Prepared in the framework of the
Inter-Agency Coordination Group for
Industrial and Chemical Accidents

International efforts for industrial and chemical accidents prevention, preparedness and response

OECD BETTER POLICIES FOR BETTER LIVES · UNECE · UN environment · World Health Organization · UNISDR The United Nations Office for Disaster Risk Reduction · UN environment · UN Environment / OCHA Joint Unit Prepare · Respond · Protect · OCHA · OPCW

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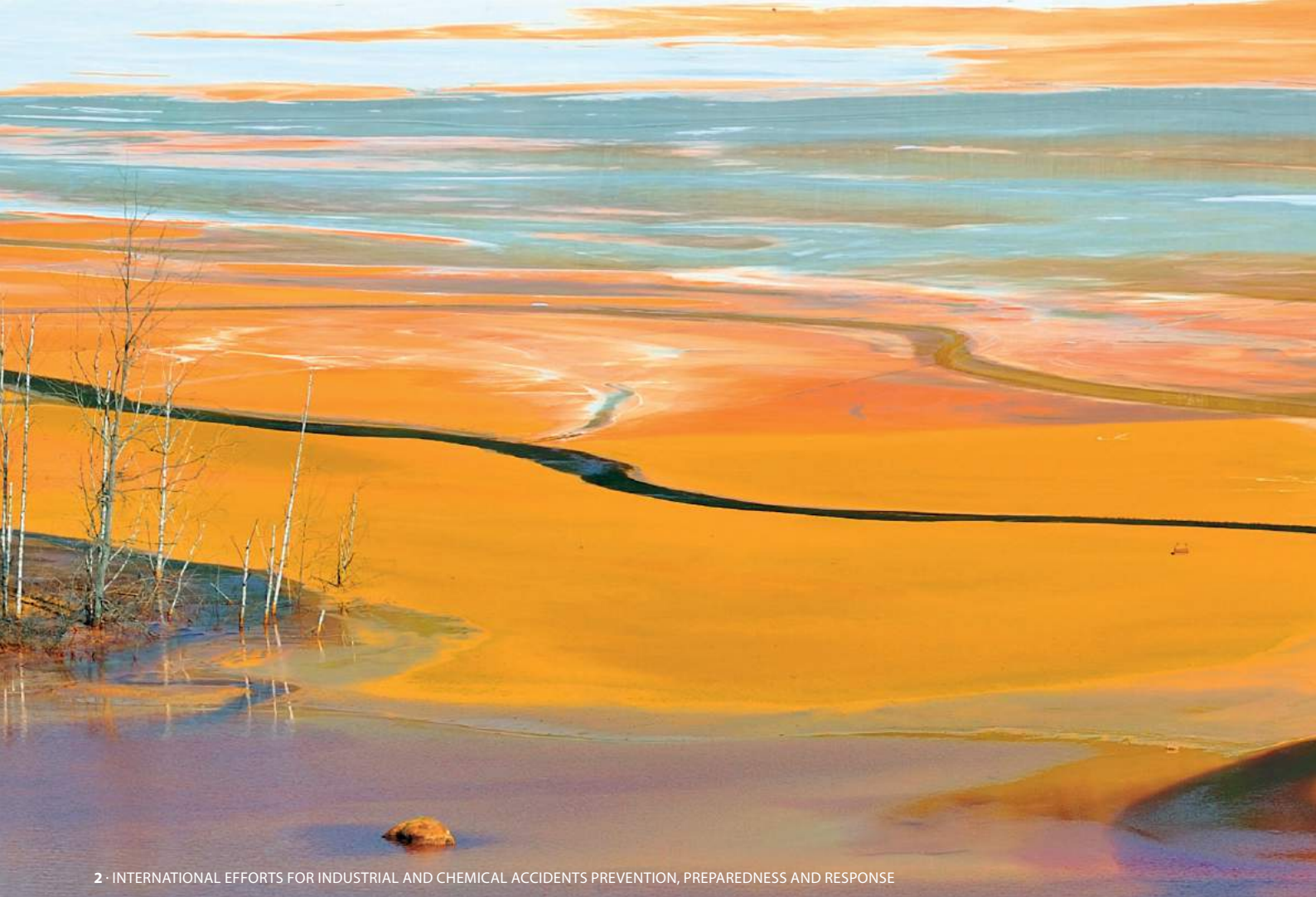


1 The Inter-Agency Coordination Group for Industrial and Chemical Accidents

This brochure has been prepared by the Inter-Agency Coordination Group for Industrial and Chemical Accidents. The Inter-Agency Coordination Group is an informal forum that brings together international organisations and institutions working on prevention of, preparedness for and response to industrial and chemical accidents.

The Inter-Agency Coordination Group aims to:

- Strengthen international cooperation for improving the prevention of, preparedness for and response to chemical and industrial accidents
- Improve the use of resources and avoid potential duplication of work across the agencies
- Facilitate understanding and coordination of the programmes of each agency
- Carry a common message to the international community on the importance of the prevention, preparedness and response to chemical accidents as being among the key elements associated with the sound management of chemicals.

Regular participants in the group include representatives of the European Commission, the United Nations Environment Programme / United Nations Office for the Coordination of Humanitarian Affairs Joint Environment Unit, the Organisation for Economic Co-operation and Development, the Organisation for the Prohibition of Chemical Weapons, the United Nations Economic Commission for Europe, the United Nations Environment Programme and the World Health Organization. The European Process Safety Centre also participates as an observer, providing expertise on specific topics.

This brochure aims to present the specificities of the work of these international organisations and institutions for the prevention of, preparedness for and response to chemical and industrial accidents. It also gives examples of joint activities across the organisations.

2 Preface

Over the past decades, successive major accidents, from the deadly toxic gas release in Bhopal, India in 1984 to the Buncefield fire in the United Kingdom in 2005, the Deepwater Horizon oil spill in the Gulf of Mexico in 2010, and the Bento Rodriguez dam disaster in Brazil in 2015, have caused deaths, numerous injuries, significant environmental pollution and massive economic loss. While high-profile accidents raise concerns with the public, stakeholders and regulators, there are even more accidents occurring each year which do not make international headlines. The hundreds of chemical accidents that go unnoticed every year still cause severe harm to workers, communities, municipalities, businesses and the environment leading to an overall deterioration in the quality of life. Recovering from industrial accidents sets back development gains, takes time and is expensive. Many places still suffer from events that happened years before and there are the families and severely injured for which time offers no recovery at all.

UN Environment's "Global Chemicals Outlook" highlights an increasing "chemical intensification of the economy". While industrialised countries still account for the bulk of the world chemical production, the production, use and disposal of chemicals is steadily spreading to developing countries and countries with economies in transition. From 2012 to 2020, chemicals production is expected to grow by 46% in Asia Pacific, 40% in Africa and the Middle East, and 33% in Latin America and the Caribbean.
Developing countries and countries in transition are often at particular risk of adverse effects from chemical accidents because of limited regulations or incomplete enforcement of existing rules, reduced awareness of risks and preventive measures, and inadequate resources for prevention, preparedness and response.

Improvements in technical knowledge and management systems help to reduce risk. At the same time, the great diversity in hazardous production processes, the evolution of technology, and the dynamics of the marketplace, signify an ongoing need for vigilance and identification of emerging risks, as well as a need to implement new solutions to address risk. Sustainable chemicals management offers opportunities to advance the sustainable development goals. At the same time, the risks associated with chemicals use must be managed so that the risk of chemical and industrial accidents is reduced. In this, international collaboration for the prevention, preparedness and response to industrial accidents is imperative.

3 Terminology

For the following terms there is no generic definition across all instruments referred to in this brochure. However, in general they can be described as follows:

Chemical accident

A chemical accident is any unplanned event involving hazardous substances that cause, or is liable to cause, harm to health, the environment, or property. This excludes any long-term events (such as chronic pollution).

Preparedness

Preparedness is focusing on measures to allow for appropriate reaction to an accident. Examples include development of accident preparedness plans, early warning measures, communication with the public, and emergency exercises.

Prevention

Prevention generally includes the aspects of managing, operating, and controlling a hazardous installation, from its conception to its decommissioning/demolition. Prevention is aimed at eliminating or reducing the likelihood of accidents occurring and reducing their severity if they do occur. Examples include substitution of hazardous chemicals, installing of automatic process safety procedures, and educating workers on appropriate risk management.

Response

Response is addressing all the actions to be taken once an accident has occurred or there is an imminent threat of an accident, including mitigating adverse effects on health, the environment and property. Examples include the informing of the public and authorities concerned, dispatching emergency services, conducting detailed analysis and assessments of environmental and health impacts, and coordinating incoming assistance.

4 International tools and support for industrial and chemical accident prevention, preparedness and response

This section provides a non-exhaustive overview of international organisations and groups working on prevention, preparedness and response to industrial and chemical accidents. Organisations are listed in no particular order.

The below table provides a summary of key tools and methodologies developed by these organisations, shown over the accident timeline.

Organisation	Prevention	Preparedness	Response	Post-accident	Learning
OECD	Guiding Principles for Chemical Accidents, Prevention, Preparedness and Response				Major Accident Reporting System (eMARS)
UNECE	Transboundary Effects of Industrial Accidents Convention				
EU	Seveso-III-Directive, Civil Protection Mechanism			Environment Liability Directive	eMARS
JEU		UN Disaster Assessment and Coordination Mechanism, Flash Environmental Assessment Tool			
UN Environment	Flexible Framework, APELL, Responsible production toolkit				
UNISDR	Sendai Framework for Disaster Risk Reduction 2015-2030				
WHO		International Health Regulations			Event Management System (EMS)
	Public health management of chemical incidents				
EPSC	Member network				Member network

Policy, no intervention | Intervention based | Regulation / Legislation / Convention

Policy guidance for the prevention, preparedness and response to chemical accidents – OECD

The OECD's programme on Chemical Accidents aims to share experiences amongst governments and other stakeholders and recommends policy options for enhancing the prevention of, preparedness for and response, to chemical accidents. The programme is managed by the Working Group on Chemical Accidents that brings together a wide range of stakeholders from OECD member countries, non-member countries, industry stakeholders, other international agencies, labour unions and NGOs.

For many decades, the issue of chemical accident prevention, preparedness and response has been a concern. In the mid-1980s, the issue took on a new level of urgency and political importance with the massive accident in Bhopal, India. Less than two years later, a fire at a pesticide storage facility in Schweizerhalle, Switzerland resulted in widespread ecological damage, with pollution of the River Rhine for more than 500 km impacting countries along the route.

At the OECD Environment Committee that met at Ministerial Level in June 1985, the OECD Governments declared that "they will ensure the existence of appropriate measures to control potentially hazardous installations, including measures to prevent accidents." These discussions resulted in the creation of a chemical accidents programme in the 1990's at the OECD, a programme that remains of ongoing relevance as industrialisation increases around the world.

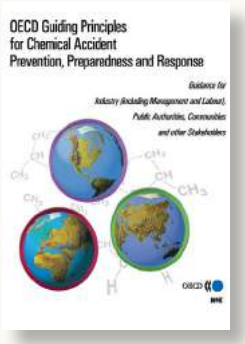
The main value of the programme is that it is a forum for participating stakeholders to share experiences on accidents and to learn from each other challenges and progress. The programme is about inclusiveness, cooperation and broad-based participation and cover policy issues on prevention, preparedness and response to accidents.

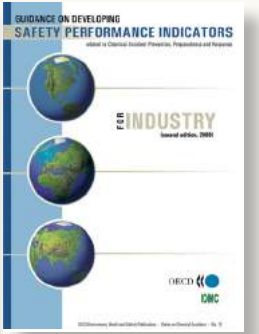
The OECD programme also aims:

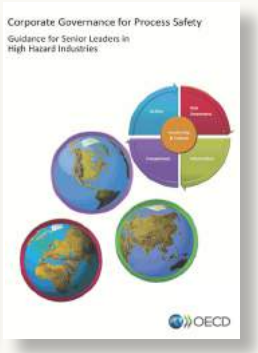
- to develop common principles and policy guidance for chemical accidents prevention, preparedness and response;
- to identify emerging issues in relation to accidents, analyse these issues and provide guidance on how to address them.

Furthermore, the Working Group on Chemical Accidents has been engaging in specific issues, including:

- Natech (Technical accidents triggered by natural events)
- Ownership change in hazardous Facilities
- Aging of installations, or
- Inspection approaches.







The main guidance documents developed by the OECD are:

The Guiding Principles for Chemical Accident Prevention, Preparedness and Response

The Guiding Principles set out general guidance for the safe planning, construction, management, operation and review of safety performance of hazardous installations, and, recognising that such accidents may nonetheless occur, to mitigate adverse effects through effective land-use planning and emergency preparedness and response.

The Guidance on Safety Performance Indicators for Public Authorities and Industry

The Guidance serves as a guide for key stakeholders to determine if their implementation of the Guiding Principles has led to improved chemical safety.

Corporate governance for process safety: Guidance for senior leaders in high hazard industries

The Guidance establishes "best practice" for senior decision makers who have the authority to influence the direction and culture of their organisation.

More information:
www.oecd.org/chemicalsafety/chemical-accidents

Addressing the transboundary effects of accidents – UNECE

The 1992 United Nations Economic Commission for Europe (UNECE) Convention on the Transboundary Effects of Industrial Accidents is designed to protect people and the environment against the devastating effects of industrial accidents by preventing accidents from occurring, or by reducing their frequency and severity and by mitigating their effects if necessary. The Convention also applies to industrial accidents triggered by natural disasters, such as floods, landslides or earthquakes. The Convention entered into force in 2000 and presently has 41 Parties.[1]

1. Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, European Union (EU), Finland, France, Germany, Greece, Hungary, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, the former Yugoslav Republic of Macedonia and the United Kingdom of Great Britain and Northern Ireland.

Transboundary cooperation to prevent accidents

Effective transboundary cooperation at the international level and, more importantly, between neighbouring States is of utmost importance – not only to respond to industrial accidents but also to prevent them and to be prepared for rendering an effective response, if needed. The Convention focusses in particular on transboundary cooperation for industrial accident prevention, preparedness and response. As such, the Convention promotes active international cooperation between countries, before, during and after an industrial accident, and encourages its Parties to help each other in the event of an accident, to cooperate on research and development and to share information and technology.

> ***The threat of industrial accidents exists everywhere, including in countries and sectors with stringent safety standards. The consequences of such accidents can be severe and are often deadly. The United Nations Economic Commission for Europe's Industrial Accidents Convention actively supports countries in preventing such accidents, and in mitigating their effects if they occur. It focuses particularly on cross-border cooperation between countries in this regard. … The Convention has been successful, but more needs to be done.***
>
> **Ban-Ki Moon**, United Nations Secretary General, 3 December 2014

As a result of a fire at the Sandoz agrochemical store near Basel (Switzerland) and its dowsing with water, 30 tons of pesticides were discharged into the Rhine River and spread more than 400 kilometres downstream, killing hundreds of thousands of fish and animals, affecting water supplies and causing airborne pollution within hundreds of kilometres in France, Germany, the Netherlands and Switzerland.

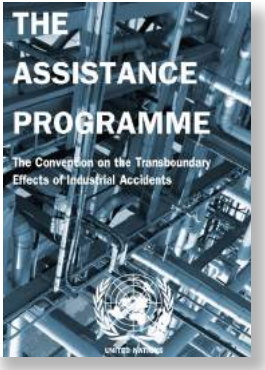
Accidental water pollution

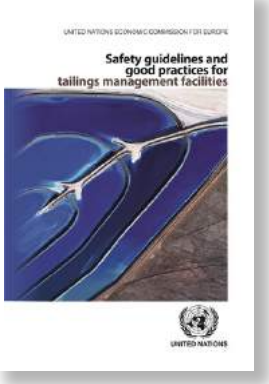
Major industrial accidents may not only cause far-reaching transboundary effects on the land but may also lead to accidental water pollution. The severe transboundary effects that a leakage of hazardous substances could have on people and the environment through accidental water pollution in the UNECE region became evident during the 1986 accident at the Sandoz agrochemical plant in Schweizerhalle, Switzerland, and the breach of a tailings pond dam at a mining facility in Baia Mare, Romania, in 2000. Both accidents led to vast accidental water pollution, threatened drinking water supplies and devastated fish stocks. To avoid recurrence, the Convention supports countries in preventing accidental water pollution through its Joint Expert Group on Water and Industrial Accidents (joint with the 1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes).

Capacity building through the Assistance Programme

An Assistance Programme was adopted in 2004 to enhance the capacities of countries of Eastern and South-Eastern Europe, the Caucasus and Central Asia in implementing the Convention. In a needs-driven manner, targeted capacity-building activities are carried out to support beneficiary countries in:

- Improving their governance, institutional structures and coordination mechanisms.
- Developing legislation for industrial accidents prevention, preparedness and response
- Preparing and implementing practical tools for authorities and operators.





A number of guidelines, good practices and checklists have been developed under the UNECE Industrial Accidents Convention:

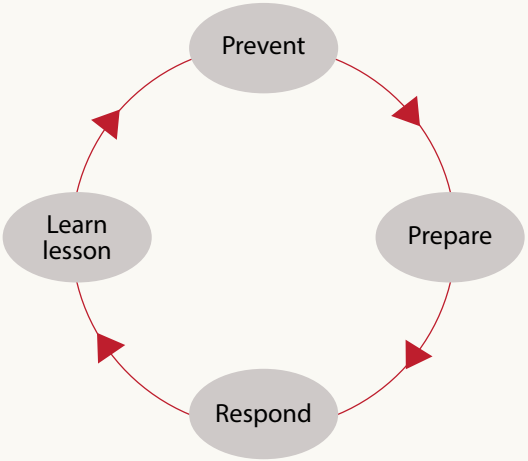
- Safety Guidelines and Good Practices for: Tailings Management Facilities; Pipelines; and Oil Terminals
- Checklists for: Contingency Planning for Accidents affecting Transboundary Waters; Preparation and Inspection of a Safety Report; and Tailings Management Facilities
- Benchmarks for the implementation of the Convention on the Transboundary Effects of Industrial Accidents

More information:
www.unece.org/env/teia.html

From disasters to success – The EU policy on major-accident hazards

Protecting the environment, health and our economy

Major industrial accidents involving dangerous chemicals pose a significant threat to humans and the environment. Furthermore such accidents cause huge economic losses and disrupt sustainable growth. However, the use of large amounts of dangerous chemicals is unavoidable in some industry sectors which are vital for a modern society.



The Seveso Directive and related actions

In Europe, the catastrophic accident in the Italian town of Seveso in 1976 prompted the adoption of legislation (the so-called 'Seveso-Directive' to address major-accident hazards. Considering the very high rate of industrialisation in the EU the Seveso Directive has contributed to achieving a low frequency of major accidents. It is based on 4 main pillars (prevention, preparation, response and lesson learning) leading towards a continuous improvement cycle. The Seveso-Directive is widely considered as a benchmark for industrial accident policy and has been a role model for legislation in many countries world-wide. Other relevant EU legislation or action complements these efforts, for example the EU Civil Protection Mechanism, the Environmental Liability Directive, the CBRN-E action plan or the Mining Waste Directive.

Fostering information exchange and co-operation

The different Directorate Generals of the European Commission provide numerous exchange fora on related topics such as expert groups, technical working groups, information websites, workshops etc. Depending on the specific topic they bring together all stakeholders including authorities, industry, civil society or academia producing a wealth of guidance and information. This ensures a thorough exchange of useful and practical information and experiences not only within the EU but also internationally. The European Commission also operates the Emergency Response Coordination Centre.

There are also several programmes that organize or fund projects, conferences or events such as field or emergency exercises. This includes for example the Technical Assistance and Information Exchange Instrument (TAIEX, http://ec.europa.eu/enlargement/tenders/taiex) or the EU Civil Protection Mechanism (http://ec.europa.eu/echo/funding-evaluations/financing-civil-protection_en).

The Major Accident Hazards Bureau (MAHB)

As the European Commission's scientific support to the Seveso Directive, the MAHB plays a vital role in Europe by assisting operators and authorities in Europe in answering three related questions fundamental to reducing industrial risks and the consequences of industrial accidents:

- Why do major industrial accidents continue to happen in Europe? What is causing them? Where should attention and resources continue to be focused to reduce industrial risks?
- What is the possibility that an industrial accident could occur on a particular site and what could happen if it does?
- What is current best practice for managing industrial risks and preparing for and responding to accidents and how can one verify that they have been applied where and when they should be?

More information:

http://ec.europa.eu/environment/seveso
https://minerva.jrc.ec.europa.eu/en/minerva
http://ec.europa.eu/echo/what/civil-protection/mechanism_en

The Seveso disaster was an industrial accident that occurred around 12:37 pm on 10 July, 1976, in a small chemical manufacturing plant approximately 20 kilometres north of Milan in the Lombardy region of Italy.

Did you know?

DID YOU KNOW?

889 accident reports

The eMARS database of the European Union includes 889 publically available reports of major accidents to exchange experience and lessons learned (state: November 2016), https://emars.jrc.ec.europa.eu/?id=4

Supporting prevention and preparedness at the local and national levels – UN Environment

Effective action to ensure the prevention and preparedness of accidents involving chemicals requires coordinated efforts of different stakeholders at the local and national level, such as government bodies, industry, workers, and community groups. In the effort to achieve this coordinated action, the United Nations Environment Programme (UN Environment) supports activities to raise awareness and build capacities of communities, industry and governments about emergency prevention and preparedness through the APELL and Flexible Framework Programmes, with a special focus on chemicals and industrial accidents.

APELL

UN Environment has implemented the Awareness and Preparedness for Emergencies at Local Level (APELL) programme in more than 30 countries since 1988, to raise awareness about hazards and risks, improve preparedness planning and prepare coordinated emergency plans. The APELL methodology is contained in a structured 5 phases and 10-element process that has two parallel and complementary objectives at local level:

- Creating a dialogue about hazards, risks, capabilities and plans involving all stakeholders, leading to consensus on responsibilities and expectations for all community members;
- Allowing a community to increase its resilience (the ability to recover from incidents) and reduce its vulnerability (susceptibility to damaging effects of a hazard) by building local capacity for multi-stakeholder responses.

Flexible Framework

The Flexible Framework for Addressing Chemical Accident Prevention and Preparedness methodology supports governments to develop, improve, or review Chemical Accident Prevention and Preparedness (CAPP) Programmes at the national level. These Programmes encompass the collection of laws, regulations, policies, guidance, and other instruments developed by a country to address the various aspects of CAPP.

With support from UN Environment and the SAICM Quick Start Programme Trust Fund, Cambodia, Mali, the Philippines, Senegal, Sri Lanka and Tanzania have already prepared national roadmaps to develop CAPP Programmes – web.unep.org/disastersandconflicts/capp.

Responsible Production

The Responsible Production approach has been designed to increase overall safety in companies and to address potential risks along the value chain of the company. This work contributes to the objective of reducing chemical emergencies and the resulting environmental, social and economic impacts. More information on this approach can be found at www.unep.fr/scp/xsp/saferprod/initiatives.htm.

The main relevant guidance documents developed by UN Environment are:

APELL Handbook: A process for improving community awareness and preparedness for technological hazards and environmental emergencies

APELL first seeks to increase the awareness of all community members to the local hazards, regardless of the source. Following this, community-wide response and preparedness capabilities are assessed and any identified gap is addressed.

The Handbook includes a ten-step methodology grouped in five phases, namely (i) engaging stakeholders; (ii) understanding hazards and risks; (iii) preparedness planning; (iv) implementing, disseminating, and testing; and (v) maintaining APELL – web.unep.org/disastersandconflicts/apell.

Flexible Framework for Addressing Chemical Accident Prevention and Preparedness (CAPP) guidance (2010) and implementation-support package (2012), case studies of implementation (2015)

The purpose of this guidance is to support any government that wants to develop, improve, or review their programme for chemical accident prevention and preparedness related to hazardous installations. It helps countries to understand how they can identify risks, assess priorities, and address these in order to make the most efficient use of the resources that are available.

The implementation support-package (ISP) was developed to supplement the Flexible Framework Guidance in order to provide further support for future CAPP Programme projects, by capturing the experience from previous projects.

In 2015, a report on case studies of implementation has been developed to disseminate the results and lessons learned from national projects and provide policy recommendations.

An APELL Programme safety education session.
© APPELL Handbook Second Edition (2015)

Mobilizing international partners for environmental emergency response and preparedness – JEU

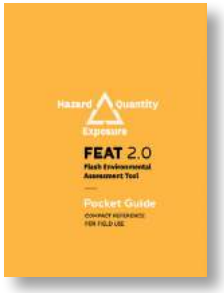
UN environment
UN Environment / OCHA Joint Unit
Prepare · Respond · Protect
OCHA

Pairing environmental and humanitarian expertise

The Joint UN Environment/OCHA Joint Unit (JEU) is a partnership that pairs the environmental expertise of UN Environment and the humanitarian response network coordinated by OCHA. It assists countries requesting assistance to address the environmental impacts of sudden-onset disasters and accidents by coordinating international preparedness and response activities. In the first hours after a chemical accident, the JEU can mobilise experts and analysis equipment to the affected area. These experts work together with national and local authorities to conduct rapid assessments, test for the presence of hazardous materials, analyse the possible effects on communities, and assist with the development of response and monitoring strategies. JEU strengthens environmental emergency preparedness in order to reduce the negative impacts of emergencies and accidents on local communities, livelihoods and the environment. Specialised trainings, tools and dedicated exercises offered by the JEU build national resilience and reduce the reliance on international assistance. National authorities can increase their capacity to respond to these types of emergencies by learning from similar cases, as well as working with experts to assess the potential risks and threats, establishing and acting upon effective contingency plans and adopting recommended guidelines.

Environmental Emergencies Centre

To support knowledge sharing, JEU has created the Environmental Emergencies Centre (EEC – www.eecentre.org) which is an online tool designed to strengthen the capacity of national responders to environmental emergencies by building on their own mechanisms and drawing on the resources and services of EEC partners. The EEC features the "Industrial Accidents: Prevention, Preparedness and Response" eLearning module which aims to raise awareness about industrial accidents in order to strengthen the capacity of government, industry and civil society. The module is available in Chinese, English, French and Russian.

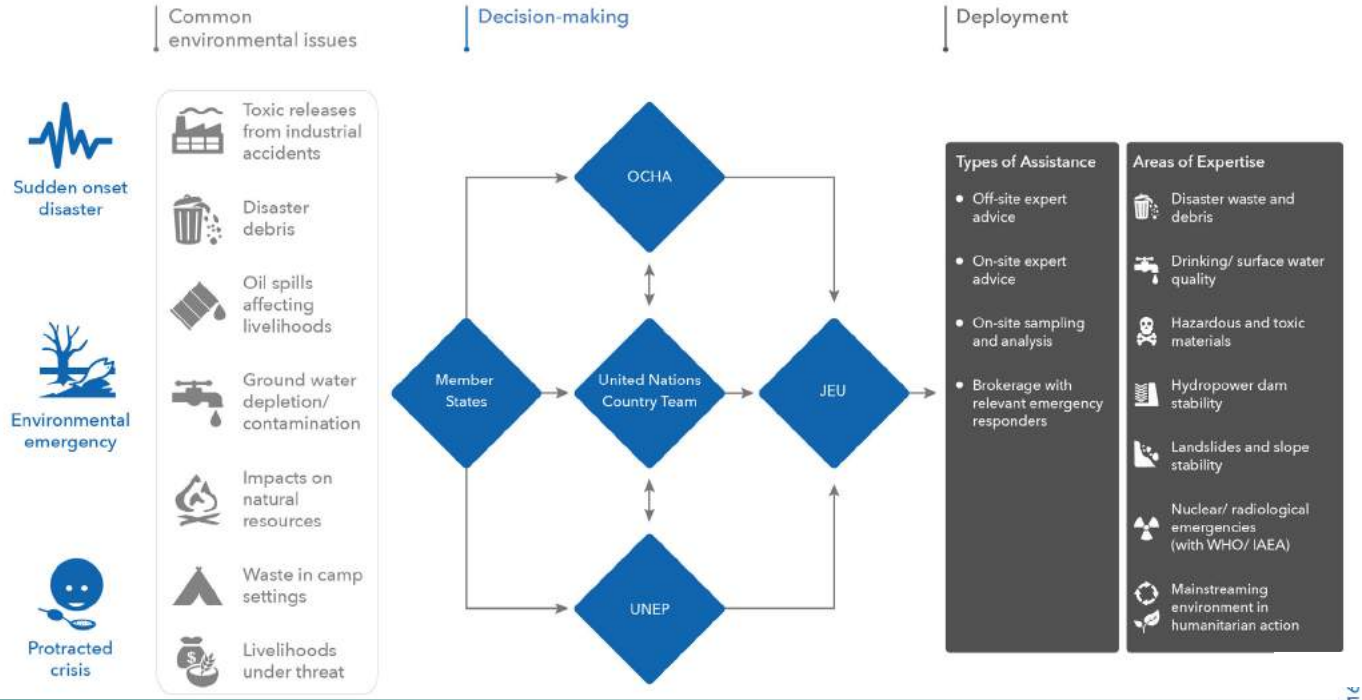


Flash Environmental Assessment Tool

JEU has also developed the Flash Environmental Assessment Tool (FEAT), an assessment methodology which can be used for chemical accident preparedness as well as in response. FEAT helps to identify existing or potential acute environmental impacts that pose risks for humans, human life-support functions and ecosystems, following sudden-onset natural disasters.

UN Assistance to Environmental Emergencies

In case of an environmental emergency, governments may seek assistance from the international community. This diagram explains how the United Nations can provide support to governments through the JEU; a partnership between the United Nations Environment Programme (UNEP) and the UN Office for the Coordination of Humanitarian Affairs (OCHA).

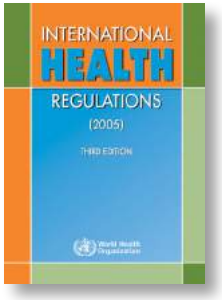


DID YOU KNOW?

- Since its establishment in 1994, the Joint UN Environment/OCHA Joint Unit has supported 90 countries affected by environmental emergencies, conducting 187 environmental emergency preparedness and response missions.
- Over two years (2014-2016), 328 users completed the Industrial Accidents Course through the Environmental Emergencies Centre.

International Health Regulations and the public health management of chemical incidents – WHO

The context and the issue



The production and use of chemicals is predicted to further increase worldwide, and this is particularly true in developing countries and those with economies in transition, where chemical extraction, processing and use are closely tied to economic development.

The introduction of new chemicals into a society requires the health sector to expand its traditional roles and responsibilities so it can address the public health and medical issues associated with the management of chemicals and their health effects. In addition, the International Health Regulations (2005) (IHR) require countries to develop adequate capacities for the surveillance, detection and response to chemical-related outbreaks that may have international public health impacts.

Many countries lack necessary capacities

Many countries still lack adequate surveillance and response capacities for chemical events. The WHO survey of IHR capacities in 2015 has shown that the capacity status for chemical events remains low overall, with a global average of 58%*. In two of the six WHO regions the mean capacity score for chemical events is 50%* or less, and the European region scores highest, with 82%*.

There is a significant need in many countries to improve their preparedness planning, the development of procedures, their surveillance and response capacities and, above all, to improve intersectoral collaboration concerning chemical events. Awareness of the IHR among non-health sectors is a commonly highlighted challenge. The obligations related to the IHR in the area of chemical events are rarely understood by the various sectors involved at national level, much less are they codified in legislation. As a consequence, IHR is frequently not integrated into plans and procedures.

Even where national capacities exist these may be over-whelmed in the event of a major disaster, requiring inter-national assistance to be provided. The health sector is often in the front line, and requests for assistance come to WHO.

What WHO is doing

Through its Department of Public Health, Environmental and Social Determinants of Health (PHE), WHO works to raise awareness about the public health impact of chemical incidents, to strengthen national capacities, provide international alerts and response, and maintain international networks for the

public health management of chemical events, in accordance with the IHR.
WHO has a network of Collaborating Centres upon which it can draw for expertise and assistance in capacity building, response activities and in advising on the public health consequences of a chemical release.

How countries benefit

National capacity building: Assistance is provided to countries to conduct national capacity assessments and to develop national action plans. Guidelines and training materials are developed to assist countries to strengthen national planning and implementation. Training is provided on the public health management of chemical incidents and emergencies. The focus of these activities is on developing countries.

More information:

www.who.int/ipcs/emergencies/en
www.who.int/ihr/publications/9789241596664/en

International alert and response: In support of the requirements of the IHR, international alert and response capacities are being strengthened, including the development of emergency response tools (e.g. for the investigation of disease outbreaks of possible chemical origin), training of international chemical emergency experts, and other activities to promote the development and strengthening of poisons centres.

International networks: An informal network of experts is maintained to support the above functions, including toxicology laboratories, toxicologists, risk assessors and chemical emergency responders.

DID YOU KNOW?

2.3% of deaths

An estimated 2.3% of all deaths and 1.6% of the total disease burden were attributable to exposure to selected chemicals in 2015, air pollution not included.
Source : The public health impact of chemicals: knowns and unknowns WHO, 2016
http://apps.who.int/iris/bitstream/10665/206553/1WHO_FWC_PHE_EPE_16.01_eng.pdf?ua=1

* http://www.who.int/gho/ihr/en/

A new framework for disaster risk reduction – UNISDR

The increasing impact and complexity of disasters is evident. In the preceding decade over 700,000 people lost their lives in disasters, more than 1.4 million were injured, 23 million displaced, and economic losses exceeded US$1.3 trillion. In response health and the well-being of the people is featured as a key element of the Sendai Framework for Disaster Risk Reduction 2015-2030 which was adopted by Member States in March 2015 at the UN World Conference on Disaster Risk Reduction in Sendai, Japan and endorsed by the UN General Assembly in June 2015.

A people-centred all hazard approach

The Sendai Framework is people-centred, focuses on managing risks rather than managing disasters, and it has a wider scope covering all types of disaster risk and hazards, caused by natural or man-made hazards including biological, technological and environmental hazards and serving as a blueprint for multi-hazard disaster risk reduction factored into development at all levels at all levels as well as within and across all sectors.

The Goal of Sendai Framework is to "Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience".

Four of the seven global targets of the Sendai Framework have direct links to health, focusing on reducing mortality, and number of affected people by disasters, enhancing early warning systems and promoting the safety of critical infrastructure including health facilities.

The Sendai Framework also places strong emphasis on building resilient health systems through the integration of disaster risk management into health care provision at all levels, and through the development of the capacity of health workers in understanding disaster risk and applying and implementing disaster risk approaches in the health sector[2].

Multi-sectorial synergies

The breadth of the multi-sectorial Sendai Framework provides the opportunity to achieve synergies with the health-related initiatives for emergency and disaster risk management such as the International Health Regulations (IHR), the Global Health Security Agenda, the Paris Agreement for Climate Change and the Sustainable Development Goals, the Convention on Industrial and Chemical Hazards and Convention on Biological Threats.



The Bangkok Principles

To discuss the measures that could assist countries in implementing the health aspects of the Sendai Framework for Disaster Risk Reduction, an International Conference convening key health and DRR stakeholders was organized by the Royal Thai Government, the United Nations Office for Disaster Risk Reduction (UNISDR) and the World Health Organization (WHO) on 10-11 March 2016, in Bangkok, Thailand. The outcome document of the conference "The Bangkok Principles"[3] for the Implementation of the Health Aspects of the Sendai Framework for Disaster Risk Reduction" was agreed.

The "Bangkok Principles" open up opportunities for collaboration between all relevant sectors and stakeholders, including to prevent and reduce the health impact of natural or man-made disasters on health and wellbeing of the people. The 'Bangkok Principles' call for an inter-operable, multi-sectorial approach to promote systematic cooperation, integration and, ultimately, coherence between disaster and health risk management.

More information:

www.unisdr.org
www.unisdr.org/we/inform/publications/43291
www.unisdr.org/conferences/2016/health

The Principles put health resilience at the heart of disaster risk management in the face of crises such as Ebola and Zika virus outbreaks. The Principles focus on integrating health in disaster risk reduction plans and strategies, and the inclusion of emergency and disaster risk management programs in health strategies and on positioning health as a key area of focus for disaster risk reduction.

UNISDR will continue providing platform and advocate with relevant partners to enhance cooperation and joint working of disaster risk reduction and health communities to strengthen country capacity for disaster risk management for health and others working on technological and man-made hazards, including chemical accidents. This will include developing practical guides on Man-made hazards, including technological hazards, and raise awareness of policy makers and the public on biological and technological hazards.

[2] Health in the Sendai Framework: Fact Sheet http://www.preventionweb.net/files/47606_healthinsendaiframeworkfactsheetuni.pdf

[3] The Bangkok Principles for the Implementation of the Health Aspects of the Sendai Framework for Disaster Risk Reduction http://www.preventionweb.net/files/47606_bangkokprinciplesfortheimplementati.pdf

Chemical safety and security programmes – International Cooperation Branch, OPCW

Chemical Safety is one of the primary activities related to the implementation of Article XI of the Chemical Weapons Convention. Through industry-outreach activities, Chemical Weapons Convention seeks to meet the needs of OPCW Member States and their chemical industries in the field of chemical safety management; an emerging and vital area in the peaceful use of chemicals for sustainable industrial development.

The programmes of the International Cooperation Branch of the OPCW are designed to address specific safety management issues related to chemical processes safety and chemical risk management that have a direct bearing on the effective implementation of the CWC. It contributes to strengthening international cooperation through the exchange and sharing of experiences on the practical implementation of safety and security management programmes. It further creates a platform to generate a solid partnership among key stakeholders in regions to further strengthen the activities related to chemical safety across the Member States.

DID YOU KNOW?

1,400 experts trained

Till the end of 2016, OPCW trained more than 1,400 experts on Chemical Safety and Security management and partnership with six international organisations and 40 Member States.

Key objectives of the programmes:

- To create a framework for cooperation and coordination at national, regional and international level to minimise the chemical accidents/incidents and potential misuse of chemicals.
- Build the national capacity on chemical safety and security towards the fully implementation of the Convention.
- Promote awareness among Member States on chemical threats and to suggest chemical threat reduction methods by assessing security risks.
- Share knowledge and experiences among States Parties on chemical safety and security principles and to develop a network in the region(s).

The programmes intends to provide a platform for chemical industries, particularly small and medium enterprises, to discuss specific safety and security management issues related to chemical processes safety management and other issues towards the chemical accident prevention and preparedness and the effective implementation of the CWC for chemical industries.

More information:

www.opcw.org

Providing specific expertise for the prevention of and learning from accidents – EPSC

The European Process Safety Centre (EPSC) is a company member network dedicated to the prevention and mitigation of workplace major accident risks across Europe.

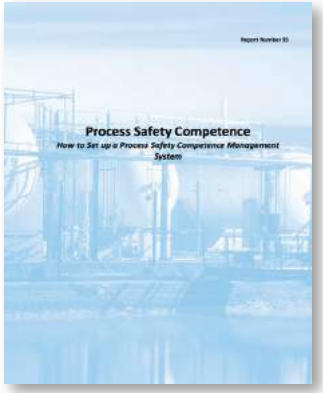
The Centre's membership includes manufacturers, contractors, consultants and academic institutions, representing a significant part of the process safety community in Europe.

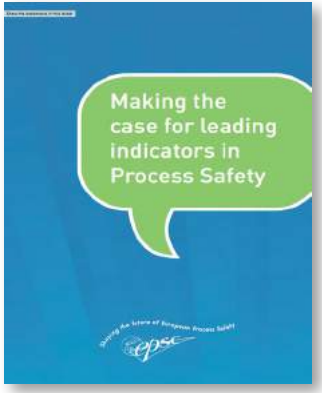
EPSC organizes member meetings across Europe in order to develop guidance on process safety topics based on real experience and working implementations.

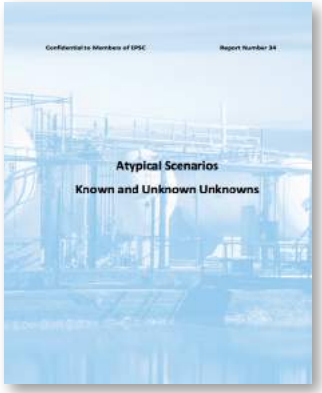
EPSC has played a supporting role to the European Commission in their drafting of guidance to Seveso legislation, and participates in the Mutual Joint Visit series of meetings between regulating authorities.

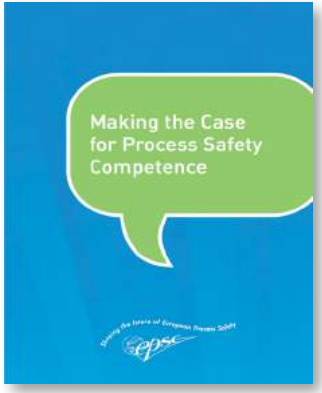
The European Process Safety Centre produces a wide variety of guidance documents, from reports on best practice in high level safety management, to detailed technical guidance. Topics are chosen based on interest from the members of EPSC.

Selected EPSC reports are made available publically and can be obtained on request from the EPSC website, www.epsc.org









5 Learning from accidents: eMARS as an example of collaboration between international organisations

The importance of learning lessons

Every day in every country in the world there are operators, owners, engineers and workers at hazardous chemical sites who fail to recognize that they are headed towards a chemical accident – a fire, an explosion or a release of a toxic substance harming people or the environment. With luck, they avoid a catastrophe, but sometimes they don't. Learning lessons from accidents and near misses is vital to understanding potential risks associated with the vast number of industrial sites that process, handle or store dangerous substances. For those with responsibilities in managing and overseeing site risks, such as site operators, safety managers, chemical engineers, and inspectors, regularly reviewing past accidents occurring on sites that have similar processes, substances and safety concerns is an important way to identify technical vulnerabilities and potential weaknesses in their safety management procedures.

From eMARS to Lessons Learned Bulletin

The Major Accident Reporting System (eMARS, https://emars.jrc.ec.europa.eu and https://emars.ec.europa.eu) was first established by the EU's Seveso Directive in 1982 and remains in place today. Its objective is to facilitate the exchange of lessons learned from accidents and near misses involving dangerous substances in order to improve chemical accident prevention and mitigation of potential consequences.

eMARS is a public database containing over 900 reports of chemical accidents and near misses reported by EU, EEA, OECD and UNECE countries. Reporting major accidents into eMARS is compulsory for EU Member States when the event meets the criteria of as defined by Annex VI of the Seveso Directive. For non-EU OECD and UNECE countries reporting accidents to the eMARS database is voluntary.

Accidents are regularly analysed to extract lessons learned. The semi-annual Lessons Learned Bulletin features those lessons relevant to a specific substance, industry type, causal factor, or safety management issue. It is available in the Publications section of the JRC website for chemical accident risks.

https://minerva.jrc.ec.europa.eu and https://minerva.ec.europa.eu

eNatech

In addition the JRC also maintains a dedicated website for exchange of lessons learned from chemical accidents caused by natural hazard events ("Natech"). The eNatech database can be accessed at http://enatech.jrc.ec.europa.eu.

6 Challenges ahead in the prevention, preparedness and response to industrial and chemical accidents

A number of challenges are shared by the international community regarding the management of industrial and chemical accidents:

- Raising awareness of the risks and costs of accidents at higher policy levels and making chemical accident prevention a political priority
- Maintaining a high level of safety and avoiding complacency
- Reinforcing work on the clean-up and recovery stage – if agencies have strong programmes in relation to the prevention, preparedness and response, the specific cleaning and recovery stages require more work
- Addressing accidents in an integrated manner: at the community, municipal, regional and national levels and globally; and coordinating approaches across borders
- Addressing Natural Hazards Triggering Technological Accidents (Natech), in particular addressing needs for technical guidance on Natech risk assessment
- Identifying emerging issues in accidents prevention, preparedness and response (e.g., ageing of installations, modernisation of inspection systems, and ownership change of hazardous installations)
- Supporting a greater involvement of the private sector in policy-making for accidents prevention, preparedness and response.

7 Contacts

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www.unep.org/resourceefficiency/Business/CleanerSaferProduction/SaferProduction/tabid/78851/Default.aspx
http://web.unep.org/disastersandconflicts/apell
http://web.unep.org/disastersandconflicts/capp

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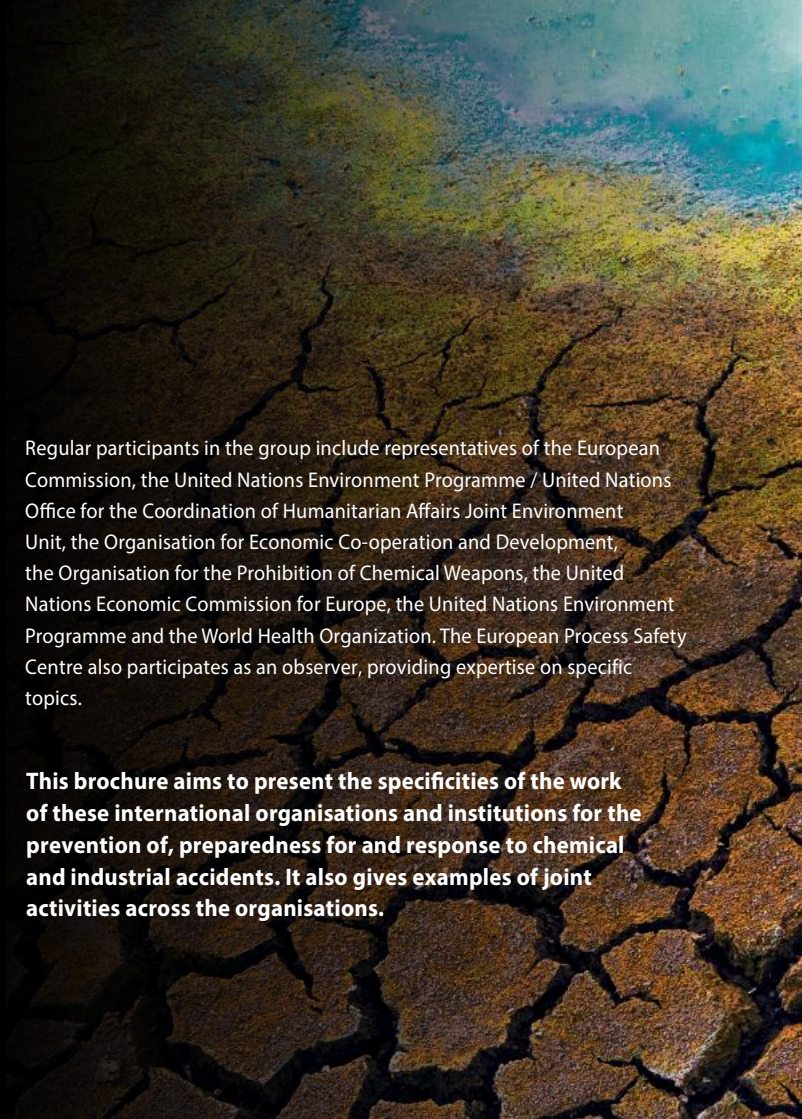
International efforts for industrial and chemical accidents prevention preparedness and response

This brochure has been prepared by the Inter-Agency Coordination Group for Industrial and Chemical Accidents.

The Inter-Agency Coordination Group is an informal forum that brings together international organisations and institutions working on prevention of, preparedness for and response to industrial and chemical accidents.

The Inter-Agency Coordination Group aims to:

- Strengthen international cooperation for improving the prevention of, preparedness for and response to chemical and industrial accidents
- Improve the use of resources and avoid potential duplication of work across the agencies
- Facilitate understanding and coordination of the programmes of each agency
- Carry a common message to the international community on the importance of the prevention, preparedness and response to chemical accidents as being among the key elements associated with the sound management of chemicals.



Regular participants in the group include representatives of the European Commission, the United Nations Environment Programme / United Nations Office for the Coordination of Humanitarian Affairs Joint Environment Unit, the Organisation for Economic Co-operation and Development, the Organisation for the Prohibition of Chemical Weapons, the United Nations Economic Commission for Europe, the United Nations Environment Programme and the World Health Organization. The European Process Safety Centre also participates as an observer, providing expertise on specific topics.

This brochure aims to present the specificities of the work of these international organisations and institutions for the prevention of, preparedness for and response to chemical and industrial accidents. It also gives examples of joint activities across the organisations.