PROJECTS OF THE OECD'S WORKING GROUP ON CHEMICAL ACCIDENTS (WGCA)

Ceci P.; Floridi E.; Trotta N.
Institute for atmospheric pollution - National Research Council
Via Salaria Km 29,300 C.P. 10 - Monterotondo Stazione (RM), 00016, Italy

SUMMARY

The activities connecting to production, storage, transport, use and disposal of chemicals may involve risks, and can lead to major accidents. Bhopal (1984) was the scene of the accident with the most human casualties; the Basel warehouse fire (1986) caused large-scale pollution of the Rhine; and the Baia Mare spill (2000) severely threatened the Danube River. Recently the populations and the towns of Enschede (2000) and Toulouse (2001) were seriously affected by chemical explosions. The Organisation for Economic Co-operation and Development (OECD) (http://www.oecd.org/home/) - an intergovernmental organisation, located in Paris, in which representatives of 30 industrialised countries (from Europe, North America, and the Pacific) and the European Commission meet to co-ordinate and harmonise policies, discuss issues of mutual interest, and work together to respond to international concerns - issued a specific "Working Group on Chemical Accidents" (WGCA) with the aim of help public authorities, industries, labour and any individual, group or organisation that is interested to prevent chemical accident and, in case of occurrence, to response appropriately. The objectives of the Chemical Accidents Programme include development of guidance materials related to chemical accident prevention, preparedness and response, exchange of information and experience, and analysis of specific issues of mutual concern in OECD member countries. In this context, many workshops and special sessions have been held since 1989. As part of its work on chemical accidents, the OECD has issued several Council Decisions and Recommendations (the former legally binding on member countries), as well as numerous Guidance Documents and technical report of the various workshops:. Guiding Principles for Chemical Accident Prevention, Preparedness and Response, Guidance on Safety Performance Indicators, Guidance Concerning Chemical Safety in Port Areas (a joint effort with the IMO); Guidance Concerning Health Aspects of Chemical Accidents. The scope of this article is to describe in detail the documents "Guiding Principles for Chemical Accident Prevention, Preparedness and Response" [1] and "Guidance on Safety Performance Indicators"[2].

THE OECD PROGRAMME ON CHEMICAL ACCIDENTS

The OECD Programme on Chemical Accidents addresses a subject that concerns everyone who uses or handles hazardous chemicals, works in a chemical plant, or lives near one. This programme helps public authorities, industry, labour and other interested parties prevent chemical accidents and respond appropriately if one occurs.

The mandate of the Working Group is to:

- coordinate and exchange information, experiences and ideas related to chemical emergency prevention, preparedness, and response;
- analyze specific topics of common interest between member States;
- develop recommendations and guidance on prevention of, preparedness for, and response to accidents involving hazardous substances;
- draw up agreements.

Representatives of OECD member and observer countries, the European Commission, industry, labour, non-governmental organisations and other international organisations work in the WGCA and International Labour Office (ILO), International Marittime Organization (IMO), United Nations Environment Programme (UNEP), UN Economic Commission for Europe (UNECE), World Health Organization (WHO), and United Nations Office for the Coordination of Humanitarian Affairs are belong them.

Italy takes part in works of WGCA with a delegation of experts of National Institute for Occupational Safety and Prevention (ISPESL), Ministry for Environment and Land Protection, Ministry of Interior – CNVVF, National Research Council - Institute for atmospheric pollution (CNR – IIA) and Agency for Environmental Protection and Technical Services (APAT)

GUIDING PRINCIPLES FOR CHEMICAL ACCIDENT PREVENTION, PREPAREDNESS AND RESPONSE

The Guiding Principles for Chemical Accident Prevention, Preparedness and Response is the primary guidance document and the first edition of this document was published in 1992. In the preparation of this document, experts from government, industry, trade unions, environmental interest groups and other international organisations worked closely together. The application of the Guiding Principles is the subject of an OECD Council Recommendation; they have been translated into many languages, and are also used widely in non-member countries.

The guide helps public authorities, industry and communities worldwide to prevent chemical accidents and improve preparedness and response, should an accident occur.

The guide has been recently revised to include results of efforts, activities, and workshops over the past 10 years: As a result the second edition of the Guiding Principles, published in 2002, now includes new elements addressing additional topics such as: the development of a health infrastructure to deal with chemical accidents; implementation of the principles by small and medium-sized enterprises; chemical safety at transport interfaces, such as port areas; the safety of pipelines; integrated management of health, environment, safety and quality control; guidance for audits and inspections; and application to sabotage and terrorism.

This second edition is a more comprehensive document to help public authorities, industry, and communities worldwide prevent and prepare for accidents involving hazardous substances resulting from technological and natural disasters, as well as sabotage.

The guide is an example of how OECD can bring together experts from many sectors of society in order to produce a practical instrument which will be of value to many in member and non-member countries alike.

The guide has the objective to assist public authorities, industry and communities worldwide to:

- prevent chemical accidents resulting from industrial and natural causes, as well as possible terrorist acts;
- plan for emergencies and communicate effectively if they occur;
- respond to accidents and minimise their adverse effects;
- follow up, including clean-up action and accident reporting.

The objective of these Guiding Principles is to set out general guidance for the safe planning, construction, management, operation and review of safety performance of hazardous installation in order to prevent accidents involving hazardous substances and, recognising that such accidents may nonetheless occur, to mitigate adverse effects through effective land-use planning and emergency preparedness and response. These principles provide advice related to the role and responsibilities of public authorities, industry, employees and their representatives, as well as interested parties such as members of the public potentially affected in the event of an accident, and non-governmental organisations.

For purposes of this text, the word safety embraces health, safety and environmental protection, including protection of property, to the extent that they relate to prevention of, preparedness for response to accidents involving hazardous substances.

As a general matter, employee and public protection, environmental protection and other aspects of industrial safety are closely related and it is beneficial for an enterprise to integrate and co-organise various aspects of these areas as much as possible. While the text addresses only those aspects concerning accidents involving

hazardous substances, it is recognised that actions taken in conformity with the Guiding Principles will serve to improve overall environmental health and safety performance.

These Guiding Principles apply to all hazardous installations, i.e. fixed plants/sites that produce, process, use, handle, warehouses or dispose of hazardous substances such that there is a risk of an accident involving the hazardous substance(s). Thus, the Principles apply not only to installations which chemicals are produced or processed, but also to other industrial and commercial operations at which hazardous substances are handled or stored with a potential for fire, explosion, spills or other accidents involving hazardous substances. Accidents involving the release of radioactivity materials have not been addressed, recognising that this subject is already addressed in other international guidance materials. Transport of hazardous substances external to a hazardous installation by means of pipelines, road, rail, sea or air have not been specifically addressed, although many of the Principles apply to such transport. These Principles would, however, apply to transfer facilities at which hazardous substances are loaded and/or unloaded.

These Guiding Principles are based on the premise that all hazardous installations should be expected to comply with the same overall safety objectives - that is, the same expectation of such, irrespective of size, location or whether installation in publicly or privately owned.

The Guiding Principles have been developed with the recognition that there must be flexibility on their application due to significant differences which exist among countries with respect to, for example, legal and regulatory infrastructures, culture, and resource availability. In addition there may be differences in approach in applying the Principles to new and to existing installations. Furthermore, these Guiding Principles apply to a wide range of industries and types and sizes of installations.

Thus, while these factors do not diminish the applicability of the Guiding Principles, they may affect the approach taken to implement them. Therefore, consideration will need to be given to how to implement these Principles in a specific situation. Throughout the development of the text; the ad hoc Group has worked to ensure that these Guiding Principles are applicable worldwide, not only OECD countries, and that the text is consistent with the concept of sustainable development. Member countries have agreed to distribute the Principles as widely as possible, working with outside bodies to reach interested parties in non-OECD countries.

The Guide is structured on six Parts :

- Part A: Prevention of Chemical Accidents : it includes an overview of the roles and responsibilities of the various interested stakeholders. It also emphasises the need for co-operation among stakeholders, and it takes into account the fact that risks need to be addressed at the local level.

- Part B: Emergency Preparedness/Mitigation: it addresses the roles and responsibilities of the various stakeholders with respect to emergency planning (sometimes called preparedness planning) and mitigation of accidents (including land-use planning and communication with the public).

- Part C: Emergency Response: it addresses the roles and responsibilities in responding to chemical accidents. The focus of the activities described in this Part is the local area where an accident has occurred; therefore, the public authorities addressed here include local response authorities (e.g., fire, emergency medical and police) and local/regional government agencies, as well as health/medical facilities.

- Part D: Follow-up to Incidents (Accidents and Near-Misses): it deals with the actions to be taken after an accident or near-miss has occurred, and following immediate response activities. The focus is on learning from the experience in order to avoid similar incidents in the future; this part therefore addresses assessment of consequences, incidents reporting and investigations.

- Part E: Special Issues: it supplements Parts A – D of the Guiding Principles by providing additional, specific guidance related to transboundary/international issue s- including transboundary co-operation, international assistance, and transfer of technology and international investments - and fixed installation/transport issues – including transport interfaces, port areas and pipelines.

Parts A - D give specific and detailed information on the roles and responsibilities of industry, public authorities, and the public and other stakeholders.

The document has been translated into the Italian language by Ministry for Environment and Land Protection with the technical collaboration of the Agency for Environmental Protection and Technical Services and of National Institute for Safety and Health at Work of Italy and it will be disposable at web site of the Ministry of Environment in the short term.

The Guiding Principles were the subject matter of the last workshop on "Lessons Learned from Chemical Accidents and Incidents" held in Sweden in September 2004 [3]. Delegates discussed the appropriate mechanism for keeping the Guiding Principles updated and they have agreed to do an addendum to the Guiding Principles every three years and to complete a formal revision of the Guiding Principles every ten years.

GUIDANCE ON SAFETY PERFORMANCE INDICATORS

The project to develop guidance on Safety Performance Indicators (SPI) - related to chemical accident prevention, preparedness, and response at fixed facilities - .for industry, public authorities, and communities is started on 1998 and it concluded on 2002. The Guidance on SPI was published in 2003 as an interim document with the view that it be revised based on the results of the (May 2004 – August 2005) pilot programme designed to test the guidance [3].

The project is started to assist stakeholders implement the Guiding Principles.

The aim of the SPI guidance is to evaluate whether the actions of stakeholders are leading to improvements in chemical safety: the overall objective is to help industry, public authorities, and communities measure whether the many steps taken to reduce the likelihood of accidents, and improve preparedness and response capabilities, truly lead to safer communities and less risk to human health and the environment. Specifically, the document is being designed to serve as a tool to be used by stakeholders when establishing programs to determine their success in implementing appropriate laws, policies, and guidance; and to assess whether actions taken to implement those laws, policies, and guidance lead to improved levels of chemical safety.

The guidance is developed for industrial enterprises - that produce, use, handle, store, transport, and/or dispose of hazardous chemicals - , public authorities - with responsibilities related to prevention of, preparedness for, or response to chemical accidents – and communities - responsible for protecting their citizens and environment from chemical accidents:

- it can be used, by the industry, to assess whether they are implementing appropriate chemical safety programs/policies, to help to determine the extent such programs & policies are making a differences, to identify whether there is appropriate emphasis on different aspects of safety management; and to set priorities for future investment of resources.

- it can be used, by the public authorities, to assess whether their programs and activities are leading to overall improvements in chemical safety, to facilitate their relationship with industry and to provide a basis for facilitating communication with other stakeholders concerning chemical safety.

- it can be used, by the communities, to provide a tool to measure their performance with respect to accident prevention, preparedness, and response.

The guidance does not define a precise methodology, but rather provides guidance on how to develop and use safety performance indicators. It is not prescriptive; rather it provides suggestions related to the elements that might be included in a voluntary SPI Programme and provides general guidance on the process of establishing and implementing such a programme. Specifically, it gives the three stakeholder groups tools with which they can design their own SPI programmes by identifying key elements: targets, activities indicators and outcome indicators.

For purposes of this document, the term “indicators” is used to mean observable measures that provide insights into a concept – safety – that is difficult to measure directly. It contains two types of measures:

"activities indicators" which help identify whether your organisation is taking actions believed to lower risks (e.g., the types of actions described in the Guiding Principles); and "outcome indicators" which help measure whether such actions are, in fact, leading to less likelihood of an accident occurring and/or less adverse impacts on human health or the environment should an accident occur.

The guidance can only be effectively used if efforts are made to decide which elements are relevant under particular circumstances, and steps are taken to adapt these elements to the specific needs and objectives of the three stakeholder groups (industry, authority and public)..

The SPI guidance is structured on:

- Introduction: it provides introductory information including executive summary, overview, objective and scope, how to use the guidance, and background. it describes a process by the following steps for using the guidance to develop an individual SPI Programme, that is both appropriate for the particular organisation and can provide a realistic assessment of changes in the level of chemical safety over time:

    - Step 1: to define own goals/ and objectives with respect to safety

    - Step 2: to choose the specific targets, outcome indicators, and activity indicators that might be relevant to identify both strengths and weaknesses of the stakeholders

    - Step 3: to adapt and to define the indicators to the vocabulary and procedures of the organization

    - Step 4: to identify what each indicator will measure and to determine the appropriate metrics (or scale) for the performance indicators

    - Step 5: to apply the appropriate metrics (or scale) to the indicators

- Part A: it is designed to help enterprises/organisations assess their performance related to chemical accident prevention, preparedness and response. This part focuses on targets, outcome and activities indicators relating to the internal goals and objectives, administrative procedures, technical issues, external cooperation, emergency preparedness and response, accident/near miss reporting and investigation

- Part B: it is designed to help public authorities and it focuses on targets, outcome and activities indicators relating to internal organisation and policies, legal framework, external cooperation, emergency preparedness and response, accident/near miss reporting and investigation

- Part C: it is designed to help communities and it focuses on targets, outcome and activities indicators relating to prevention of accidents, emergency preparedness and response and follow-up to accidents.

This SPI guidance should be used on a voluntary basis, only to the extent appropriate, and only when adapted to particular circumstances. Not all elements of the guidance will be appropriate in each situation.

It is important to remember that the more each enterprise/organisation

- establish which elements are appropriate in their particular circumstances;

- suitable the elements in light of internal policies and procedures and their local, cultural and legal contexts;

- periodically review their SPI programme and revise it, as appropriate,

the more the process is reliable.

The guidance contains the list of possible outcome and activities indicators for each stakeholders and the following list of general outcome indicators that may be applicable to all stakeholders (industry, public authorities, communities):

- Reduction of chemical risks at hazardous installations (as measured by, e.g.: risk assessments; reduction of chemical inventories; reduction of adverse impacts from accidents; improvement in processes and process techniques; reduction of vulnerability zones; and improved transportation).

- Extent of interaction and collaboration of public authorities, industry, and communities leading to improved safety of hazardous installations and reduction of chemical risks to local communities.

- Reduction of the frequency of accidents and near-misses, and their severity.

- Reduction of injuries and fatalities from chemical accidents.

- Reduction of environmental impacts from chemical accidents.

- Reduction of property damages from chemical accidents.

- Improvement in response to chemical accidents (reduction of delay and increased efficiency).

- Reduction of impact zone of chemical accidents (distance).

- Reduction of the number of people affected by chemical accidents (e.g.,evacuation, shelter in place, etc.).

These can, if measured over time, show if chemical safety has improved. When taken with other outcome indicators, they can present a picture of chemical safety in the broadest sense as well as show how industry, public authorities, and communities effect the improvement of chemical safety:

The SPI Guidance is available only on english language version at the moment and a navigable internet version is disposable at http://www2.oecd.org/safetyindicators/. The internet version contains a research tool which allows the user to navigate around the document searching by topic, stakeholder or through the table of contents. It also contains an additional section to assist users in adapting the general guidance to their own situation. Through a series of questions, this tool lead readers to relevant parts of the guidance, allowing them to select indicators applicable to their programme.

REFERENCES

1. OECD Guiding Principles for Chemical Accident Prevention, Preparedness and Response - Guidance for Industry (including Management and Labour), Public Authorities, Communities, and other Stakeholders - Second edition - OECD Environment, Health and Safety Publications - Series on Chemical Accidents No. 10.
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3. Environment Directorate – Joint meeting of the chemicals committee and the working party on chemicals, pesticides on biotechnology – Draft summary of the 15th meeting 5-6 October 2005, ENV/JM/ACC/M(2005)1, 20 March 2006