TECHNISCHE UNIVERSITÄT KAISERSLAUTERN

The new European Flood Management Directive and the municipal flood management system as one realization approach

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Content

1. The new European Flood Management Directive

- Part of the European flood action program
- Aim: reducing negative impacts of floods
- Focusing on different scenarios:
  - low probability or extreme flood events
  - medium probability (return period > 100 years)
  - high probability (where appropriate)

The new European Flood Management Directive

Process	Short description	Completion
Preliminary flood risk assessment	Areas with significant adverse impacts for human health, for the environment, cultural heritage or economical activity	End of 2011
Preparation of flood hazard and flood risk maps	On the basis of the flood risk assessment; Hazard maps containing flood extent, water depth or water level, or water flow; Flood risk maps containing number of inhabitants, affected economy, or hazardous plants	End of 2013
Development of flood risk management plans	Coordinated for river basins (or -districts) based on the risk assessment and maps with appropriate measures for reducing the flood risk, consider cost-benefit-ratio and avoid negative effects upstream or downstream	End of 2015

Realization in Germany

- Realization mostly by the German States (Bundesländer)
  - Flood risk assessment for the German (big) rivers mostly exist
  - Flood hazard and flood risk maps
- Municipalities:

→ *Involvement mostly in developing flood risk management plans*

→ ***What are appropriate tools ?***

Municipal Flood Management Systems

…are instruments which support municipal decision makers in preventive flood protection as well as emergency management by providing helpful information.

Existing German Municipal flood management systems:

- FLiWas (Flood Information and Warning System
- INGE (Interactive hazard maps)
- Flood Management System in Stendal County
- …

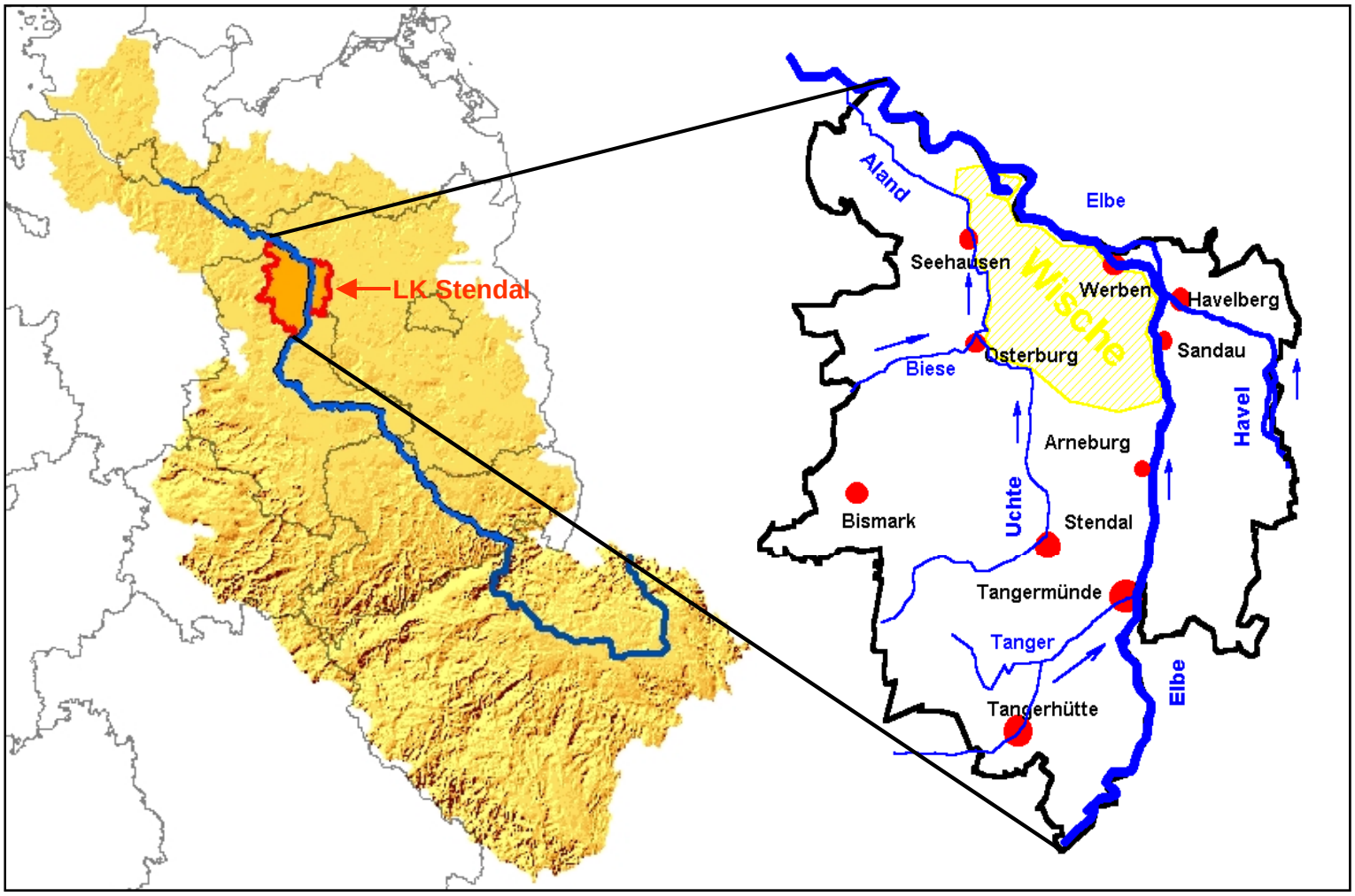
Municipal Flood Management Systems - applications

- Collecting geobasisdata and flood relevant data (hazard maps, flood scenarios)
- Collecting important plans for disaster management (alert plans)
- Including appropriate measures (evacuation routes, street barriers, dyke defension)
- showing endangered objects together with specific information about these objects
- giving an overview of resources for emergency management an its regional distribution (man power, material)

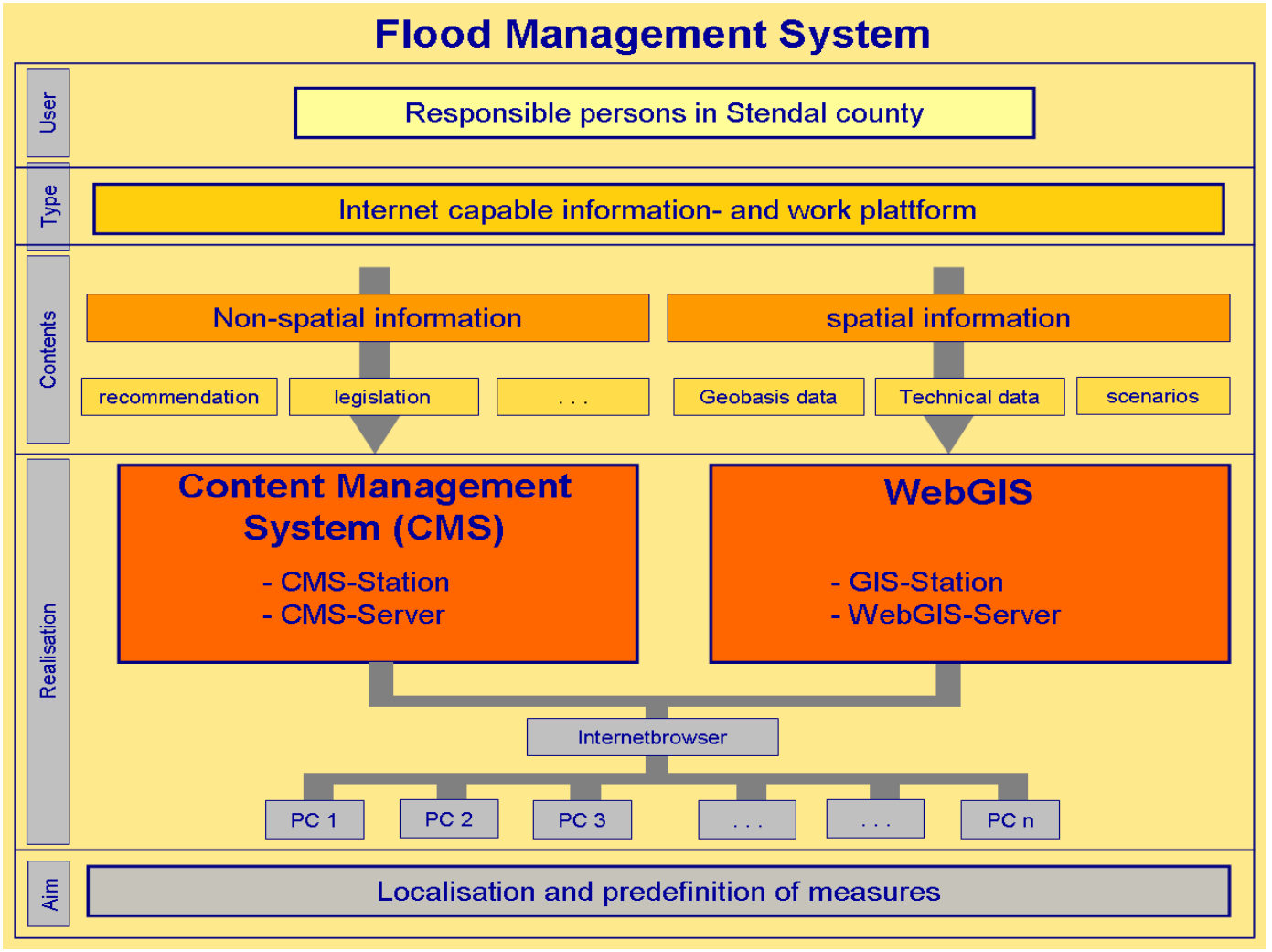
Flood Management System (FloMs) Stendal County

- developed 2003-2006 after the Elbe flood disaster in 2002
- part of the European INTEEREG-project ELLA: “Elbe – Labe: preventive flood management measures by transnational spatial planning”
- recently published at 3rd ISFD (2006)
- practical application during catastrophic alert in April 2006

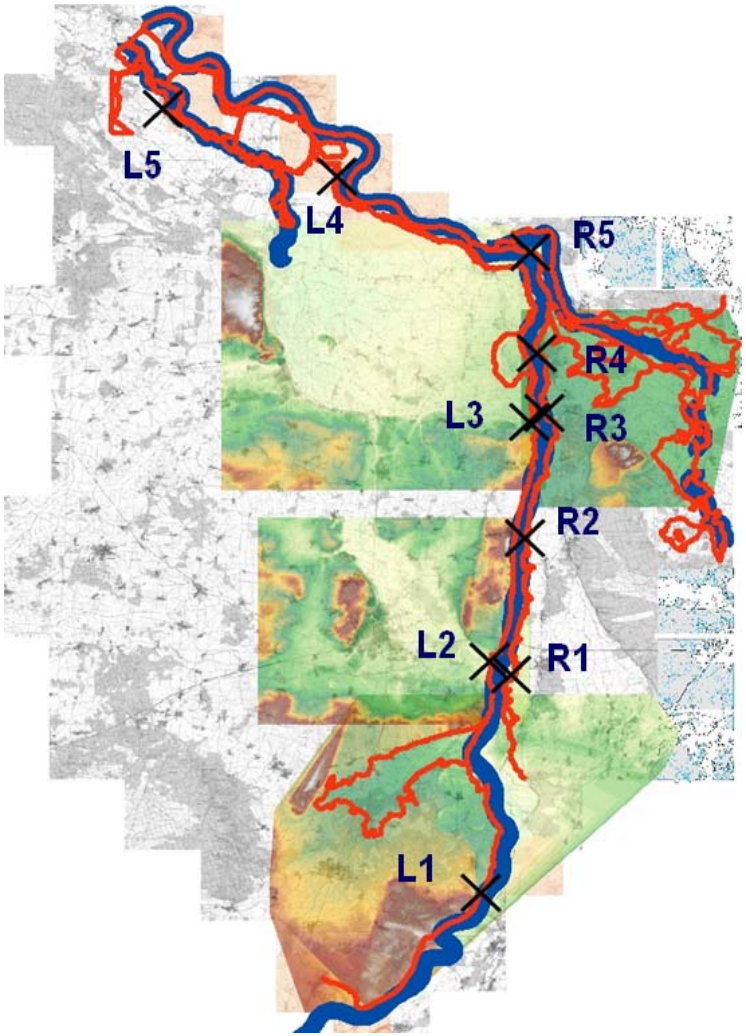
Best Practise Example – Stendal County



Best Practise Example – Stendal County



Best Practise Example – Stendal County

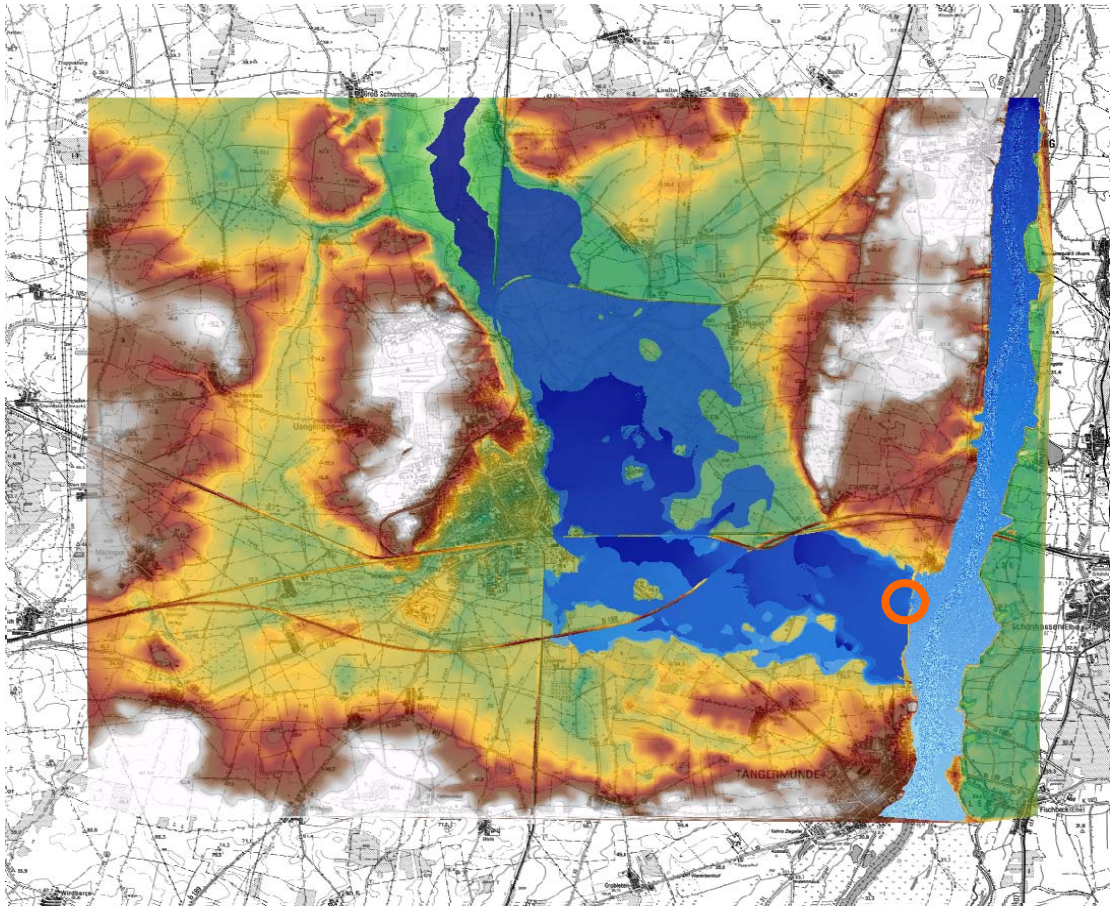


FLOOD SCENARIOS

from selected „representative“ dike failure locations

Best Practise Example – Stendal County

Example for a dike failure scenario (Flood Area®)



Assumption of the dike breach length: 100 m

Results after:

a.) 3 hours

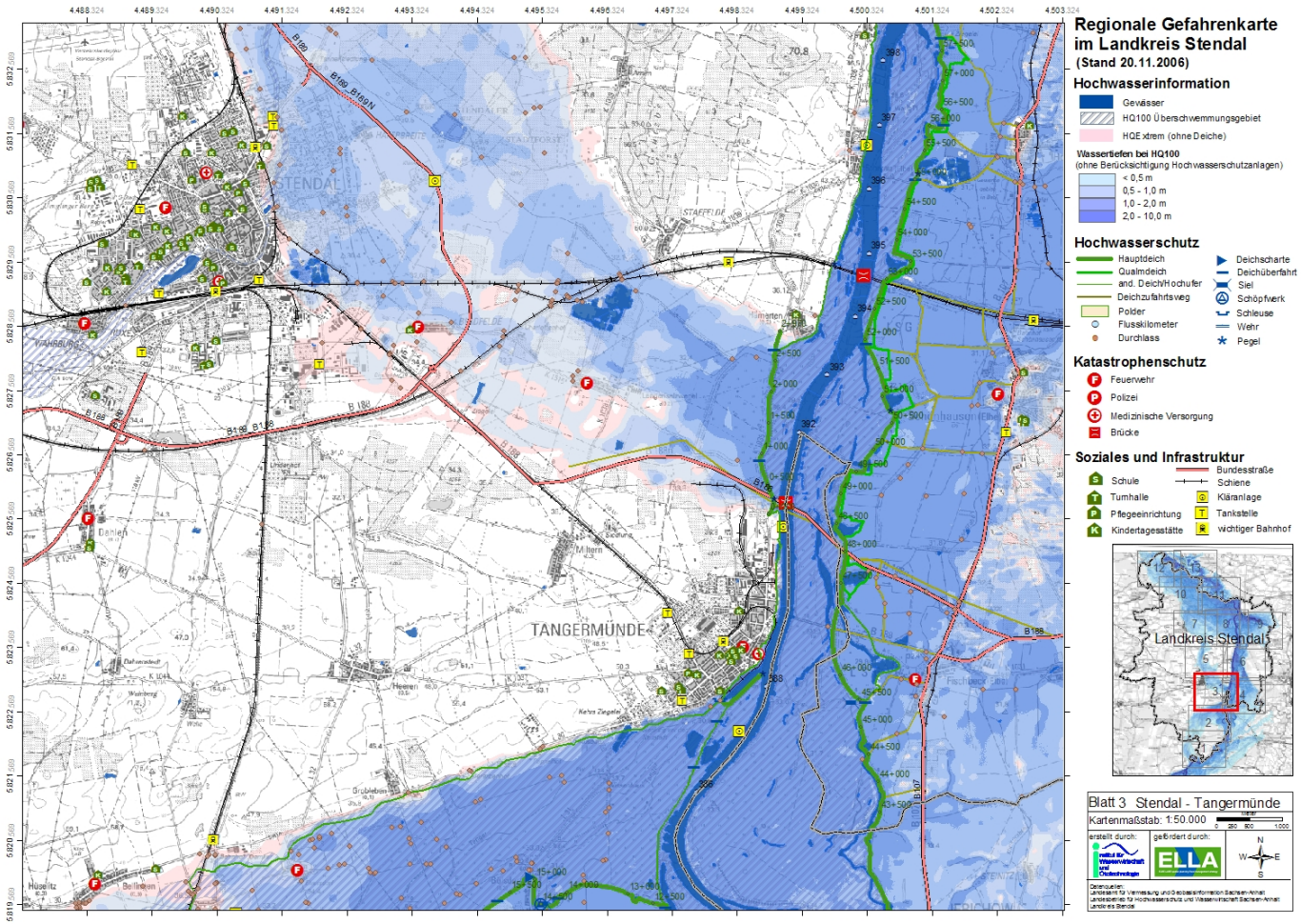
b.) 6 hours

c.) 12 hours

d.) 24 hours

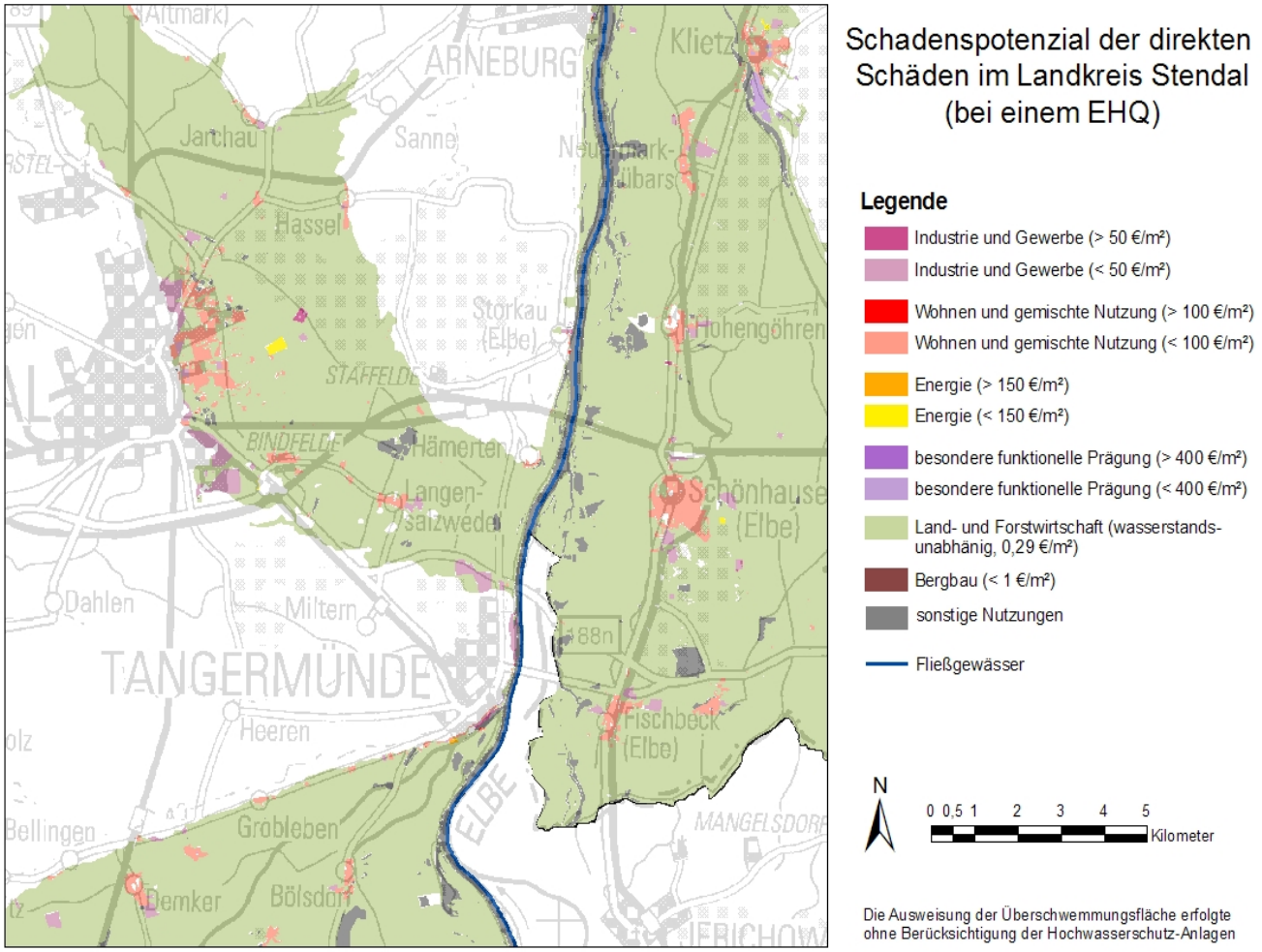
e.) 48 hours

Best Practise Example – Stendal County



Example for a regional hazard map

Best Practise Example – Stendal County



Map showing the potential damages in a region

Experiences during the Elbe Flood event 2006

Flood event 2006:

- caused by rapid snow melt in the upper watershed of the Elbe river combined with heavy rainfall events
- in the middle part of the river Elbe the return period was calculated to be between 50 – 80 years

Experiences testing FloMs:

- The system worked stabile and without access problems
- It was accepted as a very helpful tool for the decision makers
- It gave the possibility to learn from the operation and to improve FloMS.

Best Practise Example – Stendal County

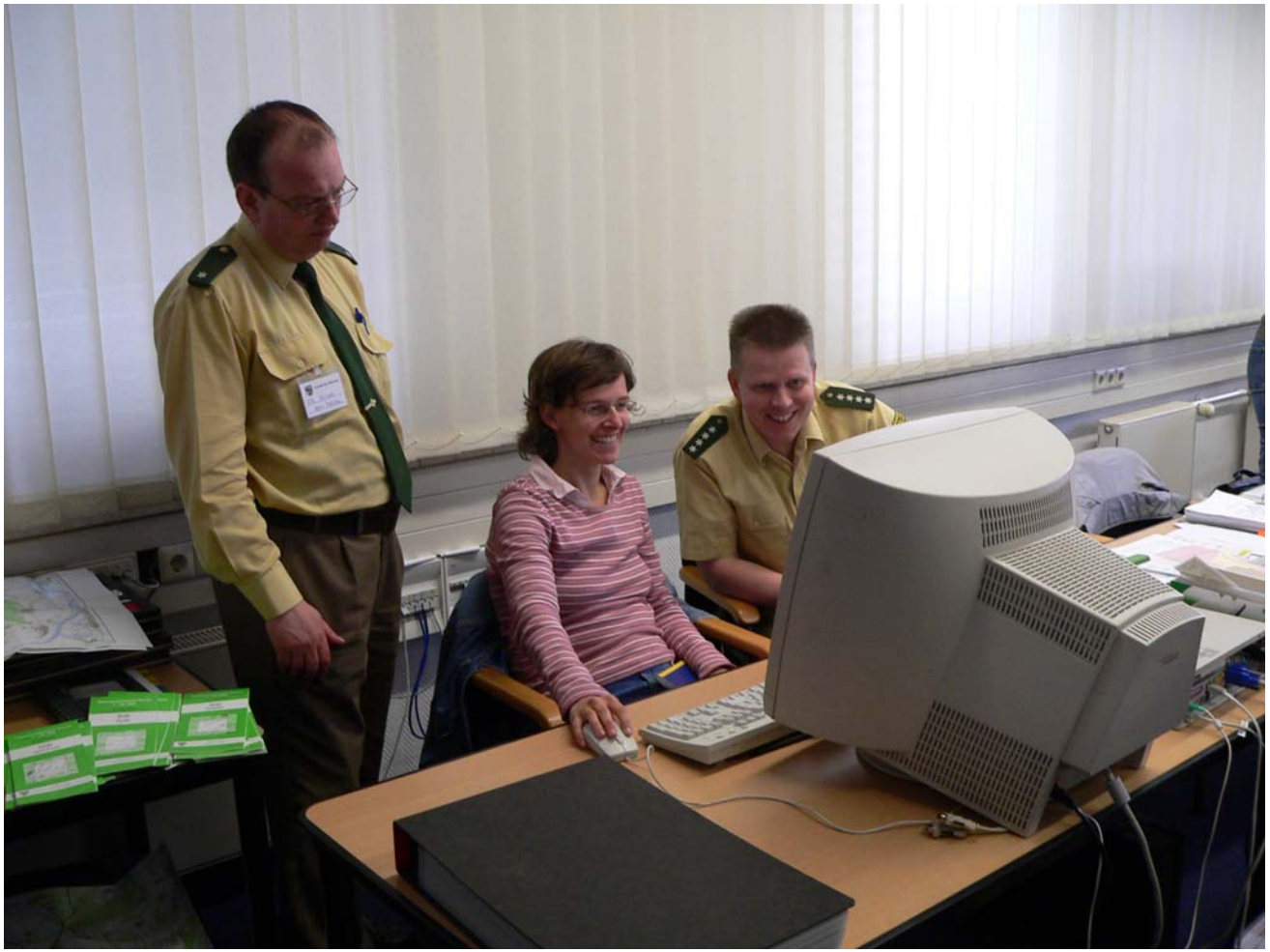
The Elbe river flood 2006 (Steingraf, 2006)

Best Practise Example – Stendal County

The junction of Tanger river and Elbe river (Steingraf, 2006)

Best Practise Example – Stendal County

Best Practice Example – Stendal County



Using municipal flood management systems to implement the new European flood management Directive?

Yes, because they are able to

- optimize the existing municipal flood management activities
- combine GIS with hydraulic modelling to develop “flood scenarios”
- be used not only for emergency management but also for flood prevention measures
- be connected within a river basin to improve the transboundary cooperation
- be a helpful tool for developing flood risk management plans

Using municipal flood management systems to implement the new European flood management Directive

What is necessary?

- defining technical standards for flood management systems
- connect with flood forecast systems
- updating
- training the users


Thank you for your attention!