

Industrial parks and the Seveso Directive

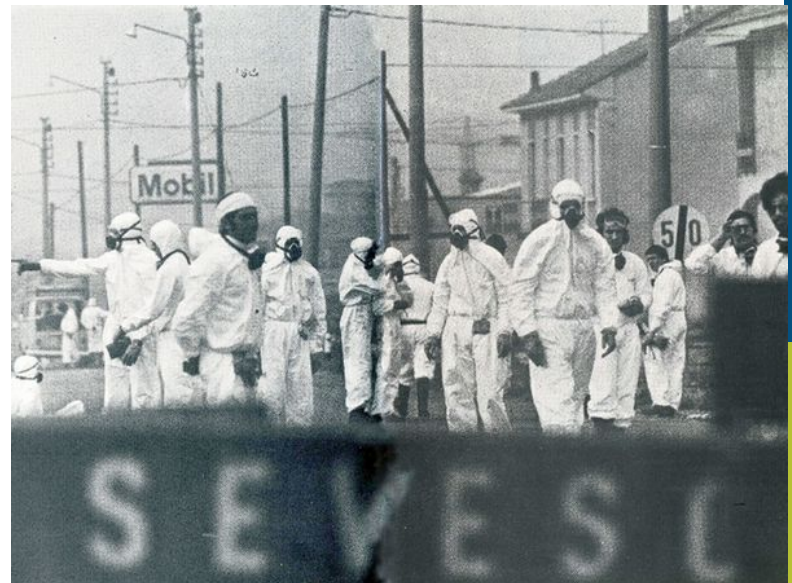
Haakon Vennemo, Vista Analysis

Beijing, 18 November 2014

Training Workshop on management of environmental risk

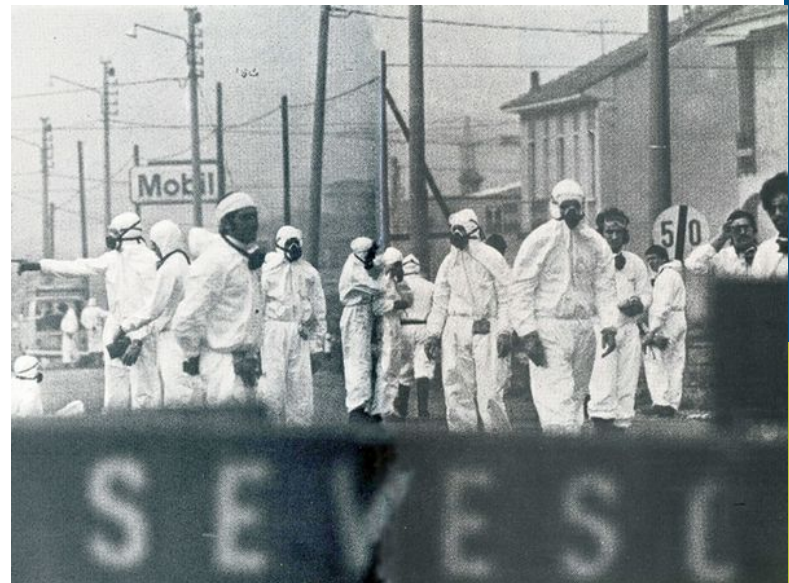
Seveso Directive

- In 1976 industrial accident in Seveso, Italy
 - Fire in chemical plant, acute emissions of hazardous chemicals, exposure to dioxins
- In 1982, Seveso Directive: Much stricter industrial safety regulations
 - Current version is "Seveso III" (2012).
 - "Seveso II" also still applies



Seveso Directive

- Industry operators and relevant authorities **must have policies and systems** to prevent and handle major accidents.
 - The larger the quantities of dangerous substances in an establishment, the stricter the rules.



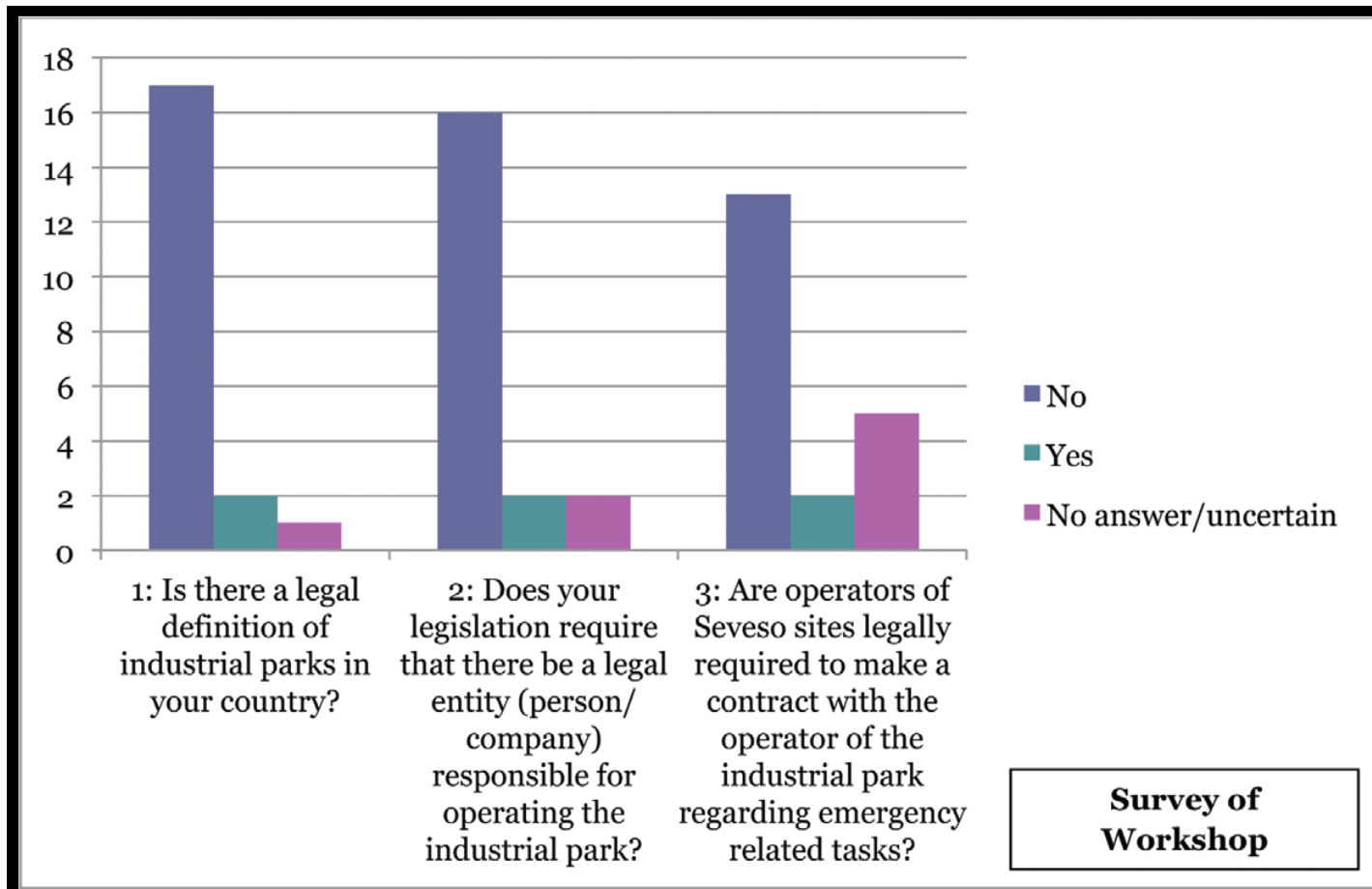
Chemical parks in Europe



Chemical parks in Europe

- A chemical park = a site accomodating several chemical companies that are legally separate entities.
 - *Major user park* run by the major user
 - *Closed park* run by an infrastructure company
 - *Open park* run by the participating companies in cooperation
 - *Clusters* of chemical factories next to each other, sharing some of the characteristics of a proper park
 - Not a clear definition of industrial park
- Most parks contain one or more «Seveso establishments»

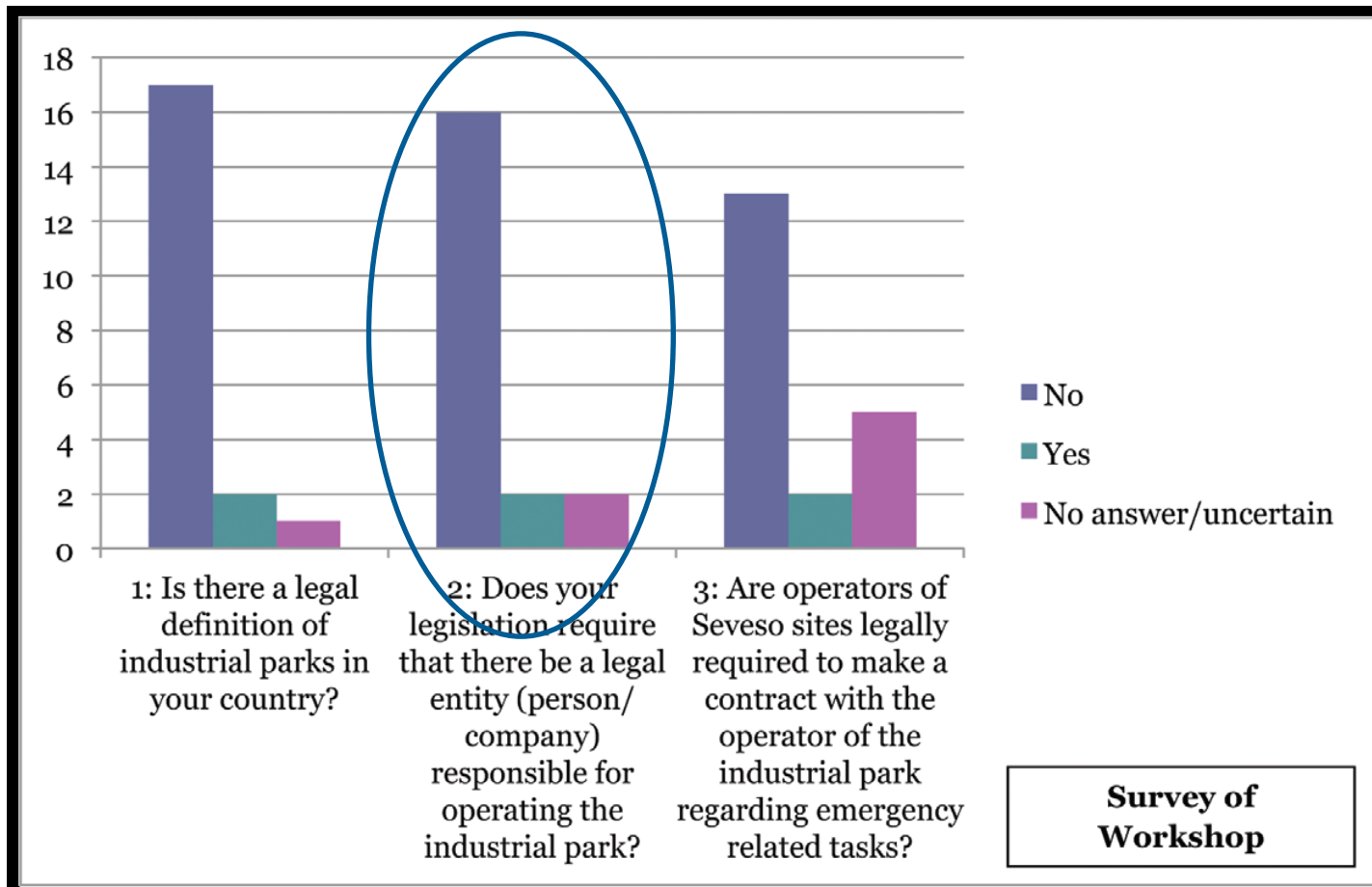
Chemical parks in Europe



- Open parks are the most common

Source: Larsen et al, 2012

Chemical parks in Europe

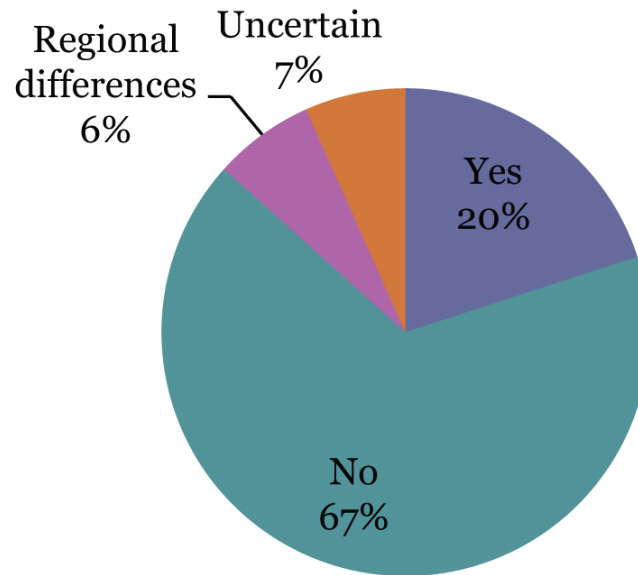


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Source: Larsen et al, 2012

Challenge: divided responsibility

Question 8 (TWG 2 Survey 2008): If you have identified industrial parks with Seveso plants, have you identified any industrial parks where one of the owners is responsible for the safety of the operation of all the different establishments on behalf of



Source: Larsen et al, 2012

Challenge: The domino effect

- The environmental risk of an industrial park may be higher than the sum of risks from each plant
- One important channel is the *domino effect* – one event sets off a chain of similar events elsewhere.
 - Explosion at one establishment causing a projectile that rips a hole in a tank holding dangerous substances and belonging to a different establishment

Divided responsibility is the core problem

- Challenge I: Divided responsibility
- Challenge II: Domino effect
- Divided responsibility is the primary one, since single responsibility reduces the risk of domino effect
- Some problems that by and large arise from divided responsibility
 - Which enterprise is the source of a specific pollution incident
 - Complicated legal structure between entities in the park; who is liable for what?
 - Different standards; many big companies have their own internal risk management systems that may not "communicate well" with others
 - Fragmented information; many different entities have information relevant for assessing overall risk – how to get it?
 - High risk site = risk of terrorism

Policies and systems of Seveso Directive

- Notification *
 - Major Accident Prevention Policy (MAPP) *
 - Safety reports
 - Emergency plans
 - Land-use planning
 - Information to the public
 - Public consultation and participation in decision-making
 - Inspections *
-
- Upper-tier establishments (i.e. high risk, due to bigger quantities) need to comply with all the requirements above.
 - Lower-tier establishments (i.e. low risk, due to lower quantities) only need to comply with Notification, MAPP, and Inspections. (With star).

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Safety reports identify domino effects

- “Most authorities identify and monitor potential domino effects establishments through the evaluation of safety reports, through site inspections, use of digital maps and notifications from the establishments.” (Larsen et al, 2012)

Land use planning used to reduce domino effects

- The Seveso Directives require countries to specify safety distances between Seveso plants and its neighbours.
 - A separate lecture will talk about this
- In principle the concept of safety distance applies to *internal* neighbours inside the park as well as to *external* neighbours outside the park.
 - The European Court of Justice has recently reaffirmed this, but says that socio-economic factors should play a role in addition to safety.

Land use planning and industrial parks

- “If it transpires that smaller separation distances are accepted for certain (socioeconomic) reasons, then nobody can overturn such a permit by way of legal action.”
 - Prof Dr. jur Hans-Jürgen Muggenborg, on chemietechnik.de website

Inspections

- Seveso-directives specify the following:
- For upper-tier establishments, inspections **every year**
- For lower-tier establishments, **every 3 years**
- **Non-routine inspections** are carried out to investigate serious complaints, serious accidents and “near misses” accidents
- If the inspection reveals shortcomings, the establishment has to implement the actions proposed by the authorities.

Inspections

- Inspections are aimed at the individual operator, and infrastructure company if relevant.
- Inspectors and regulators have the power to request cooperation between operators. Practice varies between countries of the EU.

Good practice in inspections and regulation

- Identify/inspect the management of some utilities, such as pipelines
- Require that a legal entity be responsible for operating the industrial park
- Enforce the establishments' duty to exchange information
- Focus inspections on the overall safety level of the park
- Require establishments to have a joint emergency plan, joint analysis of domino effects and joint emergency response organisation

Lessons for China

- Even with single responsibility an industrial park increases the risk of domino effect and increases environmental risk through this channel.
- The disadvantages of an industrial park must be weighted against advantages
 - Economic benefits and «circular economy» benefits
 - Shared monitoring and management
 - Shared emergency response
 - Shared environmental technologies

Lessons for China

- Estimated that over 35,000 petroleum and chemical companies over designated size produce over 40,000 different types of products.
- 35 national level *chemical* industrial parks and 309 provincial level chemical parks.
- Like European parks they may encounter domino effects and divided responsibility
- Tools for reducing domino effects are
 - Land-use planning
 - Enterprise level safety reports and policies requiring cooperation
 - Inspections

Thank you!



VISTA
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