Consultation distances
Considering industrial risks in land-use planning in Germany

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Scope

- Legal Framework
- German Land-use planning policy
- German LUP-Guidance (2005/2010)
- Consultation distance / Calculation methodology / Examples
Legal Framework Europe
Main Seveso II Requirements on Land-use planning

Target of Art 12 SEVESO II Directive:

- Keep and maintain appropriate distances between Major Accident Establishments and residential areas, areas of public use, Nature Reserves, etc.
- Effective Consultation Procedure between the involved Authorities.
  - The procedures shall be designed to ensure that technical advice on the risks arising from the establishment is available, either on a case-by-case or on a generic basis, when decisions are taken.
Legal Framework for Land-use planning in Germany

- **Major Accident Ordinance** implements Seveso II Directive in federal legislation.
- **Federal Pollution Protection Act** (§ 50 "Planning")
- **Competent authority**: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

- **The Federal Building Code** sets the frame
  - in which areas building is allowed
  - under which conditions a building permit may be approved
- **Competent authority**: Federal Ministry of Transport, Building and Urban Affairs

- LUP under Art. 12 Seveso Directive (96/82/EG) has to address both pieces of legislation
- Executive authorities are the state (Länder) authorities at the local level
- Experts of the "Seveso-authorities" give advice on industrial risks to the municipal and regional planning authorities
- Stakeholders are industry, communities, planners, public, authorities etc.
Determination of CONSULTATION DISTANCES
- German Guideline (Federal Level)

SEVESO II Sites

Typical hazardous substances

Standard accident scenarios

Standard safety distances for LUP procedure 'Consultation distance'

Application of CONSULTATION DISTANCES in the planning process
- Legally binding local planning (Municipal / Council)

German Land-use planning process Considering industrial risks

A: Development of sensitive areas
B: Development of industrial activities/areas

Planning distance > Consultation distance

Planning is achievable without limitations

Individual Case Calculation of individual distances
- German Guideline describes the methodology and the models to be used

Approval of Federal Guideline methodology for the individual situation

- Known Substances
- Known Amounts
- Known technical measures to limit consequences
- Likely Scenario
- Known Dispersion Conditions

Planning is achievable only with limitations or not at all
LUP Guidance SFK/TAA-GS-1 [2005]

"Recommendations for separation distances between establishments under the Major Accident Ordinance and Areas requiring protection within the framework of Land-Use Planning"

Update in 2010
Consultation distances in Germany –

An instrument for considering industrial risks in land-use planning
(Land-Use Planning without detailed knowledge of the installations)

(Separation distance recommendations for planning authorities)

Fig.: LUP Guidance SFK/TAA-GS-1 [2005]
Example 1: Tank storage near urban areas
Consultation distance: 200 m

Visualisation of the affected area is usually carried out using a geographic information system (GIS)*.

**Consultation zone:**
If the standardised consultation distances cannot be applied then it must be shown using standard calculation models that, in the event of a major accident, a serious hazard for the neighbourhood will not exist.

*GIS-System of the environment administration in Baden-Württemberg
Example 2: Chem sites near borderline Germany to Switzerland
Consultation distance: 500 m (Oleum), 1000 m (Chlorine in gas cylinders)

For the transboundary consultation on land-use planning by Seveso and Seveso-like establishments this approach has been a useful, informal basis for the discussion

**Deterministic approach chosen** (in harmony with the major hazards legislation as practiced in Germany)

**Standardised scenarios** for the release of hazardous substances in a major accident and methods for the calculation of the toxic gas dispersion, and the fire and explosion effects

**Calculation of Consultation Distance for typical industrial substances:**
Representative leak: 490 mm\(^2\) (DN 25)
Reasons: Long term operating experience; analysis of the German major accidents in the last 20 years, legal framework for major hazards legislation in Germany

**Standard calculation method for case by case procedure**
Systematic analysis of the installations and technical requirements leads to an individual source term for the release of dangerous substances. Minimal leak is set to 80 mm\(^2\) (DN 10)

| Endpoint values adopted to assess risk tolerability for Land-use planning in Germany |
|----------------------------------|---------------------------------|----------------|
| Toxic                            | Thermal radiation               | Overpressure   |
| ERPG 2* / AEGL 2 (60min)        | 1,6 kW/ m\(^2\)                | 0,1 bar        |

*ERPG: Emergency Response Planning Guidelines; American Industrial Hygiene Association (AIHA)
Conclusions

- In carrying out their land-use planning responsibilities the municipal and regional authorities must consider a variety of objectives. Not only the demands of environmental protection and industrial safety, but also those of economic development and infrastructure must be addressed.

- In Germany experience has shown that a simple and generally accepted method for determining the consultation distances within the land-use planning process is an important part of achieving acceptance of the final Land-use planning decision.
Thank you for your attention

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