Identification of a cost recovery system for flood protection in Romania

INHGA conference, Bucharest
14th November 2014
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Project Manager

Supported by: Dutch Water Authorities, Waterschap Roer en Overmaas
The Context

- EU Water Framework Directive (WFD) requires sustainable use of water by using economic instruments
- Article 9 of the WFD introduces the principle of Cost Recovery for water services in accordance with the polluter pays principle
- Water services according EU commission:
  - abstraction, impoundment, storage, treatment and distribution of surface water or ground water for the purposes of hydroelectric power production, navigation and flood protection

Currently in Romania: no dedicated cost recovery system related to flood protection.
Cost recovery framework

The rate of cost recovery of water services

\[ \text{V. Service Revenues} \div \text{Supply cost} = \text{Full cost} \]

I. Capital Costs +
II. O&M Costs +
III. Admin. Costs +
IV. Environmental & resource costs)
The Project

“What kind of cost recovery system could be implemented to provide sufficient funding to finance the activities related to ensure flood protection and meet the EU Water Framework Directive (art. 9) & EU Flood Directive in Romania?”

Phases

- **Phase 1:** Inventory of the current costs and key figures
- **Phase 2:** Indentify a blueprint for a financial system
- **Phase 3:** Test the identified system in two RBA’s
## Phase 1: Inventory of the current costs and key figures

<table>
<thead>
<tr>
<th>Survey data</th>
<th>– USED DATA –</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing water works</strong></td>
<td>Gross list of water infrastructure assets currently under administration of the RBA and reported in the RBA accountancy system, categorized into 5 categories: dikes, regulation works, dams and artificial lakes, other water works, non-water works); initial investment value and replacement value; implementation date and estimated economic lifetime.</td>
</tr>
<tr>
<td><strong>New infrastructure</strong></td>
<td>Overview of proposed (new) works and estimated investment value as per the (updated) River Basin Development Development Plan 2013-2016.</td>
</tr>
<tr>
<td><strong>O &amp; M</strong></td>
<td>Coefficients applied for (normative) estimation of annual costs for maintenance and repair of the hydro-technical constructions under administration of the RBA’s as approved in Romania by the Minister Order 819/2007.</td>
</tr>
<tr>
<td><strong>Financing</strong></td>
<td>Overview of sources of finance of investments in water works in Romania initiated under the Ministry of Environment and Climate Change in the period 2009-2013.</td>
</tr>
<tr>
<td><strong>Revenues</strong></td>
<td>Total value of revenues collected in the RBA’s from raw water supply contribution and waste water discharge in the period 2008-2013. Yearly, revenues collected at the river basin level are transferred to ANAR and then redistributed to the RBA’s based on prioritization of O&amp;M expenses.</td>
</tr>
</tbody>
</table>
Phase 2
Identify a blueprint for a financial system

- Study of Romanian institutional set up
- Definition of scenario’s
- Confrontation with Dutch model
  (OECD: 8.5 score)
- SWOT analysis
- Blue print
# Definition of scenario’s

<table>
<thead>
<tr>
<th>No.</th>
<th>Description Scenario</th>
<th>Advantage</th>
<th>Disadvantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Current situation: no change</td>
<td>No cost of change</td>
<td>Nothing will change: no sustainable system</td>
</tr>
<tr>
<td>1</td>
<td>Current situation +: covering O&amp;M costs up to 100%</td>
<td>improvement of tasks execution of ANAR &amp; RBA’s</td>
<td>no solution on longer term, only short term</td>
</tr>
<tr>
<td>2</td>
<td>Centralized: state budget</td>
<td>simple and clear approach</td>
<td>step back from cost recovery</td>
</tr>
<tr>
<td>3</td>
<td>Mixed centralized (registered rivers) and decentralized (unregistered rivers): state budget + retributions</td>
<td>tasks are executed at most decentralized level, flood protection of national rivers has status of national importance</td>
<td>re allocation of budgets and costs, responsibility discussion, ...</td>
</tr>
<tr>
<td>4A</td>
<td>Mixed centralized and decentralized (all watercourses): local retributions</td>
<td>multi governmental approach, all kinds of floods included</td>
<td>complex administration/ responsibilities/ legal framework, responsibility discussion, ...</td>
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<tr>
<td>4B</td>
<td>Mixed centralized and decentralized (all watercourses): (differentiated) local retributions</td>
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</tr>
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</table>
Selection of pilot RBA’s & Pilots Preparation

ANAR Selection of pilot RBA’s: Somes Tisa & Jiu

- Testing of 1 or more preferred scenarios
- Improvement of scenarios
- Dashboards with on/off yes/no and settings/levels
- Performance compared to multi level governance aspects
- Questionnaires
- Model cost recovery
- Discussions
Questions - Information gaps

- Demographic information (population, surface area, income levels, changes)
- Cadastral information (land use and owners and users, value of properties)
- Target groups: population, agriculture, Industry, natural areas?
- Population development
- Economic development
Results
Important considerations:

- O&M costs based on Normative
- Allocation for flood task
- Capital costs covered by Nat. budget
- E&R cost disregarded
Conclusions
- problem analysis -

- Current O&M coverage: 65 %
  - Requirement (100%) based on normative
  - Revenues source: ANAR contributions
  - Redistribution of revenues by ANAR?
  - Data allow indicative analysis
  - Investments due to FD still to be considered

- National water law allows cost recovery but implementation needs adjustments in legal framework (i.e. stakeholder participation)
Conclusions - scenarios -

- Outcome of scenario discussion: preference for scenario’s 3 & 4
- Mixed scenarios allow mixed financial instruments
- Scenario 4 requires decentralization
Results pilots
Cost recovery variants and tariffs

- 100% O&M cost recovery
- Full cost recovery (gradual)
- 4 tariffs considered:
  - 1. single tariff / household
  - 2. single tariff / hectare
  - 3. differentiated economic benefit principle
  - 4. differentiated + solidarity
- More alternatives are possible!

Comply with WFD’s art. 9
Surface: Jiu-Danube basin 16734 km²
out of which the River Basin Jiu 10080 km²
1,461,661 inh.= density 77/km²
56% inhabitants in urban area
54% Agricultural land use
29% forests

Administrația Bazinală de Apă Jiu
Results RBA Jiu

- Investment 1960-2013: 425 mln. LEI
- O&M costs 2013: 15 mln. LEI (cf. Normative)
- O&M coverage ≈ 65% (?, communication ANAR)
- Revenue requirement (figure)
Results RBA Jiu – Revenue requirement
Tariffs

Impact: example 4:
Households: 0.04-0.11% of annual hh income
Building owners: 0.01-0.04% of property value
Land owners: 1-4 LEI/ha

Current property tax: 0.25-1%
Current land tax: 1-10 LEI/ha
The Financial Model

- Was developed to conceptually link the following elements:
  - **Infrastructure** to provide high water protection service
  - **Capital and operating costs** required for this existing and new infrastructure
  - **Sources of operational financing** for capital repayment and operational costs, including tariff schemes.

- Is an excel workbook subject to change based on changes in input variables and assumptions.

- Was designed to be able to **estimate service prices on a (preferred) scenario** based approach.
The Financial Model

The conceptual flow of the model

Basic data
fixed assets

Existing assets
Projected new assets

Engine
(calculation sheet)

Outputs

- 10 year annual cost
- Revenue required
- Impact on tariffs

Basic assumptions

O&M coefficients
Financing scheme

Key variables, e.g. cost allocation, interest rate, population
### Summary table #assets and value

<table>
<thead>
<tr>
<th>Assets</th>
<th>Nr. of assets</th>
<th>Current value of historical costs (value in mn. LEI)</th>
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<tbody>
<tr>
<td>DIKES</td>
<td>114</td>
<td>644</td>
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<tr>
<td>REG</td>
<td>437</td>
<td>3,241</td>
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<tr>
<td>DAMS</td>
<td>42</td>
<td>2,470</td>
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<td><strong>Total</strong></td>
<td><strong>593</strong></td>
<td><strong>6,355</strong></td>
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### Source data

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<tr>
<th>Status</th>
<th>Assets</th>
<th>Asset category</th>
<th>Asset category</th>
<th>Historical</th>
<th>Current value of Depreciated</th>
<th>Implement</th>
<th>Economic</th>
<th>Correspond</th>
<th>Cost allocated</th>
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<th>Assets import</th>
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**Basic assumptions**: Cost Calculation / Rate base alternatives / Summary figures
Conclusions

- **Flood protection task under pressure** because of significant financial gap! (get insight in costs and revenues)
- Choice is to be made **between 100 %O&M CR & Full CR**
- **Many tariff alternatives** are possible, applicable for scenarios 3 & 4, affordability is feasible
- **Assessment** of the other RBA’s is relevant
- Flood protection need to get connected with **spatial planning** and included in the **local development strategies**
- **Awareness** raising about (the costs of) the flood protection
Recommendations

• Multilevel governance development and awareness raising among stakeholders: ANAR, RBA’s, counties, municipalities, ANIF, emergency inspectorate, PAID)

• Coming political/decision process and/or implementation needs facilitation

• Small steps need to be taken
Thank you for your attention!

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On behalf of the project team
Questions?