



WMO

GIS for the United Nations and the International Community Conference

Panel: GIS and Capacity - How Territorial Planning Benefits from Geospatial Information

3-5 April 2012 Geneva, Switzerland



GIS as a tool in flood management

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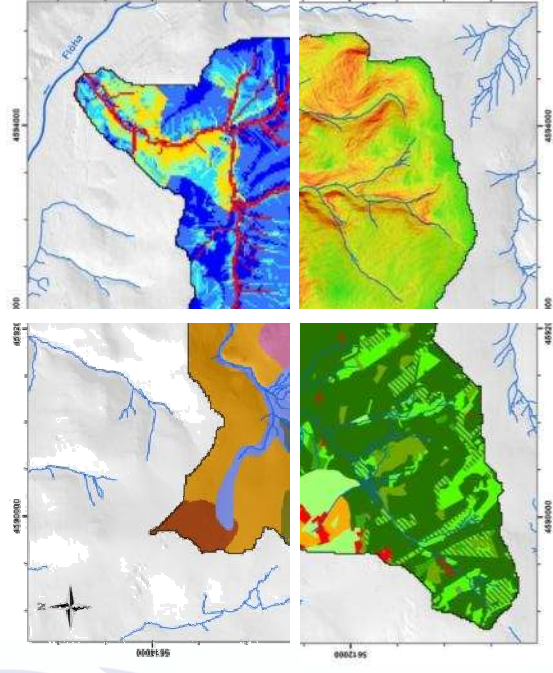
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Terrestrial Planning. Why integrated?

- We are often working on a subject considering spatial data & information from various fields.

Thus, a multi-disciplinary approach is needed.





The Associated Programme on Flood Management The Mission

... is to support countries in the **integrated** management of floods.

Sustainable development
balancing development needs and
flood risks

Environmental preservation
for ecosystem services & health

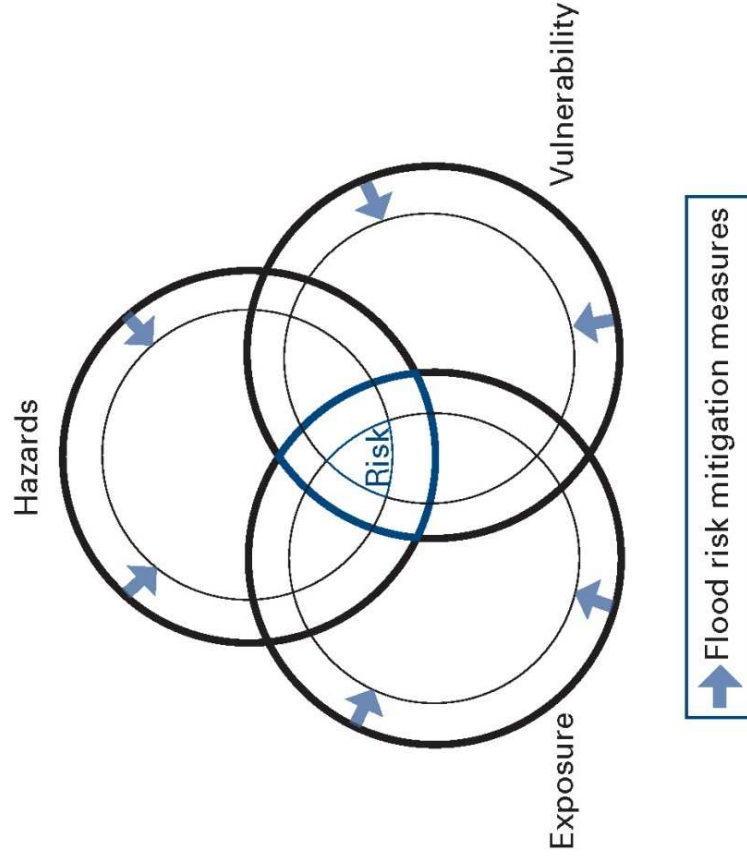




Understanding flood risk

Flood risk consists of

- the magnitude of the flood **hazard** expressed in terms of frequency and severity,
- the **exposure** of human activities to flooding,
- the **vulnerability** of the elements at risk.





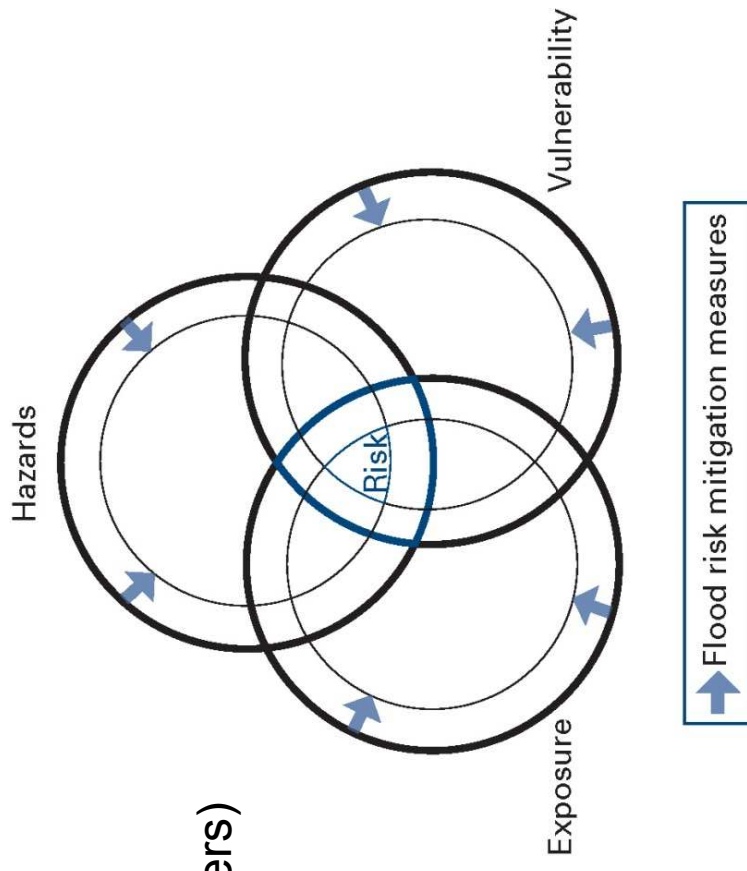
Understanding flood risk

Maps as an information tool
indicating:

- what? (hazard and risk parameters)
- where? (geographic extent)

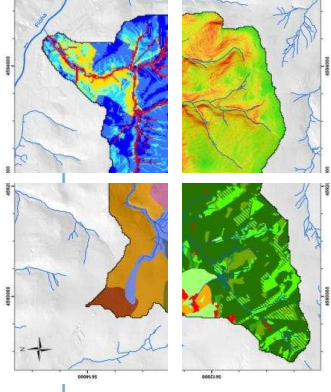
**Knowledge has only value
if it is applied!**

=> backbone of sustainable
development





In order to establish a flood strategy ...



Hazard identification:

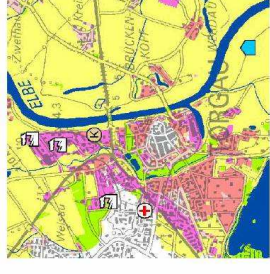
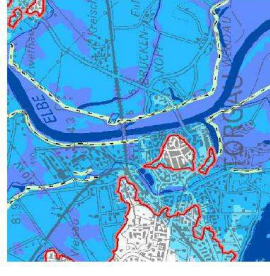
What is affected? What is the extent?

- register of past events
- geomorphologic analysis, topography

Hazard assessment:

What is the impact? Magnitude/ intensity.

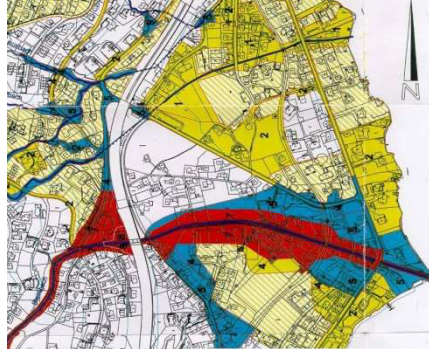
- hazard maps, vulnerability maps



Risk assessment:

What is the potential loss?

- risk maps



The decision making process:

How to adapt?

- spatial planning of measures
- emergency planning

What level of safety can we achieve?

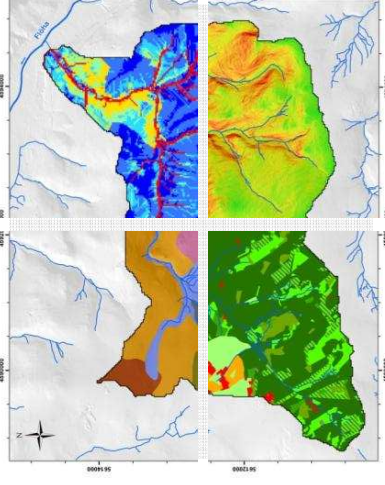


Terrestrial Planning & Capacity Building

What is the message ...

- With GIS, we have the tool. We have the knowledge and technology. We have to use it!
- Is there a lack of capacity?
Data requires capacity
- Capacity Building - Telling a Story

The more complex a tool becomes, the more capacity building is needed.





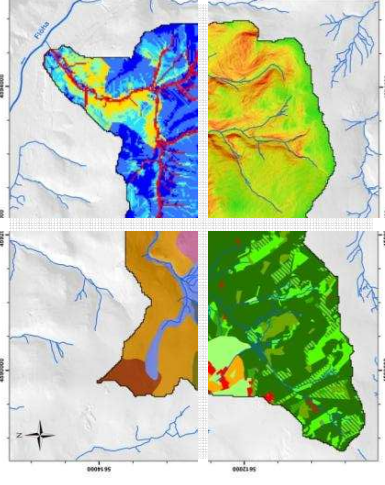
Terrestrial Planning & Capacity Building

What is the message ...

The challenge is to figure out

What is necessary / available to enable the user to **use** it?

- Part of the capacity building process is to clarify the needs of WMO members
- Bring together experts, **connecting** inter-disciplinary manner, **avoid overlapping.**

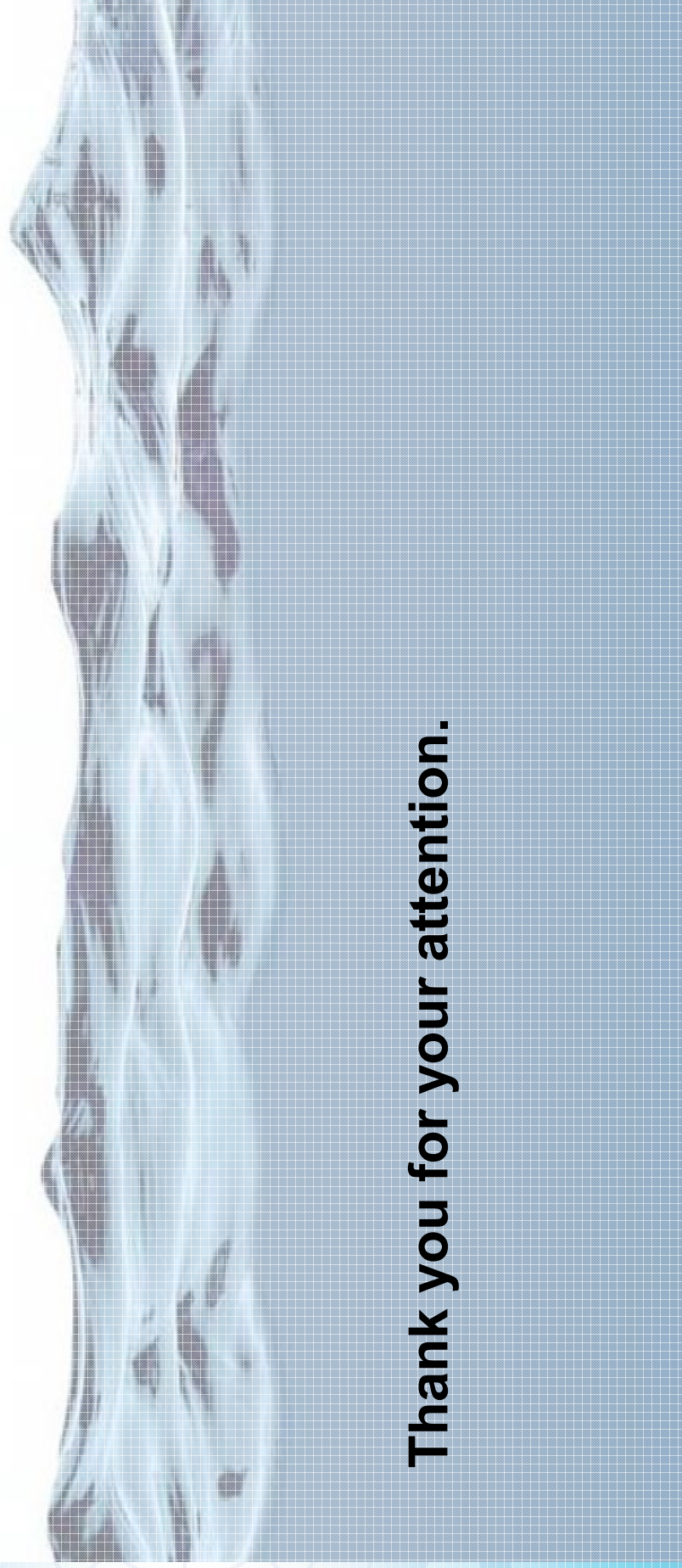




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Thank you for your attention.

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Geospatial data related to flood issues

human impact on the hydrological cycle

location of settlements

location of (potential) measures

people affected

emergency planning

prevention

forecasting

topography

land use

land cover

river net

soils

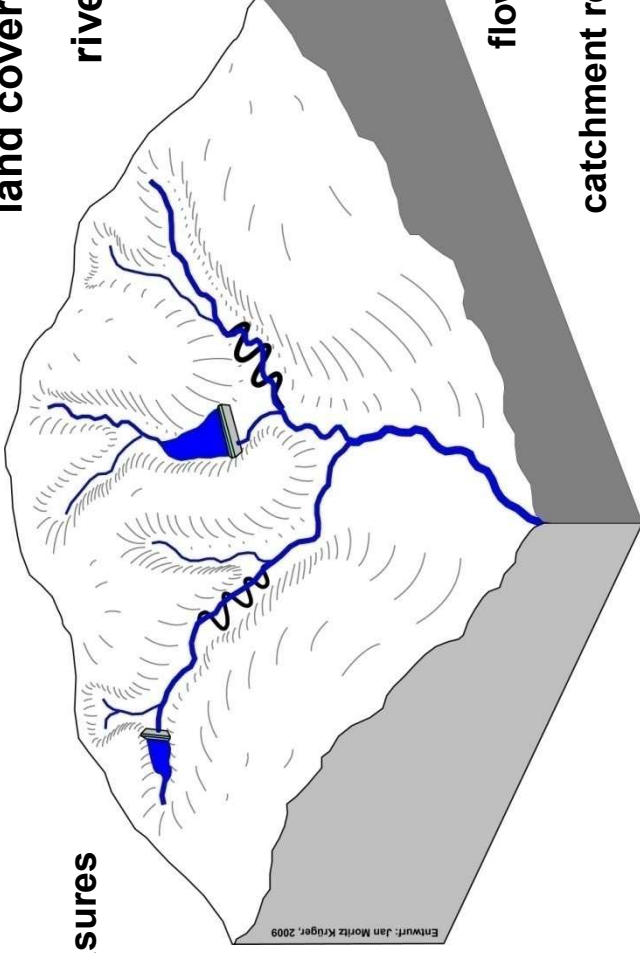
water in- and output

flow direction

catchment response

potentially inundated areas

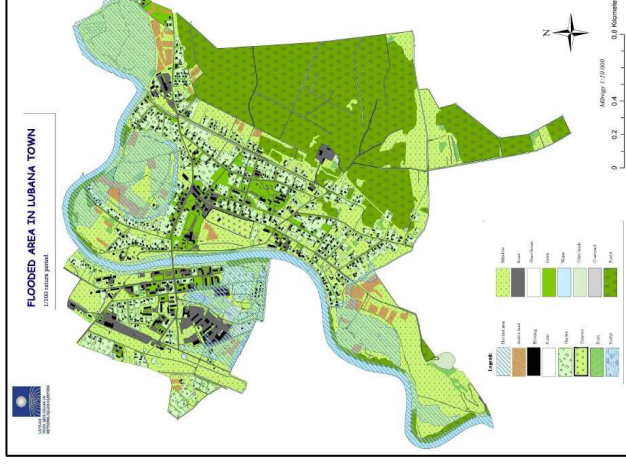
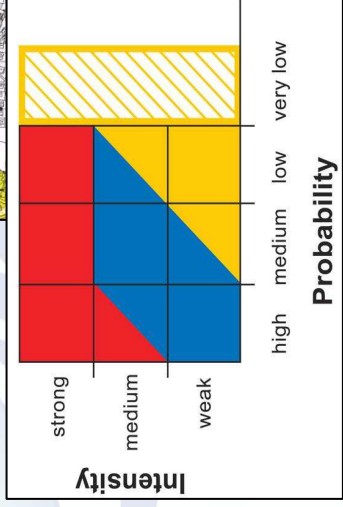
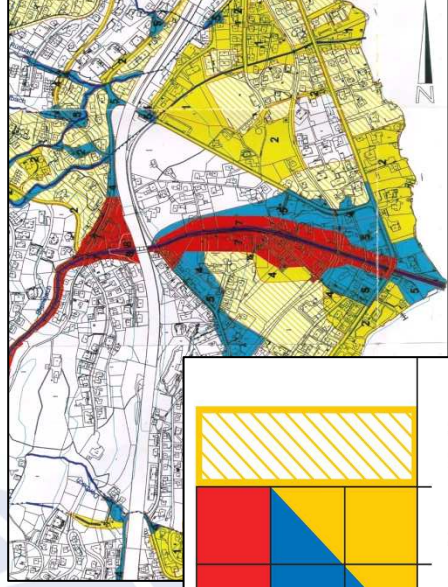
mapping, plotting, monitoring results supporting the decision making process





Guidance on Flood Mapping

- Possible types of maps in relation to their use
- Different approaches in producing flood maps
- Required institutional framework for development of flood maps





Flood types

- Riverine floods
- Pluvial floods
- Flash floods
- Landslides
- Debris and mud flows
- Glacial lake outburst
- Coastal flooding
- Ground water
- Lake overflows
- Ice jams
- Dam failure
- Levee breaches

