SESSION 4: Make it happen!
Group 1: Floods

Example of PREPAREDNESS
Experience from Germany

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What do PREVENTION and PREPAREDNESS mean?

Prevention

- Structural and non-structural measures taken before an event in order to mitigate or avoid disasters and emergencies
  - based on risk, hazard and vulnerability maps under different scenarios

Preparedness

- Measures taken before an event in order to minimize loss of life and damage, to organize the temporary removal of people and property from a threatened location and facilitate timely and effective rescue, relief and rehabilitation;
  - based on risk maps under different scenarios
What do **PREVENTION** and **PREPAREDNESS** mean?

**Prevention/Protection**  
*Long-term development/strategy*

- discharge reduction
- vulnerability reduction
- scenario modelling/analysis
- Flood risk mapping

- spatial-/land use planning
- potential retention areas
- polders
- reservoirs
- dykes
- awareness raising

**Preparedness**  
*Mostly only active at operational level*

- early warning/forecast
- data survey/gathering
- scenario modelling/analysis
- emergency planning/crisis management

- potential retention areas
- polders
- reservoirs
- dykes
- awareness raising
River Oder on the German-Polish border after flood in summer 1997

(Source: Brandenburg State Office for Environment)

384.5 km dykes:
- 173.4 km main dykes
- 57.7 km rearward dykes
- 153.4 km dykes in polder areas

Damage (in Brandenburg):
- 331 M €
- Damage on flood structures 152 M €
Technical Flood Prevention

Technological issues: can be solved!

BUT other circumstances have to be considered! These are almost more complicated/contradictionary and time consuming than finding technical solution.

- Financial issues (e.g. cost intensive investigations)
- Various land use interests and requirements
- Natural circumstances (special protected areas/FFH)
- Legal requirements (purchase of land)
- Explosive recovery (from World War II)
- Monument protection regulations
Natural Flood Prevention

Technical Flood Prevention

Flood Preparedness
Masterplan Oder 1999
Comprehensive investigation with regard to potential retention areas

Model calculations:

- Lunow-Stolper-Polder 1.600 ha
- Sophienthaler Polder 500 ha
- Ziltendorfer Niederung 5.500 ha
- Neuzeller Niederung 2.300 ha
Example: Neuzeller Niederung

- Retention polder (peak cut) and with 2 explosion sites up to 1,900 ha
- 2 dyke-shifts with 35 ha
- 1 dyke-shift with 33 ha
Natural Flood Prevention
- creation of retention areas -

Calculation of potential water level decrease:

- 2 dyke-shifts (track correction) in the frame of dyke reconstruction
  - 8 cm directly in area
  - 2 cm in Ratzdorf (confluence of Oder and Neisse River)

- Dyke-shift in section downstream (section 4) currently under consideration
  - 12 cm (together with dyke-shifts mentioned above) directly in area and
  - 5 cm in Ratzdorf

- Inundation of the Neuzeller Niederung (Lowland) at flood peak through opening at dyke-km 8+000
  - 22 cm in Eisenhüttenstadt

- In case of flow through of the lowland (both explosion sites open)
  - 19 cm in area
Natural Flood Prevention

Technical Flood Prevention

Flood Preparedness
Flood Preparedness

Improvement of hydrological forecasts
(Model: WVM Oder)

Improvement of data situation for Topography and Hydrology (Laserscanning)

Scenario analysis for polder filling (regulated and unregulated; single and combined; different combined scenarios):
  -> for German-Polish section separately in addition with higher resolution (2D, partly 3D)

Determination of flood plains until 2010/2012 (legal binding)

Identification of flood hazard areas

Development of Flood Protection Plans until 2009

(Application of Act to Improve Preventive Flood Control – into force May 2005)
Summary

Preparedness
Mostly only active at operational level
- early warning/forecast (WVM)
- data survey/gathering
- scenario modelling/analysis
- emergency planning

Prevention/Protection
Long-term development/strategic
- discharge reduction
- vulnerability reduction
- scenario modelling/analysis
- flood risk mapping

- potential retention areas
- polders
- reservoirs
- dykes
- awareness raising

✓ Transboundary discussions (border commission and international river commission (IKSO/MKOO/ICPOR)
✓ Vulnerability reduction
✓ No climate multiplier yet
Conclusion

River basin level/border section

- agreement on return period
- agreement on designed flood
- agreement on model application (river basin level)
- agreement on scenario modelling (river basin level)
- qualitative improvement of forecast
- prolonging forecast time period
- data (resolution, time scale, format, coordinate system position/altitude)
- ...

Long-term aspects

- Timing
- Costing
- Staff
- ...
Thank you for your attention!

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Example: dyke-shift on Elbe

**Lenzen**
- new dyke track 6.110 m
- old dyke track 7.189 m
- retention area 420 ha
- dyke- height 5.7-6.3 m above bottom level
- 6 inundation slits
- expected water level reduction of max. 30 cm
- nature protection project (alluvial forest)
Additional remarks

• **Transnational** discussion/understanding in International River Commission (IKSO/MKOO/ICPOR)
  - Trilaterally, supported by EC
  - INTERREG IVB -> preparation to fulfil requirements of the FD

• **Transboundary** discussion in Border Commissions
  - bilaterally