes took place shortly before the end of the reporting period. However, several Member States reported an exceptionally large share of establishments (i.e. above the average of 8%) without EEPs.

In the cases of low number of EEPs, the reasons varied significantly. One Member State indicated that 6 of its regional authorities had not adopted external emergency plans. However, there was no indication on how many of its 25 establishments were affected by this thus no quantification could be made. Another Member State indicated that a single EEP was developed for the whole country which was not site specific and from the information provided it was not clear how that was tested. During the follow-up by the

[13] This data excludes the 187 establishments for which the competent authorities decided an external emergency plan was not required in accordance with Article 11(6) of the Seveso-II-Directive.

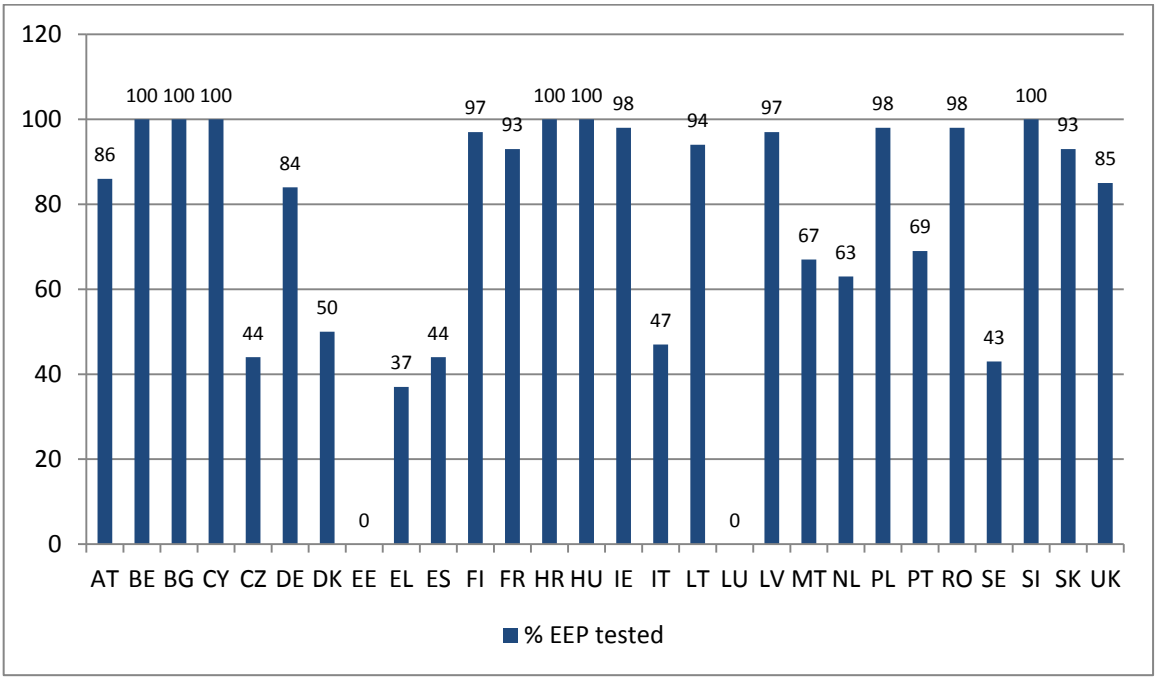
Commission, this Member State informed that the situation has meanwhile changed and individual EEPs were produced and tested after 2014.

2.2.2. Testing and review of external emergency plans

EEPs have to be reviewed and tested at intervals of no longer than three years. An outdated or untested EEP could be fatal in case of an emergency.

In general, most Member States have made some progress over the last reporting periods in ensuring that EEPs are tested but although there are huge fluctuations on average no noteworthy progress was made compared to the previous reporting period. In the 2006-2008 reporting period, 60% of the upper tier plans were reviewed and tested. In the 2009-2011 period this share increased to 73% and reached 75% by the end of 2014. This seems to indicate that Member States are getting more efficient at testing EEPs, but have still a way to go in reaching the target of 100%.

Figure 4: External emergency plans tested during 2012-2014 [14]



Several Member States reported an exceptionally large share of EEPs as not tested, while some Member States managed to test the majority of the EEPs or at least significantly improved their rate, several Member States have made little progress.

The reported reasons for not testing EEPs may be well-founded, however they varied significantly. One Member State reported that the EEPs could not be tested because most of the emergency services were composed of volunteers and this would make it difficult to organise tests. Another Member State indicated that it would have a single non-site specific EEP for the whole country but from the information provided it was not clear how that was tested. Several Member States did not provide further justification while others informed that the situation was under investigation. Finally, some Member States

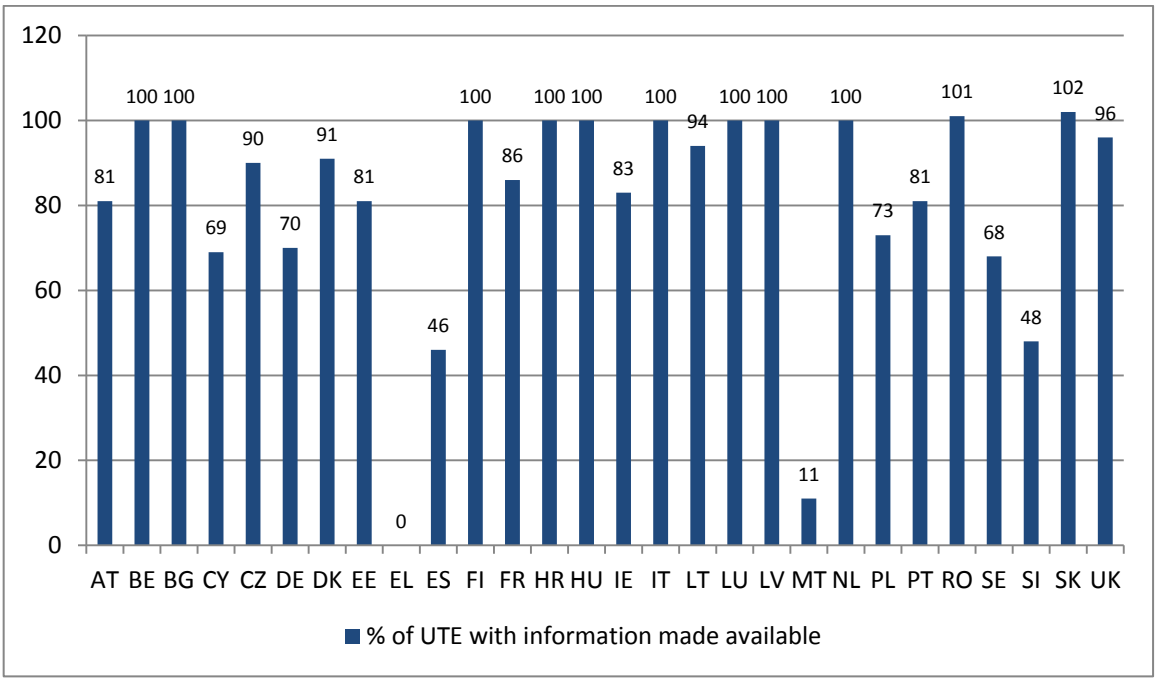
[14] This data excludes the 187 establishments for which the competent authorities decided an external emergency plan was not required in accordance with Article 11(6) of the Seveso-II-Directive.

informed that the establishments were new or changed status only recently or there had been updated thus the testing was not feasible within the reporting period.

2.2.3. Information to the public

Information on safety measures and on requisite behaviour in the event of an accident has to be supplied regularly, without their having to request it, to persons liable to be affected by a major accident. The Directive leaves it open with regard to who is responsible for this and how this is provided. The maximum period between the repetitions of this information to the public is five years, i.e. two years longer than the reporting period. Therefore, not providing such information during the reporting period does not automatically suggest that there was non-compliance with the requirements.

Figure 5: Information made available for upper tier establishments during 2012-2014[15,]



On average 81% of the upper-tier establishments had information made available and ten Member States reported that the information was made available during the reporting period for all upper-tier establishments. This is a decrease compared to 87% in the previous reporting period, but as outlined above, this does not allow concluding that there was non-compliance.

Most Member States reported that this information is provided in the form of leaflets and use other means of communication in addition (e.g. websites, public meetings). Five Member States reported that the information is only made available online, which may not reach all persons liable to be affected. While some of those Member States make this information available also upon request to the competent authorities or in the operator's premises, this might not be in line with the spirit of "without having to ask for it". It is

[15] Some values are over 100% due to variations in the number of establishments during the reporting period.

also noteworthy that in case of an accident, an increasing number of Member States uses mobile solutions such as warning apps, SMS or social media to alert everybody in the affected area and point to requisite safety behaviour.

The reported reasons for not providing information varied significantly, e.g. lack of information available; information was provided before the current reporting period and no update was required since; some establishments were new or became upper-tier only towards the end of the reporting period and the information was currently being prepared. Some Member States informed that they have establishments that would not have any off-site risks. Several Member States indicated that they became aware of the situation due to the reporting and the situation would be further investigated.

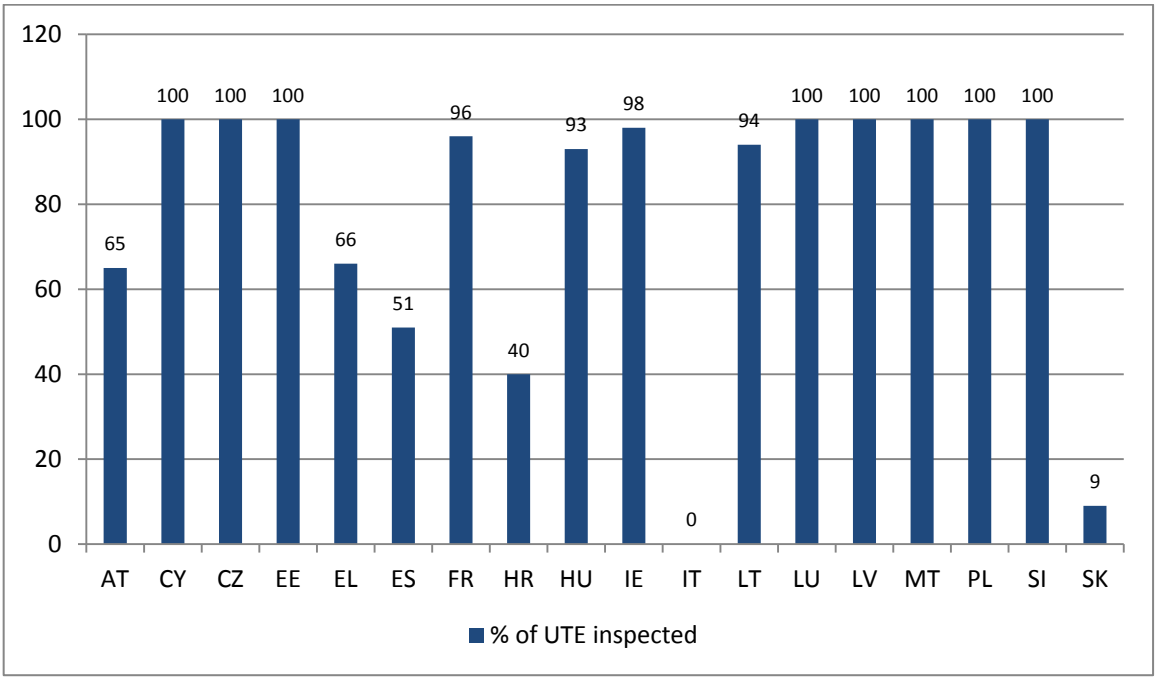
2.3. Inspections

The Seveso-II- Directive requires Member States to establish an inspection system and a programme of inspections for all establishments. Upper-tier establishments are to be inspected every twelve months, unless a system of systematic appraisal is deployed. 10 Member States reported that such a system is applied.

Figure 6 depicts the situation of those Member States without systematic appraisal[16], i.e. where upper-tier establishments consequently need to be inspected annually. While 12 out of 18 Member States concerned reach or almost reach the target, there are significant deficits in some Member States. Those can be explained by: budgetary or organisational constraints, lack of relevant information from the regional competent authorities, application of a mixed system under which establishments would in principle be subject to annual inspections (hence the inclusion in Figure 6) but authorities may reduce the frequency to once every 18 month.

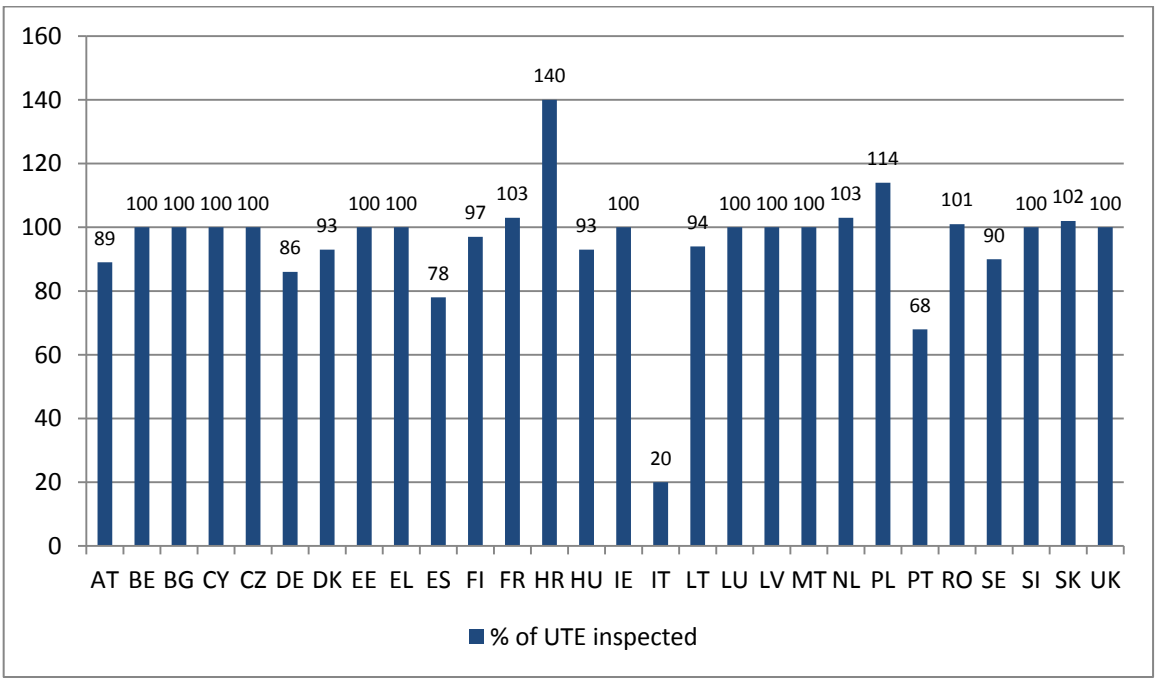
[16] Some Member States reported mixed systems, e.g. depending on the regional approach. For the purpose of this report, these Member States were accounted as applying systematic appraisal.

Figure 6: Annual inspection of upper-tier establishments during 2012-2014 in Member States without systematic appraisal[15]



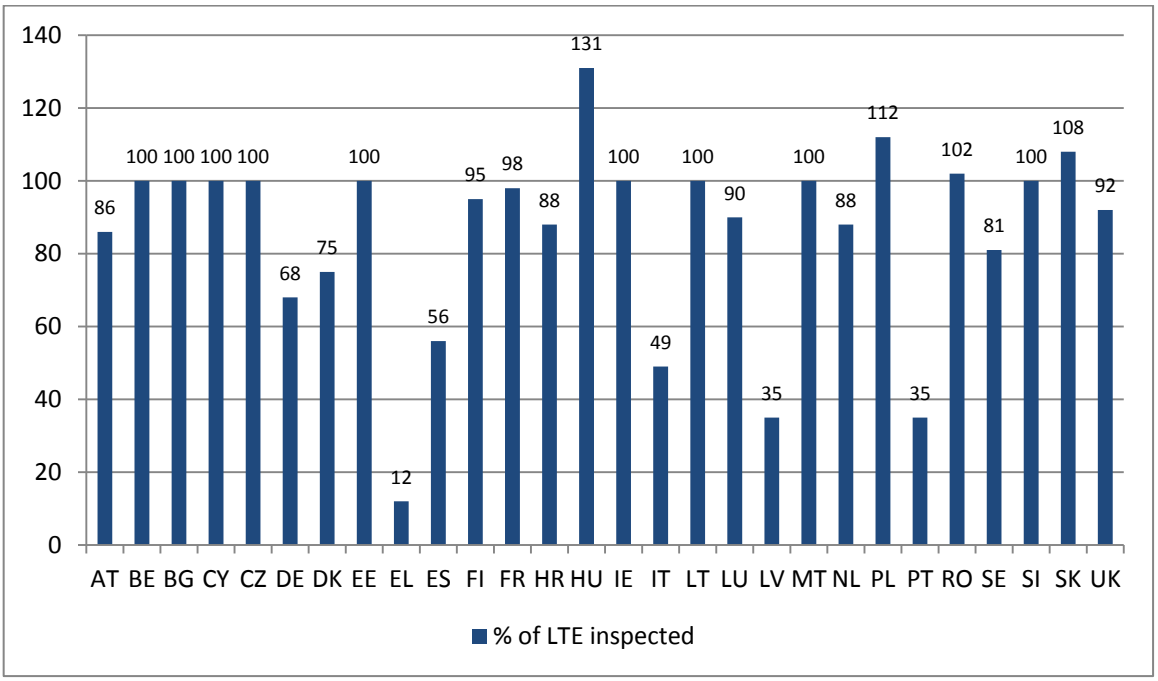
As shown in Figure 7, overall 86% of upper-tier establishments had been inspected at least once during the reporting period. While Figure 6 indicates that some Member States appear to have difficulties to reach their annual target, Figure 7, which also includes the Member States applying a system of systematic appraisal, suggests that upper-tier establishments are at least inspected at regular intervals in the most Member States. Furthermore, this constitutes an improvement compared to earlier reporting periods (2006-2008: 66%, 2009-2011: 65%).

Figure 7: Inspection of upper-tier establishments at least once during 2012-2014[15,]



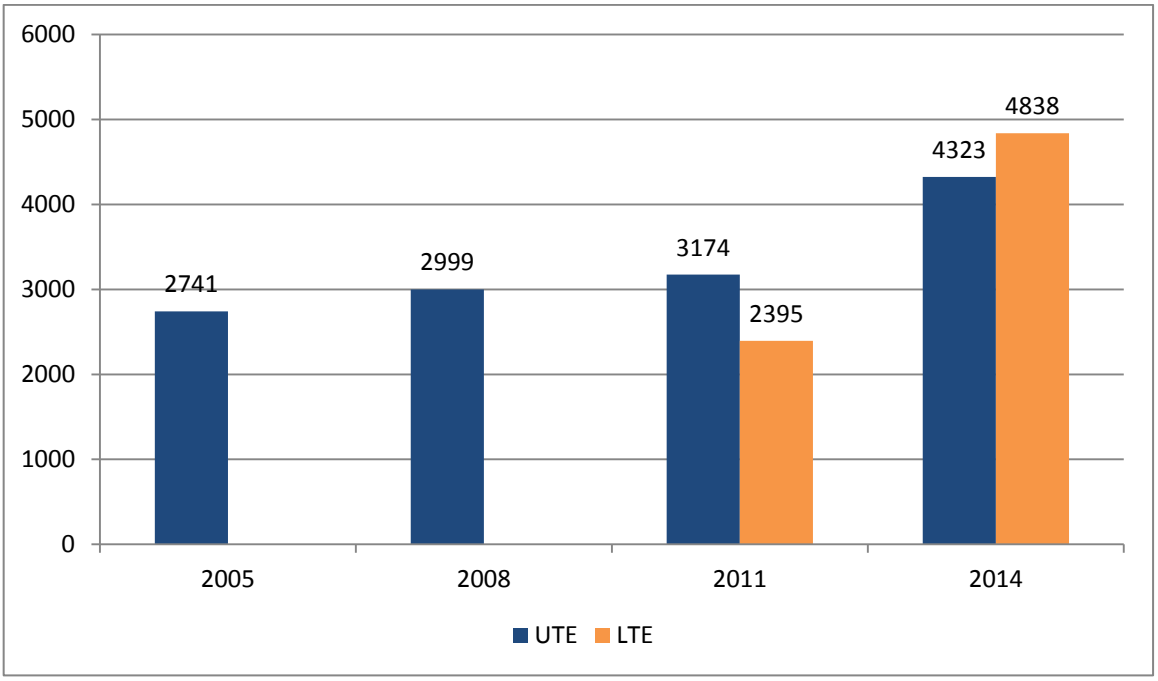
For inspections in lower-tier establishments the Seveso-II-Directive does not include a frequency requirement. All Member States reported that they inspect also lower-tier establishments during the reporting period. However, with 77% the overall the rate of inspections is lower than for upper-tier establishments. Member States did not provide reasons for low inspection rates in LTE but it can be assumed that they are similar to those for UTE. On the positive side this is a significant improvement compared to the 42% inspected during the previous reporting period 2009-2011.

Figure 8: Inspection of lower tier establishments at least once during 2012-2014[15]



While noteworthy progress has been made compared to earlier reporting periods and the number of inspections is increasing (Figure 9), the situation on inspections is still not fully satisfactory in several Member States. It can nevertheless be assumed that the observed rate of compliance by establishments with the requirements of the Seveso-II-Directive is in part a result of the rigorous inspection regime mandated by the Directive.

Figure 9: Evolution of the number of inspections reported



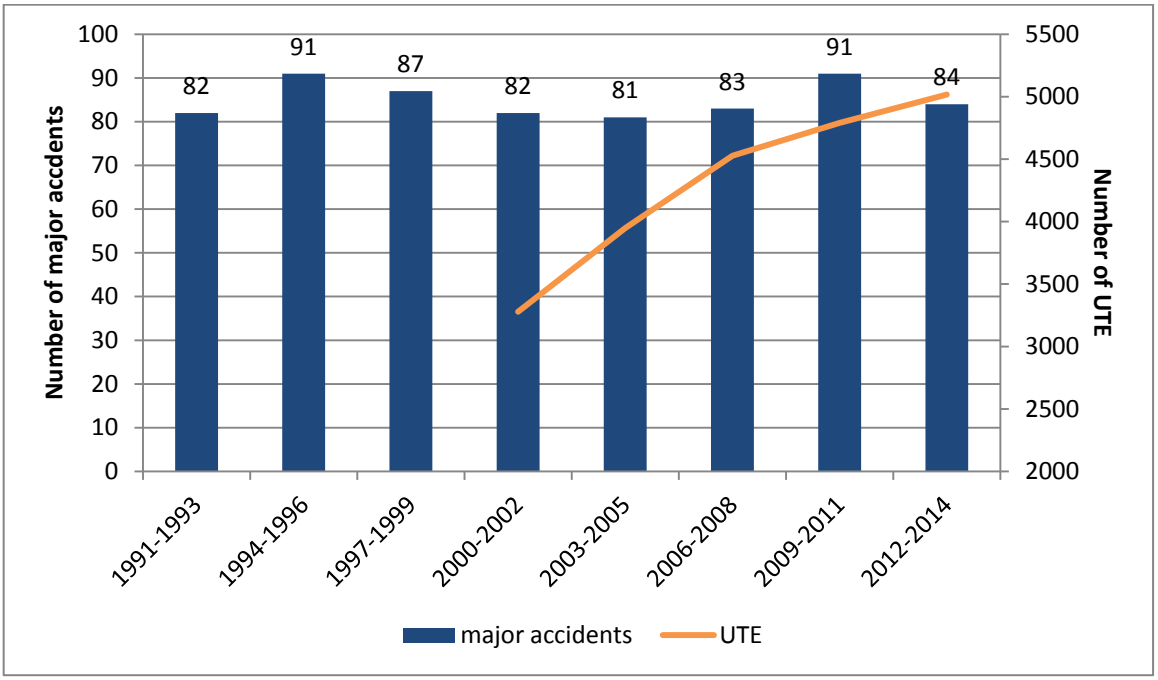
In order to improve the situation further, clearer inspection requirements have been introduced with the Seveso-III-Directive establishing amongst other a timeframe also for lower-tier establishments (at least every three years), clarifying the provisions on inspection plans and systematic appraisals and an obligation for non-routine inspections e.g. after serious complaints or near misses[17].

3. STATISTICS ON MAJOR ACCIDENTS DRAWN FROM EMARS

The number of major accidents is one of the key indicators to measure the performance of the Seveso-II-Directive and its aim to prevent major accidents. On itself this figure is however not significant, as it needs to be considered that other factors influence the assessment, such as the increasing number of establishments or the impact (health, environmental, economic) of accidents. In particular for the latter little data is available hence limiting the possibility to assess the situation. Finally, the relatively low number of comparable accidents with similar causes and impacts does not allow drawing sound conclusions.

[17] Near misses are, for instance, serious safety relevant incidents which eventually did not lead to an accident as the situation was eventually brought under control.

Figure 10: Number of major accidents meeting at least one criterion of Annex VI over the period 2000- 2014[18]

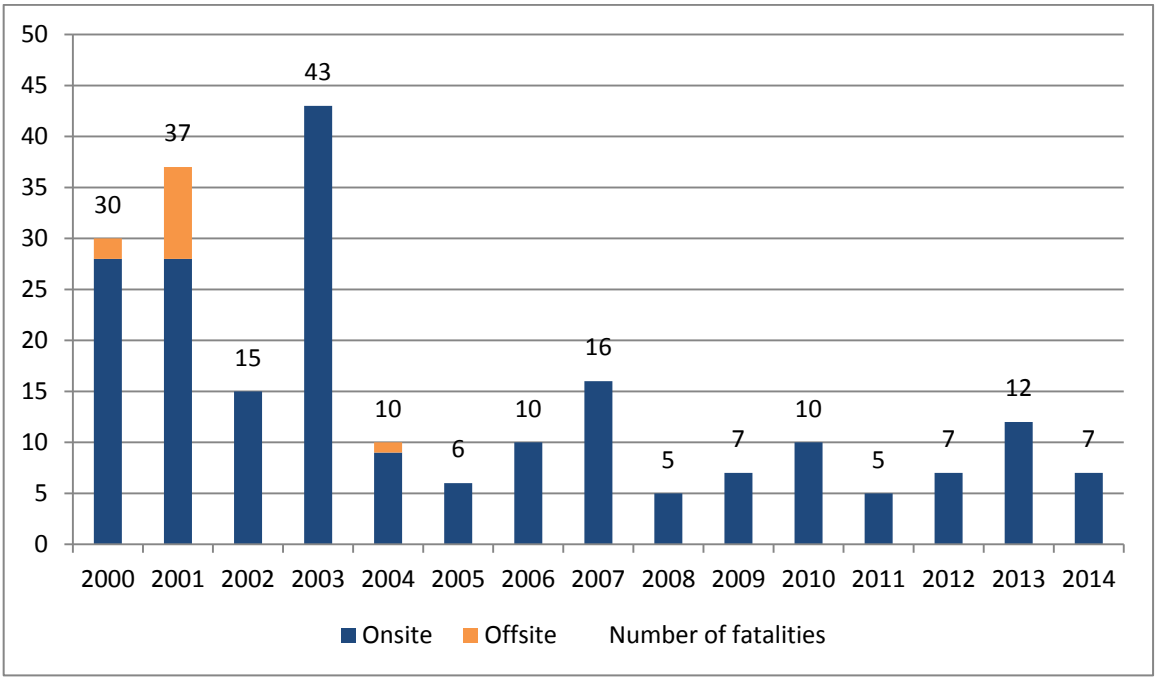


Between 2000 and 2014 a total of 490 accidents were reported to the eMARS database. Out of those, 421 were major accidents fulfilling at least one criterion of Annex VI[19] to the Seveso-II-Directive. This means that there are on average 30 major accidents per year. Around 70% of the major accidents occurred in upper-tier establishments. As can be seen in Figure 10, overall the number of major accidents remains relatively stable despite the increase in the number of sites covered by the Seveso-II-Directive. In addition, Figure 11 suggests that the number of fatalities has reduced since 2000 which could indicate that the impact of accidents might be reducing. It is in particular encouraging that no offsite fatality was reported after 2004.

[18] This graph only shows UTE because the number of LTE is only available as of the 2009-2011 reporting period, as explained earlier in this report. However, it can be assumed that including LTE would actually not change the overall picture as the increase of LTE and UTE is largely similar over the years. Statistically reliable data on accidents is not available prior to 1991.

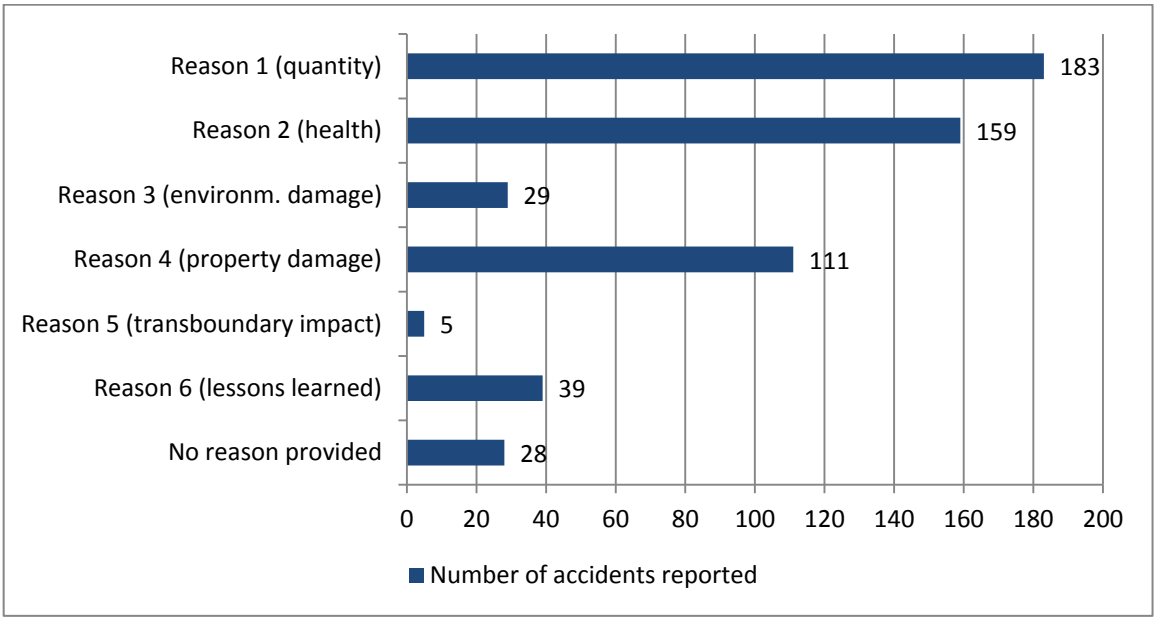
[19] For editorial simplification, for the purpose of this chapter, the term 'major accident' refers to the 421 accidents that were reported as fulfilling at least one criterion of Annex VI. For the other reported accidents it is not easily possible to establish whether they constitute major accidents or other kinds of accidents that were reported on a voluntary basis e.g. for the purpose of lesson learning.

Figure 11: Number of onsite and offsite fatalities in 2000- 2014



The reasons for reporting major accidents have not changed much over the years. Among the hazardous phenomena involved in the reported accidents, toxic release appears to be the most frequent. This correlates with the fact that the majority of accidents involve toxic and/or flammable substance. Considering also the number of establishments, the collected data shows that the petrochemical & oil refineries sector are most prone to major accidents.

Figure 12: Reasons for reporting major accidents in eMARS for the period 2000-2014[20, 21]



The eMARS database includes limited information about socio-economic consequences (e.g. lost property, environmental damage, job-loss, image loss, long-term impact on the neighbourhood). Only 124 out of 490 accidents reported include such data to some extent. Typically, this is limited to the immediate impact (e.g. insured losses) and does not consider wider or long-term impacts (e.g. job-loss, environmental damage). More substantial information about socio-economic consequences is publically available only for a small number of exceptional major accidents. The United Kingdom's Health and Safety Executive has developed a methodology for modelling the economic consequences for some impacts of a major accident[22]. Although this excludes certain important impacts (including environmental damage), applying this approach to the European Union suggests an annual impact in the order of several billion Euro. While improved knowledge of socio-economic consequences would be useful to better understand the impact and benefits of the legislative framework, it would constitute a significant effort to collect such information more systematically.

[20] Sum of reasons is higher than the total number of accidents reported because an accident may fulfil several reasons.

[21] The criteria behind the reasons can be summarised as follows:

- Reason 1: Substances involved: greater than 5% of quantity in column 3 of Annex I;
- Reason 2: Injury to persons: >= 1 fatalities, >= 6 hospitalising injuries etc.;
- Reason 3: Immediate damage to the environment (according to Annex VI);
- Reason 4: Damage to property: onsite >2M Euro, off-site > 0.5M Euro;
- Reason 5: Cross-border damage: transboundary accidents;
- Reason 6: Interesting for lessons learned

[22] http://www.hse.gov.uk/research/rrhtm/rr1055.htm

4. CONCLUSIONS AND WAY FORWARD

Considering the very high rate of industrialisation in the European Union, the Seveso-II-Directive has contributed to achieving a low frequency of major accidents. It is widely considered as a benchmark for industrial accident policy and has been a role model for legislation in many countries world-wide.

The above analysis confirms that the Seveso-II-Directive is working properly. The practical implementation and enforcement of the Seveso-II-Directive has further improved in most areas, and in particular industry operators are complying to a large extent with the requirements regarding safety reports and internal emergency plans. However, as was observed already for the previous reporting periods, efforts are still needed in some fields in a small number of Member States. This concerns in particular the development and testing of external emergency plans, providing information to the public and inspections. However, while these shortcomings may have increased the risk, there is no evidence that this has already resulted into a higher rate of major accidents in those Member States.

Despite the increase in the number of establishments covered by the Seveso-II-Directive, overall the annual number of major accidents remained stable around 30 per year and there are indications that their impact is decreasing.

The findings covering the previous reporting period have been taken into account by the Commission in the review of the Seveso-II-Directive, which has led to the adoption of the Seveso-III-Directive. The new Directive improves the right of the public to be appropriately informed, making certain provisions also applicable to lower-tier establishments. It includes detailed rules to guarantee adequate consultation of the public on individual projects and introduces stricter provisions on inspections. Compliance with the Seveso-III-Directive is, therefore, expected to contribute to the necessary improvements highlighted in this report.

The Commission will closely monitor progress on these issues and continue to assist Member States to further improve their level of performance, through various supporting activities and enforcement action as appropriate.

The Commission will also continue working on simplification of reporting process thus reducing administrative burden whilst improving the relevance and quality of the data deducted from the reports. To achieve this, the monitoring systems will be reviewed also with a view to develop indicators to better monitor the implementation and assess the performance of the Seveso-III-Directive.