Reducing the Risk of Chemical Clusters by Formation of Chemical Parks

Christian Jochum, Prof. Dr.
InWEnt Senior Advisor, Director of European Process Safety Centre,
Chairman of German Commission on Process Safety

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Organisational Forms of Chemical Sites

Big chemical sites have grown differently

- In Europe: big single-owner sites up to end of 20th century, many of them now splitting up to multiple enterprises within chemical parks
- In India: multiple small & medium enterprises have grown together to chemical clusters
- Both Parks and Clusters have an aggregated risk, for which no clear responsibility exists
- Parks have a common infrastructure, Clusters not

Regulations for Chemical Parks in Europe

- EU Seveso II regulation (covering major hazard sites)
  - **All risks from neighbouring sites (as well as from traffic lines, environment etc) have to be considered**
  - **Neighbouring “Seveso-sites” may be defined as “Domino-sites” by the competent authority, leading to obligations regarding cooperation between them**
  - **The way how Parks are managed is not regulated**

Guidelines for Chemical Parks in Europe

- German Commission on Process Safety
  - **“Round Table” advising the German Federal Government**
  - **Guidance SFK-GS-44, download at *www.kas-bmu.de***
- European Process Safety Centre
  - **Network funded by 40 mainly European based (petro-) chemical multinational companies**
  - **Report “Process Safety / Risk Management of Chemical Parks in Europe” available on request (*www.epsc.org*)**

Safe Management of Parks: European Approach

- Adoption of “best practices” from safe operation of big single-owner sites
  - **Maintaining the common infrastructure**
  - **Managing the accumulated risk**
- Obligation of close cooperation of all Park users
  - **Clear structures and procedures**
  - **Based on contractual agreements under private law**
  - **Audited by authorities**

German/European Policy in IDRM in Chemical Parks

- Legal requirements (EU Seveso II)
  - **each individual operator has to have emergency management system**
  - **Operators have to provide information for external disaster management authorities**
- “Best Practice” (e.g. German guidance SFK-GS-44)
  - **Joint emergency management for the whole Park**
  - **Joint fire brigade organised by infrastructure operator**
  - **Best option to control the Park´s overall risk**

Case Study: Hoechst Chemical/Industrial Park (Germany)

- Infrastructure company (owned by major operators) responsible for emergency management and fire brigade
- Joint Disaster Management Plan for the Park
- Joint command centre
- 24hrs/7 days service of “Emergency Managers” and medical centre
- Senior managers from Park users act as Emergency Director in case of major incidents
- Internal command with Park Fire Chief and Emergency Director. Authority may take over in case of outside impact
- Costs are shared according to risks

Further Principles for Safe Management of Parks (1)

- Safety Management System (SMS)
  - **Intrinsic conflict between the interests of global companies and the Park**
  - **Global companies strive to have a uniform SMS**
  - **Some parts of the SMS should be Park specific, e.g. hazardous works, PPE, contractor management**
  - **Differences in SMS have to be communicated, e.g. in a “Park Safety Committee”**

Further Principles for Safe Management of Parks (2)

- Security
  - **“Best Practice” is a joint security service and a perimeter fence for the whole Park**
  - **High risk/vulnerability areas may need additional security**
- Inspections by Authorities
  - **“Joint services” should be inspected “only once”**
  - **Contractual agreements for safe operation of the Park have to be reviewed**

Conclusion

- Chemical (Industrial) Parks are safe and economic
  - **Good cooperation and open communication is a must**
  - **Clear contractual agreements are necessary**
- Chemical (Industrial) Clusters should be transformed in Parks
  - **Creating a joint infrastructure is highly efficient (and a business model!)**
  - **Joint disaster management avoids interface problems**
  - **“Lessons learnt” from Europe may help**

Thank you for your attention!

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