

*GUIDING PRINCIPLES FOR CHEMICAL ACCIDENT PREVENTION,
PREPAREDNESS AND RESPONSE*

**Guidance for Public Authorities, Industry, Labour and Others
for the Establishment of Programmes and Policies related to Prevention of,
Preparedness for, and Response to Accidents Involving Hazardous Substances**

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To Assist the Reader:

A Glossary will be found in Section J. Some of the terms defined in the Glossary may not be well known. In addition, the meaning of some of these terms may not always be clear in the particular context in which they are used. While an attempt has been made throughout the Guiding Principles to use words in a manner consistent with their common meanings, some words are understood differently in different countries or contexts.

The first time a word found in the Glossary appears in each Section, it has been underlined. This will help the reader know which terms have been defined for the purposes of the text.

Some paragraphs are printed in bold. This has been done to highlight what the ad hoc Group believes are the primary or most general Principles. The bolded paragraphs are often followed by explanatory or more specific text. However, bolding is not intended to signify any special status.

A Key Word Index in Section K will help the reader locate paragraphs that concern a particular subject or party. It contains over eighty terms. The cross-references in this Section refer to related (but not necessarily identical) concepts. In using the Key Word Index, it should be borne in mind that slightly different terms are sometimes used in different parts of the Guiding Principles, even when the same or a closely related topic is addressed.

Introduction

Background

The Guiding Principles set out in this text have been prepared by an expert group, established by the OECD Environment Committee, whose mandate included the development of guidance on prevention of, preparedness for, and response to accidents involving hazardous substances, including the special issues associated with investments and aid programmes related to hazardous installations in non-OECD countries.

In order to develop the basis for the Guiding Principles, the expert group (the OECD ad hoc Group of Experts on Accidents Involving Hazardous Substances, hereinafter referred to as the "ad hoc Group") held a series of Workshops during 1989-1991 to address the range of issues associated with accident prevention, preparedness and response, and to consider the roles and responsibilities of the various parties who are necessarily involved in such activities, i.e. government authorities at all levels, management of hazardous installations, other employees at the installation, and the potentially affected public. Each of the Workshops benefited from the wide range of expertise and perspectives of about 120 participants, generally including representatives from all the interested parties. The Workshops

reached a series of conclusions which have been adapted for use as primary input for the Guiding Principles in this document. In preparing the Principles, the ad hoc Group also took into account the various existing international guidance documents. A list of selected references is included as Section L.

To further test the validity and soundness of these Principles, the ad hoc Group widely circulated the conclusions of the Workshops, seeking comments from any interested party.* The ad hoc Group also circulated early drafts of this text to other international organisations, to industry and labour organisations, and to other interested parties both within and outside the OECD Member countries. Representatives of these groups participated throughout the review process.

The work of the ad hoc Group and, in particular, the development of the Guiding Principles, have been undertaken in close co-operation with other international organisations. A number of these organisations, including the United Nations Environment Programme (UNEP), the International Labour Office (ILO), the International Maritime Organization, the World Health Organization, the World Bank, and the United Nations Centre on Transnational Corporations, are very active

* Copies of the reports of these Workshops are available from the OECD. The Workshops were: **Workshop on Prevention of Accidents Involving Hazardous Substances: Good Management Practice**, hosted by the Federal Republic of Germany (Berlin, May 1989); **Workshop on the Provision of Information to the Public and on the Role of Workers in Accident Prevention and Response**, hosted by Sweden (Stockholm, September 1989); **Workshop on the Role of Public Authorities in Preventing Major Accidents and in Major Accident Land Use Planning**, hosted by the United Kingdom and the Netherlands, supported by the Commission of the European Communities (London, February 1990); **Workshop on Emergency Preparedness and Response and on Research in Accident Prevention, Preparedness and Response**, hosted by the United States and Canada, co-sponsored by the United Nations Environment Programme (Boston, May 1990); and **Workshop on Prevention of Accidents Involving Hazardous Substances: The Role of the Human Factor in Plant Operations**, hosted by Japan (Tokyo, April 1991).

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in the area of chemical accident prevention, preparedness and response and have prepared guidance materials on related subjects. Most of these guidance materials are listed as references (see Section L). Many of them provide important detailed technical information which can support the General Principles set out in this text.**

Special mention should be made of two documents: the ILO Code of Practice on Prevention of Major Industrial Accidents, and the UNEP APELL (Awareness and Preparedness for Emergencies at the Local Level) Handbook. These documents were prepared during approximately the same period, and aim to provide complementary guidance.

** It should be noted that there are numerous international guidance materials concerning the safe management and control of hazardous substances including, for example, UNEP's *London Guidelines for the Exchange of Information on Chemicals in International Trade (Amended 1989)*, and the Food and Agriculture Organization's *International Code of Conduct on the Distribution and Use of Pesticides (amended 1989)*, both of which incorporate prior informed consent procedures for banned and severely restricted chemicals. While these materials provide important related guidance, only those documents which specifically address chemical accident prevention, preparedness and response have been included as references in these Guiding Principles.

Objective and Scope

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 installations 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 other 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, and 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-ordinate various aspects of these areas as much as possible. While this 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, store or dispose of hazardous substances such that there is a risk of a

major accident involving the hazardous substance(s). Thus, the Principles apply not only to installations at 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 radioactive 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 safety - irrespective of size, location or whether the installation is publicly or privately owned.

These Guiding Principles have been developed with the recognition that there must be flexibility in 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

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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 in 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 UN bodies to reach interested parties in non-OECD countries.

These Principles are meant to be comprehensive with respect to accident prevention, emergency preparedness and emergency response. To that end, the text is organised as follows:

- Following an Executive Summary in Section A, prevention is addressed beginning with the role of public authorities in developing safety objectives and a control framework, and the role of industry in establishing safety policies and practices (subsections B.2 and B.3, respectively).
- Principles then follow which are related to planning, construction and operation of hazardous installations, as well as to safety performance review and evaluation as they relate to prevention of accidents (subsections B.4-B.6).
- In the next Section, actions are considered which should be undertaken in order to minimise the adverse effects of residual risks through land-use planning (Section C).
- That Section is followed by one on community awareness (Section D).
- The next Section covers the range of issues involved in emergency preparedness and response (Section E).

- There is also a Section on research and development related to accident prevention, preparedness and response (Section F).

Although the Guiding Principles apply to hazardous installations irrespective of location, the OECD Ministers and other high level officials who met at the OECD Conference on Accidents Involving Hazardous Substances in February 1988 concluded it would be valuable to consider issues which should be emphasized in relation to installations in non-OECD countries. Therefore, separate Sections have been included to address the special concerns involved with:

- transfer of technology and international investments related to installations in non-OECD countries (Section G); and
- bilateral and multilateral assistance programmes (Section H).

There is a list of acronyms in Section I. This is followed by a Glossary in Section J. While attempts were made to use terms in a way consistent with their common meanings, this was not always possible, particularly for terms which are understood differently in different contexts or countries.

Section K is a Key Word Index.

Section L includes a list of references. This is not meant to be an all-encompassing list; rather these publications were chosen because they were considered by the ad hoc Group to be of particular relevance and they are generally available to the public. Section L also includes a list of contact points in OECD countries and in international organisations where it may be possible to obtain information on publications and on programmes related to chemical accident prevention, preparation and response.

Finally, the texts of the three OECD Council Acts referred to in the Guiding Principles, and the Environment Chapter in the Revised OECD Guidelines for Multinational Enterprises, will be found in Annexes I through IV.

Section A

Executive Summary

The OECD Guiding Principles for Chemical Accident Prevention, Preparedness and Response deal with the roles and responsibilities of all interested parties including public authorities at all levels, management, and other employees of enterprises operating hazardous installations.

The Guiding Principles address the various issues which may affect safety at a hazardous installation. These include prevention-related issues such as those concerning the establishment of a corporate Safety Policy, the planning, design, siting, construction and operation of the installation, and the review of safety performance as well as the establishment of safety objectives and a control framework by public authorities. In addition, the Guiding Principles address the issues of emergency planning and response in order to mitigate the adverse consequences of any accident that might occur. Other issues covered are land-use planning, community awareness, research and development, and aid and investments related to installations in non-OECD countries.

While the main text is laid out issue-by-issue, this Executive Summary provides an overview of the roles and responsibilities of each of the parties under three main headings: Public Authorities; Management of Hazardous Installations; and Employees. In addition, the Summary includes certain items which are critical to effective accident prevention, preparedness and response but which do not fit neatly under one of the first three headings. These have been included under the headings: Industry in General; Other General Principles; and Investments, Technology Transfer, and Aid Programmes Related to Installations in Non-OECD Countries.

A.1 Public Authorities

- (a) Public authorities* should motivate all sectors of society to recognise the need for accident prevention, preparedness and response and to take the measures which are required of each of them.
- (b) Public authorities should establish safety objectives and ensure that these objectives are being met. To do this, they should, among other things, establish a clear and coherent control framework. The control framework should set out binding requirements, define which installations are covered, establish notification and information requirements, and provide for

enforcement actions for non-compliance with the requirements. Public authorities should also provide guidance to industry and others to help them understand how to fulfill these requirements. A co-ordinating mechanism should be established where more than one competent authority exists.

- (c) Public authorities should establish appropriate arrangements for monitoring the safety of hazardous installations by means of both a planned sequence of inspections and visits in response to accidents, complaints, and other indicators that

* The first time a word defined in the Glossary (Section J) is used in each Section of the Guiding Principles, it is underlined.

- management control may be inadequate.
- (d) Public authorities should require the investigation and reporting by management of accidents. Public authorities should also investigate significant accidents. Public authorities should publish accident information as widely as possible, including any conclusions arising from the analysis or investigation of accident data.
 - (e) Public authorities should establish appropriate procedures, including planning, siting, licensing and other means for giving permission for a hazardous installation to operate in a given location under certain conditions, and for limiting inappropriate developments in the vicinity of hazardous installations.
 - (f) Public authorities should ensure that the potentially affected public have the appropriate information concerning hazardous installations and concerning what to do in the event of an accident with off-site effects. Communication with the public should be the joint responsibility of public authorities and industry.
 - (g) Public authorities, at all levels, should establish emergency preparedness programmes concerning accidents involving hazardous substances. Transport accidents involving hazardous substances should be integrated in these programmes.
 - (h) Public authorities should ensure the development, implementation, testing and updating of adequate on-site and off-site emergency plans in conjunction with management of hazardous installations and, as appropriate, with the participation of employees and of neighbouring communities. They should ensure that adequate manpower, equipment and financial and other resources necessary to carry out emergency plans are readily available for immediate activation in the event, or imminent threat of, an accident. Emergency response personnel should be educated and trained, on a continuing basis, to ensure that a state of readiness is maintained.
- (i) Public authorities should ensure that accident warning systems are available to warn the potentially affected public when an accident has occurred.
 - (j) Public authorities should facilitate and promote the sharing of information and experience related to accident prevention, preparedness and response among countries and with industry.
 - (k) Public authorities should actively promote and support research and development related to accident prevention, preparedness and response.
 - (l) Public authorities should be provided with adequate staff and resources, and the staff should be appropriately educated and trained, in order to carry out their roles and responsibilities.

A.2 Management of Hazardous Installations

- (a) Management of hazardous installations has the prime responsibility for designing, constructing and operating a hazardous installation in a safe manner and for developing the means to do so. Therefore, safety - which incorporates protection of health and the environment - should be an integral part of the business activities of an enterprise. This includes the development of a corporate safety culture, as well as appropriate corporate safety policies and

- procedures, and ensuring their application by employees at all levels.
- (b) All enterprises operating hazardous installations should aim to reach the ultimate goal of “zero incidents”, and resources should be targeted to this goal.
 - (c) The day-to-day management of safety should be the responsibility of local line management at each installation in an enterprise.
 - (d) Producers of hazardous substances have a responsibility to promote the safe management of any hazardous substance they produce throughout the total life cycle of the substance, consistent with the principle of “product stewardship”.
 - (e) When planning, designing and modifying hazardous installations and processes, management should ensure that hazards are identified and ranked and that the most suitable means of reducing or eliminating the hazards are instituted. Similar analyses should be undertaken for proposed acquisitions and for existing installations that were not subject to a critical safety examination.
 - (f) Management should ensure that every hazardous installation has written operating procedures necessary for its safe operation.
 - (g) Management should ensure that the staffing of a hazardous installation is done in a manner which allows for the safe operation of the installation at all times. Management should take all reasonable measures to ensure that everyone employed at a hazardous installation, including temporary employees and contractors, receives appropriate education and training and is competent to perform their duties in the operation of the installation under both normal and abnormal conditions.
 - (h) Safety measures should be incorporated in the engineering design of a hazardous installation to enhance the intrinsic safety of the installation wherever practicable. This should take into account the fact that safety may be enhanced by: avoiding or minimising, to the extent reasonably practicable, the use of hazardous substances; substituting less hazardous substances for hazardous substances; reducing inventories of hazardous substances; simplifying processes; reducing process temperatures and pressures; and separating people from hazardous substances to the extent possible.
 - (i) Management should pay particular attention to quality assurance during construction of a hazardous installation.
 - (j) Management should not engage contractors to perform jobs if this would compromise safety. Management should do business with only those contractors who are able to satisfy the management that the services will be carried out in compliance with all applicable laws and regulations as well as the relevant safety policies of the enterprise. Management should monitor and control safety compliance by contractors.
 - (k) Management should ensure that effective two-way channels for the transfer of safety information between management and other employees are established at hazardous installations. The regular channels of communication should be reinforced by the establishment of a Safety Committee structure to provide a formal mechanism for consultation on safety matters.
 - (l) Management should ensure that arrangements exist for the safety assurance of hazardous installations, including provision for the regular

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- maintenance, inspection and testing of equipment so that the equipment is fit at all times for the purpose for which it was designed.
- (m) Management should establish formal procedures to ensure that no repair work or modifications to plant, equipment, processes, facilities or procedures compromise safety.
 - (n) Management should satisfy itself as to the suitability of storage facilities for its hazardous substances, as well as the competence of the warehousekeeper to undertake the storage required.
 - (o) Management should establish arrangements for the regular and comprehensive monitoring of safety of all its hazardous installations including those of subsidiary and, to the extent possible, affiliate enterprises.
 - (p) Management should, in co-operation with appropriate public authorities, provide relevant information to the public concerning the hazardous installation and actions to be taken in the event of an accident.
 - (q) Management should be responsible for the development, implementation, testing and updating of on-site emergency plans, and for ensuring that appropriate manpower, equipment, financial and other resources are available for immediate activation of the plans, as necessary. Management should provide to those responsible for off-site emergency plans the information they have which is necessary to assess hazards and to develop the off-site plans. There should be close co-operation between those responsible for off-site and on-site emergency planning, and all related on-site and off-site plans should be consistent and integrated.
 - (r) To form a basis for both off-site and on-site emergency planning, management should identify and assess the types of accidents which could arise at the installation and their likely consequences.
 - (s) Management should ensure that employees, contractors and visitors are made aware of the relevant provisions of the on-site emergency plans, and of what they should do in the event of an accident.
 - (t) Management should ensure that systems are in place for the rapid detection of an accident or imminent threat of an accident, and for the immediate notification of emergency response personnel.
 - (u) Management should investigate all significant incidents in order to identify causes and to undertake remedial actions to correct any deficiencies in technology or procedures.

A.3 Employees

- (a) All employees should carry out their jobs in a safe manner and contribute actively to the development of safety policies and practices.
- (b) Each employee should be responsible for following established procedures, and for taking reasonable care for his or her personal safety and for the safety of others who may be affected by the employee's acts or omissions at work.
- (c) An employee should have the right to refuse to do any task which he/she believes may create an unwarranted risk of an accident involving hazardous substances. The employee should immediately report to management the reason for refusing to perform these tasks, or any situation which could develop into such an accident.

- (d) No measures prejudicial to an employee should be taken if, in good faith, the employee complains to other employees with responsibilities for safety of what he/she considers an inadequacy in the measures taken with respect to safety.

A.4 Industry in General

- (a) Larger enterprises and trade associations should, as appropriate, offer assistance to small and medium-sized enterprises in meeting safety objectives.
- (b) Process or other safety-related technology should not be transferred unless the supplier is satisfied that the technology receiver can apply the technology in a safe manner.
- (c) Industry, including manufacturers and processors of hazardous substances and equipment designers, have the primary responsibility for carrying out safety-related research.

A.5 Other General Principles

- (a) The Polluter-Pays Principle, with respect to accidents involving hazardous substances, should be applied in accordance with the OECD Council Recommendation [C(89)88(Final)], attached as Annex III.
- (b) The media should be provided with appropriate information concerning hazardous installations and should be involved in the emergency planning process in order that they can provide an effective means of communication in the event of an accident. In this function, they should be given access to officials during an emergency so that they can provide essential and accurate information to the public.

A.6 Investments, Technology Transfer, and Aid Programmes Related to Installations in Non-OECD Countries

- (a) Industry and public authorities should support the principle that hazardous installations in non-OECD countries should be sited, designed, operated, managed, maintained and monitored so as to meet a level of safety at least equivalent to installations in OECD countries.
- (b) The degree of safety of installations which result from an investment by an OECD-based enterprise, or which incorporate process or other safety-related technology transferred from an OECD country, should be the highest level of safety reasonably practicable according to the current state of knowledge.
- (c) Transfer of technology from an OECD country to a non-OECD country, or investment by an OECD-based enterprise in a new hazardous installation in a non-OECD country, should only take place once there is reasonable assurance that safe operating conditions can be achieved taking into account local factors.
- (d) Transfer of technology related to hazardous installations should only take place if accompanied by appropriate safety technology and information.
- (e) The prevention of accidents should be one of the fundamental business considerations taken into account by OECD-based enterprises, as well as by international service organisations and financial institutions, in any investment related to a hazardous installation in a non-OECD country.

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- (f) Bilateral and multilateral aid agencies should help reduce the likelihood of accidents involving hazardous substances in aid-recipient countries by providing technical assistance, education and training to build institutional infrastructures.
- (g) Aid agencies should screen relevant aid proposals to minimise the possibility that aid projects will help create, sustain or increase an unreasonable risk of an accident involving hazardous substances, and should include in any aid projects involving hazardous substances adequate monitoring and follow-up to ensure that essential safety requirements are being met.
- (h) Multilateral financial institutions should develop policies and procedures for minimising the risks of accidents at hazardous installations they help to finance.