ASSESSMENT OF DISPROPORTIONATE COSTS IN WATER MANAGEMENT IN THE LIGHT OF THE EU WFD

World Water Congress
Edinburgh
25 May 2015

Authors: Jan Machac, Marek Hekrle, Ondrej Vojacek, Jirina Jilkova
Contact: machac@ieep.cz
The goal of the WFD

achieving "good status" for all waters by a set deadline

- 2015
- 2021
- 2027
Current state of GES

Source: European Environment Agency (2015)
Only 43% of the surface water bodies were in 2009 in GES

Source: European Environment Agency (2015)
Burdens to achieve the „good status“

- lack of time to apply the measures
- technical feasibility
- natural conditions
- high cost of measure applications
Burdens to achieve the "good status"

- technical feasibility
- disproportionate costs
- unfavourable natural conditions

Exemptions under the WFD:

- technical feasibility
- disproportionate costs
- unfavourable natural conditions
Burdens to achieve the „good status“

Exemptions under the WFD:

- technical feasibility
- disproportionate costs
- unfavourable natural conditions
Example: Orlik reservoir catchment - disproportionate costs?

1/7 of area of the Czech Republic
Example: Orlik reservoir catchment - disproportionate costs?

Annual costs of EUR 23 million to solve the eutrophication problem

Disproportionate costs

y/n ???
Approaches to proportionality abroad

Denmark
- Jensen et al. (2013)

Scotland
- Aresti (2008)

Germany
- Klauer et al. (2007)
Approaches to proportionality abroad - Jensen et al. (2013)

1) definition of geographical scope of the analysis;
2) identification of status quo of water bodies;
3) estimate of benefits from achieving good status;
4) estimate of costs of achieving good status;
5) calculation of social profit;
6) sensitivity analysis;
7) final recommendations.
Approaches to proportionality abroad - Aresti (2008)

1) cost-effectiveness analysis (CEA) and expression of abatement cost curves;
2) estimate of feasibility and affordability;
3) estimate of benefits and expression of revenue curves;
4) comparison of costs and benefits (CBA).
Approaches to proportionality abroad - Klauer et al. (2007)

- rules and criteria for assessing proportionality
  - an eliminative process

- usage of CBA for measures suspected of disproportionality
Design of methodology conforming to WFD requirements

- Status quo
- Target
- Costs

Comparison C & B

Benefits
Spatial scale

Exemption - at the level of a water body
- for one pollutant or group of pollutants (indicators) it can be resolved using “certain measures” at once
Spatial scale

Exemption - at the level of a water body

water body 1
water body 2
water body 3

river
lake
river
Spatial scale

Exemption - at the level of a water body
Exemption - at the level of a water body

BUT

Spatial scale

BENEFITS

COSTS

water body 1

water body 2

water body 3

river

lake

river
Benefit Assessment

- qualitative and quantitative assessment
  low, negligible and difficult-to-appraise benefits
  (and also costs) can be excluded from monetization

- primary valuation vs. benefit transfer
Benefit Assessment

Benefit categories:

I. recreational and aesthetic benefits;
II. savings of costs of water treatment (benefits for water and sewage utility companies);
III. benefits to other ecosystem services.
Comparison of costs and benefits

Steps:
1) C & B in purely quantitative dimension
2) analysis of the influence of other C & B (in non-monetary terms)
Comparison of costs and benefits

Steps:
1) C & B in purely quantitative dimension
2) analysis of the influence of other C & B (in non-monetary terms)

- **C < B**
  - costs are proportionate,
  - exemption is not possible

- **C = B**

- **C > B**
  - searching for a new target less strict than „good status“
Example of Cost and Benefit comparison – Case of Orlik

<table>
<thead>
<tr>
<th>SCENARIO</th>
<th>Optimistic</th>
<th>Realistic</th>
<th>Pessimistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total benefits (CZK billion)</td>
<td>3,97</td>
<td>2,00</td>
<td>1,07</td>
</tr>
<tr>
<td>Total costs (CZK billion)</td>
<td>13,66</td>
<td>15,25</td>
<td>17,16</td>
</tr>
<tr>
<td>Benefits – costs</td>
<td>-9,69</td>
<td>-13,25</td>
<td>-16,09</td>
</tr>
</tbody>
</table>

Source: Vojáček et al. (2014)
Conclusion

- EU member states try to apply a pragmatic approach
- development of national methodologies can improve the situation
- major methodological complications persist
- lack of relevant data and experience for carrying out adequate analyses
References


Thank you for your attention!!
machac@ieep.cz