ADAPTATION OF TRANSPORT SECTOR TO CLIMATE CHANGES IN POLAND

PRESENTATION TO GROUP OF EXPERTS ON CLIMATE CHANGE IMPACTS AND ADAPTATION FOR TRANSPORT NETWORKS AND NODES, 14-15 JANUARY, 2015.

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Plan of Presentation

- KLIMADA Project, KLIMADA Portal and Polish „National Strategy for Adaptation to Climate Change 2020”.
- “Guide to investment preparation respecting climate change mitigation and adaptation as well as resilience to natural disasters”, and its appendixes.
- Selection of climate projection maps concerning temperature and level of rainfall.
- The main consequences of climate change in Poland.

“Development and implementation of the Polish National Strategy for Adaptation to Climate Change – KLIMADA” - research project carried out by the Institute of Environmental Protection – National Research Institute financed by the National Fund for Environmental Protection and Water Management.

**Outcomes:**
- climate change scenarios for Poland
- vulnerable sectors
- adaptation instruments
- preliminary cost estimation
- Portal covering relevant information.

KLIMADA directions for adaptation in 2070 perspective

Adaptation measures envisaged in NAS 2020 for transport sector:

• Climate conditions should be taken into account in the process of designing and construction of transport infrastructure

• Constant monitoring should be established in order to control transport construction and infrastructure elements which are sensitive and vulnerable to climate changes

• Measures and plans should be developed/carried out or reviewed in order to maintain transport routes passable or in order to change routes or to apply alternative means of transport
"Guide to investment preparation respecting climate change mitigation and adaptation as well as resilience to natural disasters"

Scope of the Guide

- All stages of project preparation (from strategy level to decision on environmental conditions and development consent)
- All stages of project life cycle (as from strategy to decommission)
- Appendix
  - Check lists concerning EIA /SEA in relation to climate considerations

Guide Addressees

- Beneficiaries preparing projects to be financed by UE Funds in the 2014-2020 financial perspective
- Relevant government authorities issuing or consulting decisions and consents.
- Managing, intermediary and implementing authorities including authorities responsible for appraisal of the applications/projects submitted for EU funding
The aim of the Guide is to provide methodologies and hints concerning the way in which climate issues should be included in/integrated into the process of developing of investments and projects at the stage of:

**SEA and EIA in relation to:**
1. Climate mitigation,
2. Climate adaptation and resilience including eco-system based approaches

**Cost- Benefit Analysis**, including calculation of shadow costs and external costs of GHG emissions, carbon footprint analysis, sensitivity and vulnerability analysis of projects in relation to climate changes and natural disasters
- Methodologies for carrying out cost-effectiveness analysis when there are not significant externalities

**Risk analysis** including climate-related risks

**Climate options analysis and assessment**, including climate impact on projects and projects impacts on climate.
In relation to transport the purpose of the Guide is consistent with the „Transport Development Strategy by 2020” and it covers:

- Improved resistance of transport infrastructure and services to extreme climatic events:
  - development and application of methodologies to design large infrastructural projects that account for climatic conditions,
  - development of new construction standards,
  - promoting best practices.
Key issues of the Guide

- Biodiversity and its interactions with climate changes
- Eco-system based approaches
- Green infrastructure and ecosystem services
- GIS tools
- Scenarios
- Vulnerability and risk analysis
- Monitoring and management
- No regret or low regret options
- Robust and win-win solutions
- LCA
Selection of the main sources of the Guide

- Europe 2020 Strategy
- Polish National Strategy for Adaptation to climate changes, 2013.
- White paper – EU framework for adaptation to climate change.
- An EU Strategy on adaptation to climate change
- Guidance on Integrating Climate Change and Biodiversity into Strategic Environmental Assessment, European Union, 2013.
- Non-paper Guidelines for Project Managers: Making vulnerable investments climate resilient
- Assessment of the potential of ecosystem-based approaches to climate change adaptation and mitigation in Europe. Environmental Change Institute 2011.
- Methodologies for climate proofing investments and measures under Cohesion and Regional Policy and the Common Agricultural Policy. Institute for European Environmental Policy 2012
- EU Guidelines on climate change and Natura 2000. European Union, 2013...

...And many more...
The main sources establishing the legal basis for the Guide

- Common Provisions Regulation (CPR) 1303/2013 - The Regulations
- Commission Delegated Regulation (CDR) 480/2014 - Quality Review Criteria
- Commission Implementing Regulation (CIR) 1011/2014 - IQR Report Requirements
- Commission Implementing Regulation (CIR) 1011/2014 - Application Form Template
- The revised EIA Directive (2014/52/EU) which pays greater attention to climate change and disaster prevention,
- Commission Implementing Regulation No 215/2014, which sets out the methodologies and coefficients for climate change support.
Ministry of Environment developing detailed checklists concerning EIA and SEA procedures in the context of climate change adaptation and mitigation. These checklists will be supportive for investors, beneficiaries and relevant authorities (e.g. issuing environmental decisions, development consents etc.).
The pilot of the Guide was kicked off on June, 2015. The purpose of the pilot is to carry out relevant analysis, develop documentation, including feasibility studies, EIA Reports, designs of projects, engineering documentation, applications for financing etc. according to the Guide.

Members of the pilot group are instrumental beneficiaries from crucial sectors in the context of climate adaptation, mitigation and from the allocation of EU Funds from 2014-2020 financial perspective.

On July and August, 2015, Ministry of Environment developed in consultations with the Pilot Group horizontal instruction for horizontal template of application form for EU funds for 2014-2020 financial perspective.

Pilot Group members reviewed and formulated opinions to first version of the Guide which were taken into account in the final version of the Guide.

Final version of the Guide was published in October, 2015.

The Pilot will be continued during 2016 and 2017.

The Pilot elaboration and outcomes of the Pilot works will help to improve, refine and supplement the Guide regrading more practical approach on the basis of these studies carried out. Ministry of Environment is also considering to develop a good practise guidebook on basis of the pilot (eg. as an annex to the Guide).

Mature and immature projects will be selected to the Pilot.
Transport Beneficiaries in the Pilot and other important members of the Pilot Group

**Transport Beneficiaries:**
- General Directorate for National Roads and Highways (GDDKiA)
- Polish National Rail – Polish Railways (PKP PLK)
  - Port of Gdynia Authority

**Other important members of the Pilot:**
- Ministry of Development
- Ministry of Infrastructure and Construction
- National Fund for Environmental Protection and Water Management
- General Directorate for Environmental Protection.
Projected change of average year temperature for Europe for period 2071-2100
Projected change of average year level of precipitation (rainfall) for Europe for period 2071-2100
The main consequences of climate change in Poland

<table>
<thead>
<tr>
<th>Poland</th>
<th>Main impacts of climate changes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>▪ Rise in frequency of extreme temperatures</td>
</tr>
<tr>
<td></td>
<td>▪ Decrease in the overall level of rainfall in the summer</td>
</tr>
<tr>
<td></td>
<td>▪ More frequent floods</td>
</tr>
<tr>
<td></td>
<td>▪ Increase in temperature of water</td>
</tr>
<tr>
<td></td>
<td>▪ Increase in risk of forest fires</td>
</tr>
</tbody>
</table>
Climate indicators changes during the period 2001-2030 for 3 Polish cities

<table>
<thead>
<tr>
<th>Climate indicators</th>
<th>Wrocław 2010</th>
<th>Wrocław 2030</th>
<th>Łódź 2010</th>
<th>Łódź 2030</th>
<th>Suwałki 2010</th>
<th>Suwałki 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average year temperature</td>
<td>9,02</td>
<td>9,48</td>
<td>8,34</td>
<td>8,81</td>
<td>7,09</td>
<td>7,63</td>
</tr>
<tr>
<td>Days with temperature below 0°C</td>
<td>98,68</td>
<td>93,81</td>
<td>103,30</td>
<td>98,56</td>
<td>121,50</td>
<td>115,30</td>
</tr>
<tr>
<td>Days with temperature over 25°C</td>
<td>39,42</td>
<td>46,57</td>
<td>34,71</td>
<td>41,67</td>
<td>23,99</td>
<td>30,90</td>
</tr>
<tr>
<td>Days with temperature over 5°C</td>
<td>253</td>
<td>262</td>
<td>235</td>
<td>246</td>
<td>216</td>
<td>221</td>
</tr>
<tr>
<td>Max day rainfall (mm)</td>
<td>28,90</td>
<td>31,00</td>
<td>24,38</td>
<td>23,22</td>
<td>25,62</td>
<td>25,87</td>
</tr>
<tr>
<td>Duration of dry periods in days (rainfall below 1 mm)</td>
<td>20,48</td>
<td>21,38</td>
<td>21,44</td>
<td>22,99</td>
<td>20,24</td>
<td>22,70</td>
</tr>
<tr>
<td>Duration of wet periods in days (rainfall over 1 mm)</td>
<td>7,30</td>
<td>7,49</td>
<td>7,05</td>
<td>7,19</td>
<td>8,06</td>
<td>8,09</td>
</tr>
<tr>
<td>Days with snow layer</td>
<td>66,86</td>
<td>55,49</td>
<td>83,36</td>
<td>71,34</td>
<td>104,50</td>
<td>93,19</td>
</tr>
</tbody>
</table>
Urban flooding - surface water, adaptation context

- More flooding
- More extreme rainfall events
- Dealing with the extra water on the surface

Rain gardens

Blue and green factor

Green roofs

Surface water used as a resource
Thank you for your attention!

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Chief Expert
Ministry of Environment