Climate risk & vulnerability assessment: Poznan case study

Workshop: “Promoting climate change adaptation, risk prevention and management in the Water Sector”
22 October 2014, Brussels
• Rationale for CRVA
• Bank’s Adaptation Toolkit
• Principles
• Proposed methodology
• Poznan case – Preliminary results and…
• …first lessons
Rationale

- Rationale for CRVA from the Bank’s perspective:
  - assess whether a project is robust and resilient to climate-related risks
  - minimise reputational risk
  - avoid negative financial impacts
  - finance any necessary adaptation measures

- and the Promoter’s perspective:
  - ensure business continuity
  - avoid negative financial impacts
  - identify and implement any necessary adaptation measures
Bank’s Adaptation Toolkit

- Screen projects for CC risk vulnerability
- Assess completeness and coherence of CC risk and vulnerability assessment (RVA) done by promoter
- Identify potential adaptation activities
- Appraise the appropriateness of adaptation activities
- Report on adaptation financing
- Communicate with clients on all of the above
Bank’s Adaptation Toolkit

- **Sensitivity** (of sector, type of activity)
- **Exposure** (of location)

**Pre-appraisal stage**

- **Preliminary Vulnerability**

**Appraisal stage**

- **Potential Impact** (likelihood / magnitude)
- **Adaptive Capacity** (of promoter, city, country...)

- **Final Risk / Vulnerability**
Principles

- Simple methodological framework
- Concise reporting
- Engagement of Promoter at appropriate levels
- Involvement of key stakeholders
- 3 steps in analysis, each validated with stakeholders involvement (workshops)
- Decision on the adaptation options by the Promoter
Adaptive capacity assessment

1. Define project boundaries and relevant systems(s)
   - Sensitivity analysis
   - Exposure assessment
   - Vulnerability assessment
   - Potential impacts quantification (likelihood/magnitude)

2. Adaptive capacity assessment
   - Risk assessment
   - Identification of adaptation options

3. Promoter & stakeholder engagement
Case study – the project

- Comprehensive investment programme of the water and wastewater operator in Poznan, including:
  - modernisation of 5 water treatment plants;
  - construction or upgrading of 90km of water mains;
  - construction or rehabilitation of 225km of sewers;
  - rehabilitation or modernisation of 4 wastewater treatment plants

- Approx. EUR 290m CAPEX

- About 740k customers

- Objective: 24/7 water supply of quality water and wastewater treatment to applicable standards
Case study – procurement of consultant

- Estimated value EUR 100k
- Direct award possible for the water utility
- Several ‘big names’ invited
- 2 bids received
- No diversion from the methodology was proposed
- Additional modelling was offered for an extra fee
## Sensitivity Analysis

### Example for a water supply subsystem

<table>
<thead>
<tr>
<th>Climate Risk</th>
<th>1) On-site Assets and Processes</th>
<th>2) Inputs</th>
<th>3) Outcome</th>
<th>4) Network &amp; Network Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Average air <strong>temperature</strong> change (annual / seasonal / monthly)</td>
<td>2</td>
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<tr>
<td>2) Extreme (air) <strong>temperature</strong> change (frequency and magnitude)</td>
<td>3</td>
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<td>3) Average <strong>rainfall</strong> change (annual / seasonal / monthly)</td>
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<tr>
<td>4) Extreme <strong>rainfall</strong> change (frequency and magnitude)</td>
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<tr>
<td>11) Water availability</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
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<tr>
<td>12) Storm (tracks and intensity) including storm surge</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
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<tr>
<td>13) River Flood</td>
<td>3</td>
<td>2</td>
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</tbody>
</table>

**Risk:**
- High
- Medium
- Low
- N/A
Exposure Analysis

- Average temperature expected to increase only slightly
- Main impacts expected from extreme weather events
Case study – expected results

• Expected vulnerabilities
  • Assets - Impacts of flooding
  • Inputs - Water resources stress
  • Outputs - Changes in peak demand
  • Networks - Energy supply

• Adaptation options
  • Rather soft ones than hard infrastructure
  • Emergency plans
  • Awareness of vulnerabilities to factor them in the future investment plans
Consultant is learning and close supervision of the assignment is needed

Active participation of the stakeholders and willingness to cooperate (data, NMT etc.)

There are past cases to learn from, to build preparedness
- Internal stakeholders activated
- Participation of the top management
- Increasing evidence of the adaptive capacity of the company
- Need to coordinate various internal processes
- Some indications of the systemic issues (beyond control of the company)
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• Scope of ToR – defined methodology or open end?
• How to simplify the task whilst maintaining credibility of the outcome?
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