

## Hazard Management in a Fast Changing World

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# Challenges of a fast changing world







### The scale of the challenge



Climate-related issues

dominated all of the

top-five long-term

risks in terms

of likelihood

Global Risks Report 2020

Source: World Economic Forum



Source: World Economic Forum



### Our response: EA 2025



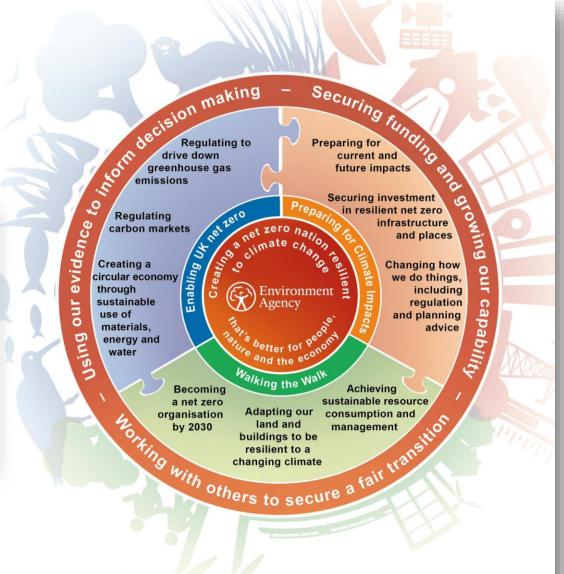
Source: Environment Agency

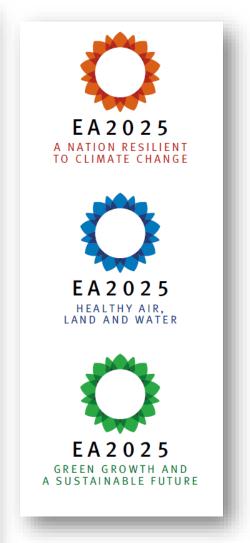
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CREATING A

BETTER PLACE

Environment Agency







## Regulating Innovation in a Fast Changing World: The Climate Challenge

#### **Green Economy**

creating a level playing field with Best Available Techniques, engaging with new technology proposals

Energy Efficiency and Resource Efficiency

management systems, heat integration, regulation of carbon intensive industry

Greenhouse gases

refineries and oil & gas, refrigerants. Reducing production of methane, fugitives and leaks

**Climate Change Impacts** 

adaptation & resilience, managing hazards

Nuclear – mitigation – part of a low carbon energy system

Adaptation – Joint work with ONR eg FCRM principles for new build, Joint statement on UKCP18 etc

Hydrogen

blue and green hydrogen and regulatory requirements

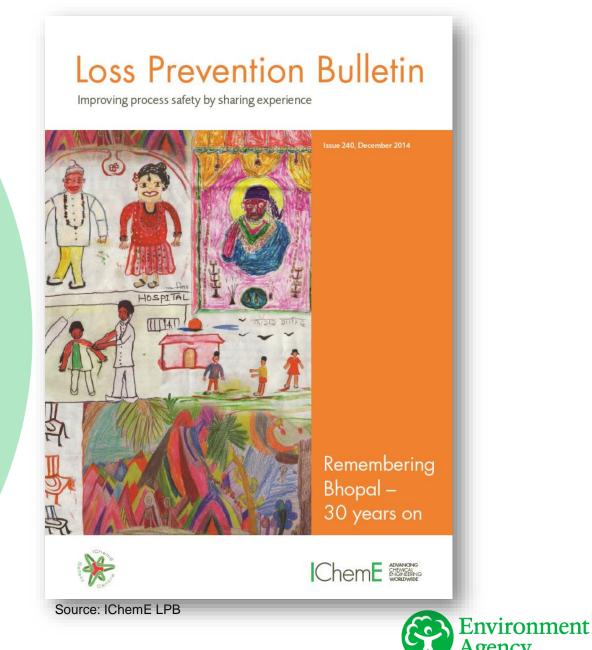
Carbon Capture, Utilisation & Storage

Sustainable development – planning, local and national (DCO)



#### Learning from the past

- Lessons from multiple sectors and challenges
- Affect a wide range of 'major hazards' sectors (not all expected)
  - Process Industries
  - Nuclear
  - Energy & Power
  - Critical Infrastructure
  - Wider learning where applicable e.g. aviation, rail and construction



### **Applying lessons to the future**

- We need guidance to ensure resilience
- Do we understand the impacts from climate change for all at risk sites?
  - MAH's
  - Challenges to layers of protection
  - Potential impacts to people and the environment
- Are those managing MAH risks prepared - to prevent major accidents?
  - NOT FORGETTING...
    maintaining existing infrastructure



Source: US CSB



'Must Haves' to meet the needs of a fast changing world

- Some depressingly common features that we struggle to get right now
- Two key areas:
  - LEADERSHIP
    - within organisations
    - external
  - COLLABORATION
    - across industry players
    - between regulators, industry and the public

### IChemE opens consultation on Climate Change position



ATH ILLY 2020

The Institution for Chemical Engineers (IChemE) has today launched a consultation on its climate change position statement. The consultation will give IChemE members the opportunity to provide feedback on the draft statement which details the Institution's commitments in this important area.

IChemE's position on climate change is founded on a number of principles as stated within the document which also includes further context on what climate change means for IChemE members and wider society. The Institution seeks to take a leadership role in tackling climate change, working with all stakeholders, from governments to communities around the world, to deliver a fair, safe and sustainable future in which we can all thrive.

Source: IChemE



### **Collaborative working**





INSPECTION series

#### Natech Risk Management

This publication of Common Inspection Criteria is intended to share knowledge about technical and organisational measures and enforcement practices related to major hazard control and implementation of the Seveso Directive. The criteria were developed by Seveso inspectors to aid the dissemination of good enforcement and risk management practices for the control of major industrial hazards in Europe and elsewhere. This particular topic highlights the issues that are critical for Natech risk management. Note that this document is not intended as a technical standard nor as a summary or replacement of any existing standards on the matter.

#### **DEFINITION AND SCOPE**

Natural hazards, such as earthquakes, floods, storms, freeze etc., can trigger major accidents involving fires, explosions and toxic releases at establishments substances. These technological "side effects" of natural-hazard impacts are called "Natech" accidents or simply "Natechs" (from "natural-hazard triggered technological accident"). Impacts on industrial operations and infrastructure are a recurring but often overlooked feature in many natural-disaster situations [1]. However, with the expected increase in intensity and frequency of natural events from climate change, Natech risk is an increasing concern in disaster prevention and risk management at local,

Prevention of the release of dangerous substances from chemical hazard sites as a result of a natural hazard has been recognised as a critical objective in Natech risk management. For this reason, in 2012, modifications to the EU Seveso Directive explicitly introduced Natech risk as an important component of a hazardous site's overall risk management strategy for upper tier sites in the safety report (Annex II of the Directive). As a consequence, the major-accident prevention policy (MAPP), the internal emergency plan, the information provided to the competent authorities for the definition of the

management system (SMS) should also consider this information. The common inspection criteria reference for inspectors of Seveso sites on how to review these elements to ascertain the effectiveness of the site's Natech risk management

#### CHARACTERISTICS OF NATECH EVENTS

The characteristics of Natech events differ from those of conventional technological accidents and there are currently no well-established Natural hazards can cause multiple and simultaneous releases over extended areas, possibly overwhelming on- and off-site response capacities. The safety measures in place to prevent conventional major accidents or mitigate their consequences are often ineffective or insufficient against Natechs as they are usually not designed to withstand a natural event [2]. For example, in case of hazardous-materials releases triggered by floods (Figure 1), flooded catchment bunds are typically unable to contain a release, allowing the unconstrained spreading of hazardous liquids in a

Utilities are also often disrupted during a natural event (e.g. power needed for process control or for safe shut down, water for fire-fighting or cooling). In such situations, domino events are more

CCPS Monograph: Assessment of and planning for natural hazards



This monograph addresses the assessment of and planning for natural hazards. It is based on lessons learned by various CCPS member companies.

Source: CCPS

**OECD Guiding Principles** for Chemical Accident

vention, Preparedness and Response

Guidance for Industry (including Management and Labour), Public Authorities, Communities and other Stakeholders OECD ((

Source: OECD

JRC121493



## What's your role in responding to a changing world and a changing climate?



Questions?

