Summary of findings
JASPERS Networking Platform Workshop
“The Baltic Region experience with Climate Change adaptation”
3-4 October 2012

Presentations and Speakers

• Claus Kondrup DG CLIMA
• Prof. Hans Hanson, Lund University, Sweden
• Peter Jeppe Tolstrup, Municipality of Copenhagen
The probability of extreme events is increasing and it is important that we manage the risks of these events and disasters to advance Climate Change Adaptation.

- The EC Climate Actions
  - Europe 2020 Strategy
  - Proposed EU Budget 2014-2020
  - Proposed legislative package for the CSF Funds
- Thematic objective 5 is key action for the ERDF and Cohesion Fund:
  - Development of strategies and action plans
  - Investing in adaptation
  - Tools and investment in risk prevention and management

The European Climate Adaptation Platform is the main information tool of the EC, : [http://ec.europa.eu/clima](http://ec.europa.eu/clima)
Coastal flooding and erosion – impact of climate change

- The sea level in the Baltics is estimated to rise 1.0 m by the year 2100
- Greater impact on the flat shores than a rocky steep coast,
  - On a bottom slope of 1/100, the one meter sea level rise results in a 100 m recession of the beach and as much as 5 000 m³ of sand erosion

- Case Study Falsterbo:
  Residential Low Flat Area in the South of Sweden - HIGH risk flooding, Climate Actions
  - Detail mapping and use of computer models to map consequences
  - Cost of protection (dunes/dams) and reconstruction (sand) totally €0.5 million
  - Estimated protected value of property €6 000 million

- Case Study Ystad:
  Loss of Beaches due to sand erosion, Climate Actions
  - Replacement of sand to the Beaches – cost €2 million per year
  - Increased tourism and use of beaches – income €28 million per year
Discussions and Lessons learnt

- Coastal flooding and erosion – impact of climate change
  - Flooding is caused by the extreme events and not on average levels
  - Huge differences on the impact of climate change and extreme events;
    - sea level rise on a flat cost line resulting in long shoreline recessions
  - Verify and secure that the action mitigates the problem
  - Coastal zoning must be dynamic, not static.
  - Allocate funds for adaption and aim for cost recovery
  - Hard structures do not SOLVE erosion problems - they MOVE them
On the 2nd of July 2011 Copenhagen experienced one of the heaviest rains in 100 years. It caused major flooding of the ENTIRE City. Around 80,000 damage location was listed.

The main conclusions from the 2011 event:

- **Huge potential damage** and economic loss
- **Copenhagen is vulnerable**, mainly:
  - rain and cloudburst and sea water level rise
- **Existing sewers does not have the capacity/designed** to meet extreme rain event
- **Traditional systems does not solve the problems**
- A new need for information, planning tools and cross sectorial cooperation,
  - **Risk assessment** - rain water and sea level flooding
  - **Develop models for the city as the catchment area**
  - **Work upstream** and reduce flow to low points – example use road to lead water and green infrastructure to retain water

- **Copenhagen Climate Adaptation Plan**
Discussions and Lessons learnt

➢ Adaptation to Climate Change – The Copenhagen way

• Work cross sectorial
• Develop planning tolls, collect data - map the city
• Use combined solutions, focus on multiple benefits
• Do risk assessments and plan accordingly
• Work with cost benefit analyses and financing, include operation
• Involve the public

➢ Overall

• Plan for the Climate Change and evaluate every project for Extreme Events
• Work with upstream measures and planning
• Invest in adaptation
September 17\textsuperscript{th} Main presentations:
1. Directive requirements in FRM (DG ENV)
2. Flood Risk Modelling / Mapping (DHI)
3. River basin approach / Cross Border Experience (Floodwise)
4. EIB financing for flood protection projects (EIB)
5. Non structural measures and Green infrastructure solutions (DGENV)

September 18\textsuperscript{th} Case Study Themes:
1. Cross border aspects (Meuse - Floodwise)
2. Flood modelling (Morava - DHI)
3. Room for the river (JASPERS)
4. Flow Management – river basin planning (JASPERS)
Flood Protection Project Development
Summary of Main Challenges Identified

A. Planning on a River Basin level (National and International)
B. Flood modelling
C. Combination of Measures (River needs space)
D. Overdue maintenance
E. Non Structural Measures
A. Planning on a River Basin level
National and International

- Advantages are evident but in practice not fully applied

**Fields of action for spatial planning**

- A/B Protection of flood plains and revitalisation of retention areas
- C Retention of rainfall / runoff in the catchment area
- D Reduction of risk / damage potential
- E Technical protection measures / constructions
Example 1. International river basin approach
Example 2. River Basin Planning

- **Passing of the flood wave**
  - Restoring dikes
  - Hydraulic capacity of the river

- **Upstream retention reservoirs**
  - On main river, incl. cross border
  - On tributaries: tool to avoid co-occurrence of peak waves

- **Protection of main urban areas**
  - Safeguarding main assets and population
B. Flood Modelling

Issues faced:

- Flood modelling generally applied but not always ‘state of the art’
  - Models from previous, outdated studies (‘protected’ versions)
  - Not always latest modelling techniques
  - Climate change impact included?

Acknowledged:

- Necessary tool in programme development and operations
C. Combination of measures
Upstream / River needs space

- Upstream “Giving back to nature” measures are green and effective
  - Especially high potential on smaller tributaries
  - Less effective for extreme weather events
  - To be used in combination with ‘concrete’ measures
  - Environmental limitations in flood plains (Natura 2000)

- JASPERS examples:
  - Forest retention
  - Widening river bed
  - Retention reservoirs
D. Overdue maintenance: Restoring historical situation

Overdue maintenance problems:

- Silted and overgrown river beds
- Funding and Management problems
- ‘Shock effect’: environmentally sensitive

Dredging: Good or Bad?

Baseline scenario
Example: dredging project
E. Non-structural measures
Optimise, Plan and Talk

Large potential for better management tools and systems

- Improved flow management (hydropower operations, etc.)
- International communication
- Take into account climate change
- Spatial Planning
- Let it flood (where possible)
For info or further questions on this presentation, or on the activities of the JASPERS Networking Platform please contact:

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