



National strategy for critical infrastructure protection against severe storms (and other natural hazards)

Center for
Critical Infrastructure Protection (CIP)

Peter Lauwe



Content

- ⊕ General information on critical infrastructures (CI)
 - ⊕ Definition
 - ⊕ Sectors
- ⊕ General strategy for critical infrastructure protection (CIP)
 - ⊕ All hazard approach
 - ⊕ Risk factors
 - ⊕ Focus
- ⊕ General national approach for reducing risk
 - ⊕ General, sector spanning concepts
 - ⊕ Sector specific concepts
 - ⊕ Hazard specific concepts and gaps





Content

- ⊕ National approach for weather related hazards / climate change and CIP
 - ⊕ Step 1: Short-project 01 until 02/2007
 - ⊕ Step 2: Project 06/2007 until 05/2009
 - ⊕ Step 3: National plan?



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Definition

Critical infrastructures (CI) include organizations and systems that have a **major importance** for the society and that, if disrupted, would comprehensively affect **supply chains, public safety** and could lead to **further dramatic consequences**.





Sectors

- ⊕ Energy (Electric Power, Oil & Gas Delivery & Storage, NPP)
- ⊕ Supply (Water, Food, Health Care Systems, Emergency Services)
- ⊕ Communication/Information Technology
- ⊕ Transportation
- ⊕ Hazardous Material (Transportation, Chemical Plants etc.)
- ⊕ Banking & Finance
- ⊕ Government Services
- ⊕ Media, Research Institutes, Cultural Assets



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Hazards/Threats

- ⊕ **Natural hazards** → Including severe storms
- ⊕ Technical and/or human failure
- ⊕ Terrorism and/or organized crime

Current focal points

- ⊕ **Climate change** → More severe storms in Germany coming more frequently
- ⊕ Health hazards (e.g. pandemics)
- ⊕ Terrorism (conventional, CBR)



Risk factors

- ⊕ Urban/industrial agglomerations → Concentration of infrastructure systems
- ⊕ Complexity of systems
- ⊕ Interdependencies (local, regional, national, transnational) → Cascading effects possible
- ⊕ Cutback in redundancy due to economical pressure





Federal Office of Civil Protection and Disaster Assistance – General strategy

- ⊕ **All hazard** approach (including natural hazards, severe storms)
- ⊕ Focus on **adaptation** strategies
 - ⊕ Reducing vulnerability
 - ⊕ Enhancing coping capacities
- ⊕ Reducing risks
- ⊕ Partner in the **security / safety** architecture **network**



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- ⊕ **General national approach for reducing risk**
 - ⊕ **General, sector spanning concepts**
 - ⊕ **Sector specific concepts**
 - ⊕ **Hazard specific concepts and gaps**



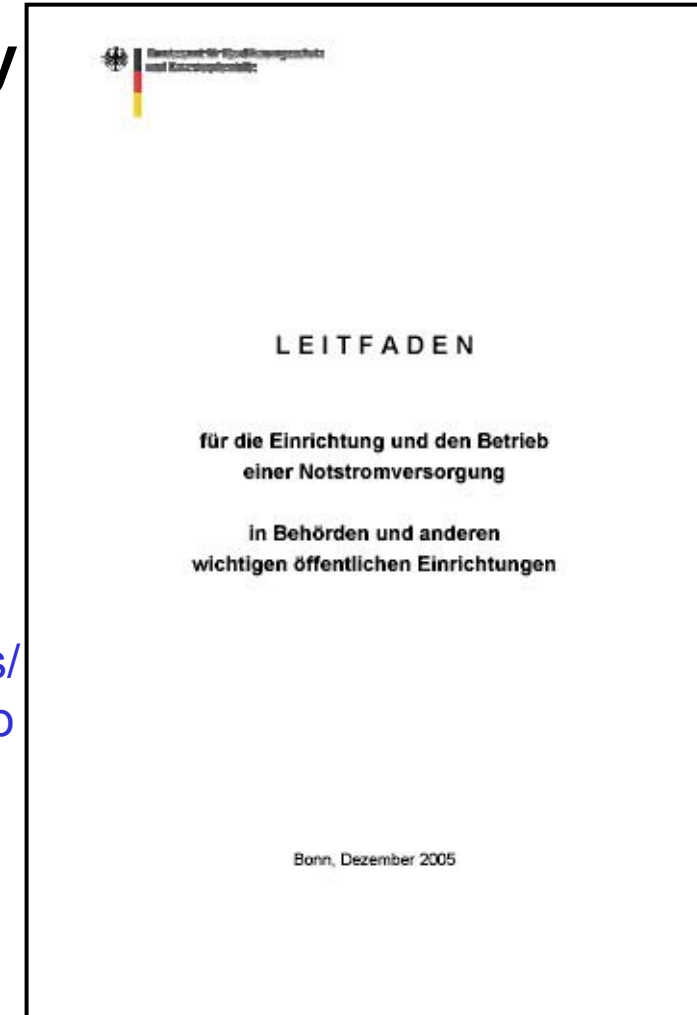


National approach - General concepts

Guideline for emergency power supply

- ⊕ Determination of energy requirement
- ⊕ Design of emergency power supply
- ⊕ Concept „Working under emergency power conditions”
- ⊕ Download:

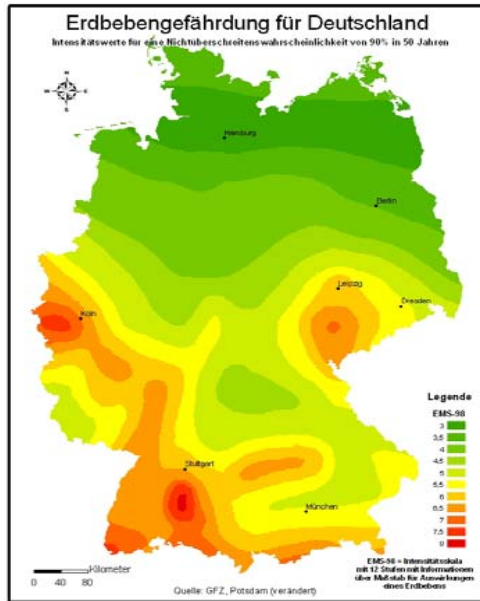
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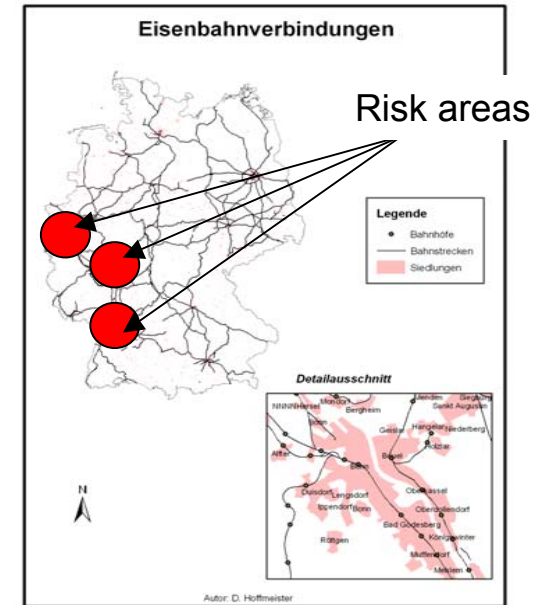
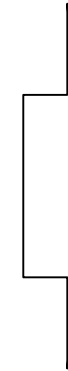
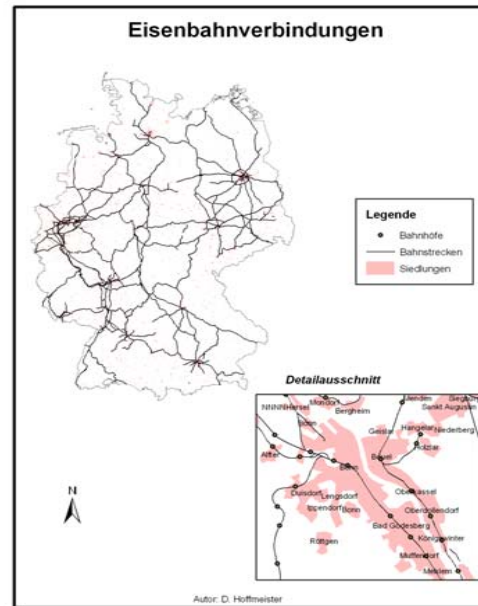


National approach - General concepts

Risk mapping



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Criteria for quality of
emergency management

Vulnerability criteria for
infrastructure elements

Sources: GFZ, BKG





National approach - Sector concepts

- ⊕ Water supply
- ⊕ Power supply
- ⊕ Public offices

National approach – Hazard specific concepts

- ⊕ Pandemic flu planning for operators
- ⊕ Concept on weather related hazards, including severe storms and the aspects of climate change





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- ⊕ National approach for weather related hazards / climate change and CIP
 - ⊕ Step 1: Initial project, 01/2007 until 02/2007
 - ⊕ Step 2: Mid-term project, 06/2007 until 05/2009
 - ⊕ Step 3: Long-term project: National plan?





National approach – Weather related hazards / climate change

Step 1:

Initial project on weather related hazards / climate change and the requirements for civil protection (01 – 02/2007)

- ⊕ Changes in weather related hazards due to climate change
- ⊕ Sensitive systems
- ⊕ Requirements for civil protection
- ⊕ Download: www.bbk.bund.de



Klimawandel – Mögliche Anforderungen an den Bevölkerungsschutz

Grundlagen

Praktikumsbericht

Praktikum vom 02.01.07 – 28.02.07: Julia Mayer



Focal point in natural hazards and climate change

⊕ Precipitation

⊕ Floods

⊕ Heat waves

⊕ Droughts

⊕ **Severe storms (e.g. Lothar, Münsterland, Kyrill)**

At this point in time, change in frequency and intensity cannot be determined.

⊕ **Sea level (in combination with storms surges)**

Scenarios 2090-2100 – sea level rising:

→ Lowest expectations: 19-37 cm

→ Highest expectations: 26-58 cm



Sensitive Systems – Energy supply

Storm related

- ⊕ Surface network structures
 - ⊕ Power supply lines
 - ⊕ Power poles
- ⊕ Surface nodal point structures
 - ⊕ Open substations
- ⊕ Coastal structures
 - ⊕ Mineral oil
 - ⊕ Gas

Sensitive Systems - Transportation and logistics

Storm related

- ⊕ Surface network structures
 - ⊕ Railway lines (Power supply lines, debris on tracks)
 - ⊕ Highways (debris on roads)
- ⊕ Coastal structures
 - ⊕ Harbors
 - ⊕ Coastal near structures
- ⊕ Shipping, aviation



Sensitive Systems

Others

- ⊕ Energy supply
 - ⊕ Cooling water
- ⊕ Transportation, logistics
 - ⊕ Low water levels
 - ⊕ Transportation restrictions
- ⊕ Health care services
 - ⊕ Heat waves
 - ⊕ Infectious diseases
- ⊕ Water supply
 - ⊕ Regional shortage of source water (e.g. Brandenburg)



Requirements

- ⊕ Comprehensive identification of sensitive systems
- ⊕ Focus on civil protection aspects
- ⊕ Focus on adaptation strategies
- ⊕ Co-operations with safety institutions, CI operators, public emergency management





National approach – Weather related hazards / climate change

Step 2:

Mid-term project on weather related hazards / climate change and the requirements for civil protection (06/2007 – 05/2009)

- ⊕ Identifying all weather/climate sensitive systems (CI)
- ⊕ Processing new information (new reports, e.g. IPCC)
- ⊕ Preparing a workshop on weather related hazards / climate change and civil protection for October 2007
 - ⊕ Federal offices
 - ⊕ State offices
 - ⊕ Operators
 - ⊕ Scientific institutions





National approach – Weather related hazards / climate change

Step 2:

Mid-term project on weather related hazards / climate change and the requirements for civil protection (06/2007 – 05/2009)

- ⊕ Foster co-operations
 - ⊕ Environmental protection agency (UBA), German Weather Service (DWD)
- ⊕ Communication platform for partners
 - ⊕ State emergency management
 - ⊕ CI operators
- ⊕ **Main objective: Developing adaptation concepts!**





National approach – Weather related hazards / climate change

Step 3:

Long-term strategy on weather related hazards / climate change and the requirements for civil protection

⊕ National plan?

- ⊕ Inventory of existing projects in Germany (Science community, CI operators)?
- ⊕ Identifying gaps?
- ⊕ Initiating projects?

⊕ How to handle uncertainty?

- ⊕ Effective and efficient measures based on uncertainty
- ⊕ Regional information (Germany, regions)





Conclusion (Road map)

- ⊕ Combine weather related, hazard specific concept with climate change
 - ⊕ Current situation
 - ⊕ Potential changes in the future
- ⊕ Identify sensitive systems
 - ⊕ General population
 - ⊕ Public emergency management
 - ⊕ Critical infrastructures
- ⊕ Foster co-operations
 - ⊕ Expertise in weather related hazards
 - ⊕ Expertise on systems
- ⊕ Develop adaptation measures





Thank you for your attention !

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