

# Cost recovery model related to flood protection

- Final report -



ECORYS



DUTCH WATER  
AUTHORITIES



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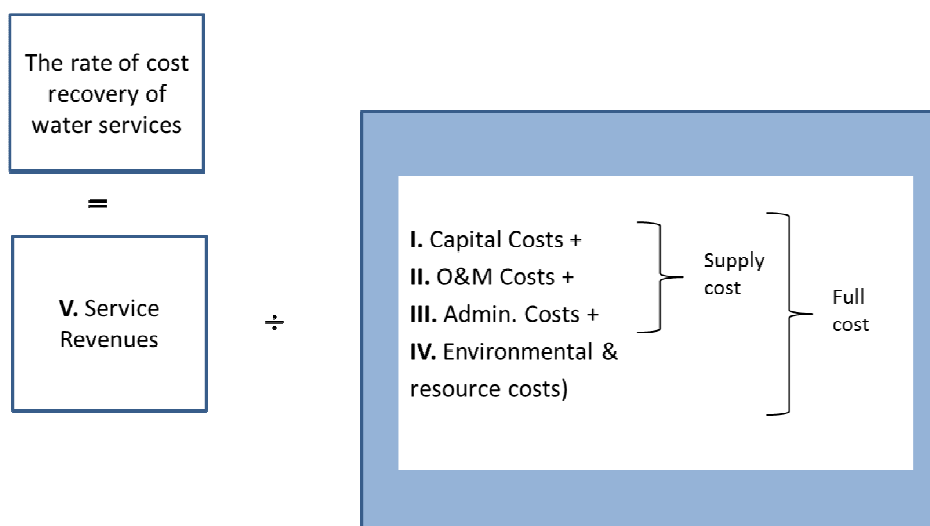
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## Executive summary

At this moment the Romanian water authorities are upgrading their flood protection measures to increase the level of protection of the population and to get in compliance with the EU Flood Directive. Currently there is *no specific cost recovery system* to cover the costs of infrastructure works administered by ANAR for flood protection services in the Romanian waters. The EU Water Framework Directive (WFD, art. 9, implemented in the Romanian water law) requires the design of a cost recovery model related to water services.

Full cost recovery equals recovering or the full costs of a product or service. The principle of cost recovery applies to the recovery of capital costs as well as operating costs (financial sustainability). In addition, also environmental and resource costs under the definition of the WFD (should) form an integral part of cost recovery.

This figure visualizes the set-up of the cost recovery framework (CRF).



Flood protection is not yet accounted for in the contribution/revenue system of ANAR. Knowledge on the current state was developed in order to explore and assess the feasibility of specific cost recovery options for flood protection services offered by ANAR. Through ANAR, in the project, all RBA's and the Ministry have been involved in a comprehensive data gathering process.

At present there is a significant gap between annual costs and revenues related to flood protection services by ANAR/RBA's. Total revenues are less than 65% of the required budget for adequate Operation & Maintenance (O&M). If revenues were to be divided by the full (financial) cost<sup>1</sup>, the cost recovery rate is about 45%.

### Scenarios

Different (governance) scenarios related to implementation of a cost recovery system were explored in the project.

<sup>1</sup> The environmental & resources costs are in general hard to be evaluated, also on EU level.

They are summarized in the following table:

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

The different scenarios were well discussed in Romania. The scenarios 3 and 4 were chosen as the preferred scenarios. As mixed scenarios they are in fact the most obvious. They fit in the growing tendency worldwide to use multi-level governance solutions.

To explore different cost recovery options, three (illustrative) variants for cost recovery have been developed:

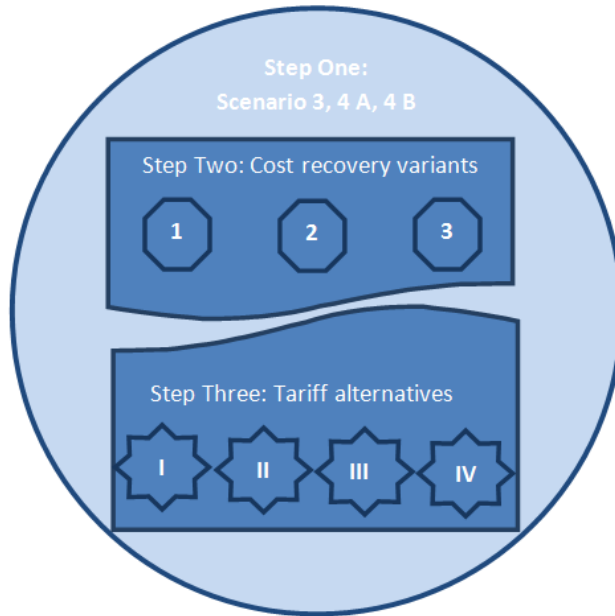
- 1) **Cost recovery 100 % O&M**
- 2) **Full cost recovery (FCR)**
- 3) **Gradual increase to FCR level** (10-year period is assumed to reach FCR level).

Four different tariff alternatives are reviewed:

- I. **Single tariff per household:** costs are equally distributed among the population.
- II. **Single tariff per hectare land:** the tariff is obtained by dividing annual costs by the surface area land in the RBA.
- III. **Differentiated tariff according 'economic benefit' allocation principle:** the allocation of costs is based on the economic value of the property (assumed) protected. Within each property category (building and land), costs are shared according to market value.
- IV. **Differentiated tariff with solidarity features:** costs are shared among user groups in proportion to the potential benefits generated from good flood management practice. Only, households living in the area are added as a third

category to redirect part of the costs from property owners as people living and working in the area who do not own property also benefit. In the example, a 30% 'solidarity levy' is assumed.

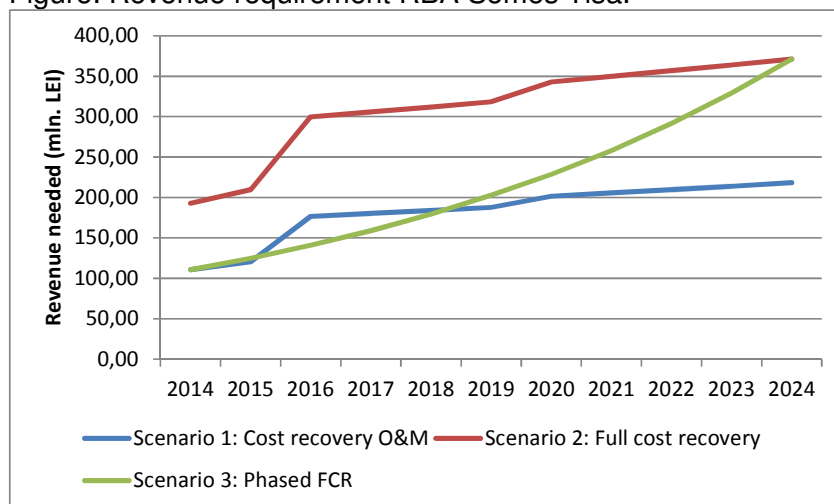
Figure: Overview relation between scenarios, cost recovery levels and tariffs.



### Indicative results for pilot RBA's Somes Tisa and Jiu

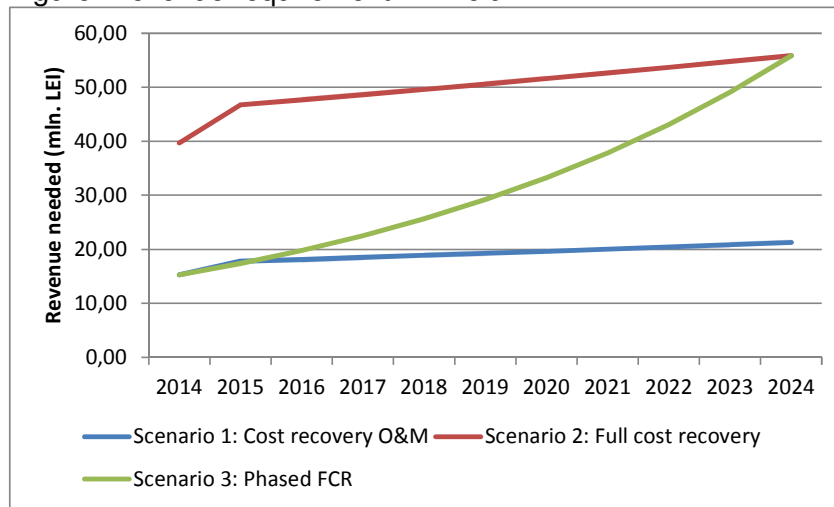
For the mentioned RBA's indicative calculations have been made to illustrate the impact of the cost recovery variants:

Figure: Revenue requirement RBA Somes Tisa.



In the variant 1 total revenues needed to cover annual O&M costs are foreseen to increase from approximately 110 mln. LEI in 2014 to 220 mln. LEI in 2024. Variant 2, which additionally accounts for the accumulation of capital to reinvest and payment of the debt service, the revenue requirement is almost doubled and ranges from 190 to 370 mln. LEI in the period 2014-2024.

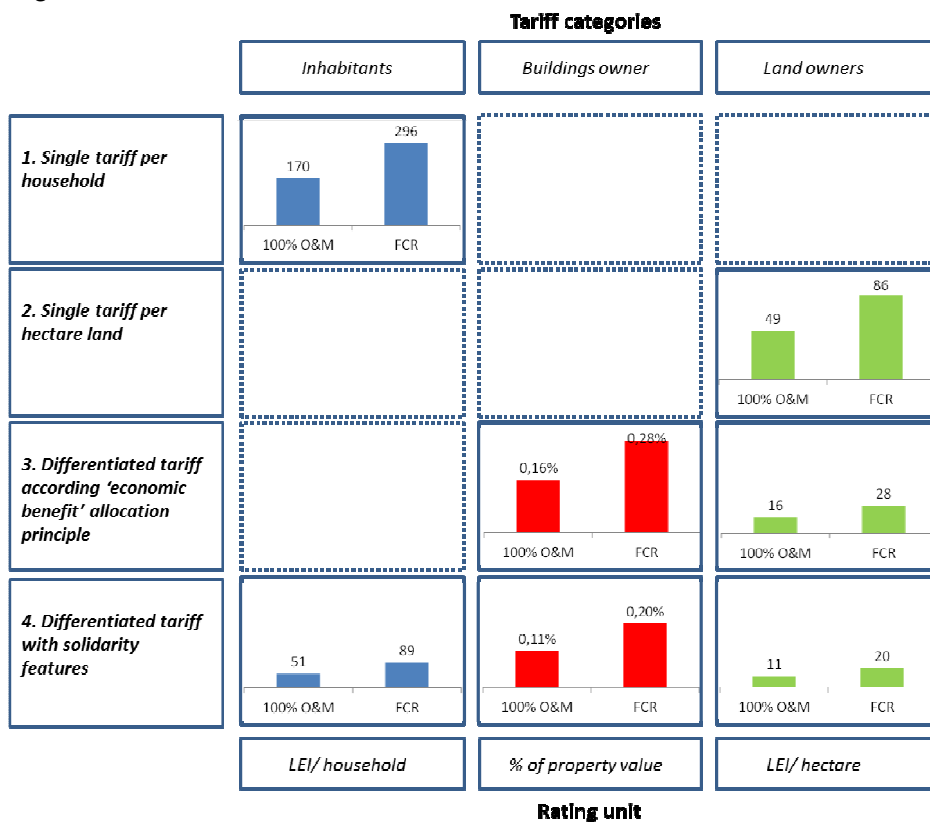
Figure: Revenue requirement RBA Jiu.



The needed revenues related to variant 1 (cost recovery O&M) are foreseen to increase from approximately 15 mln. LEI in 2014 to 21 mln. LEI in 2024. For variant 2 (FCR) revenues needed increase from 40 to 56 mln. LEI in the period 2014-2024.

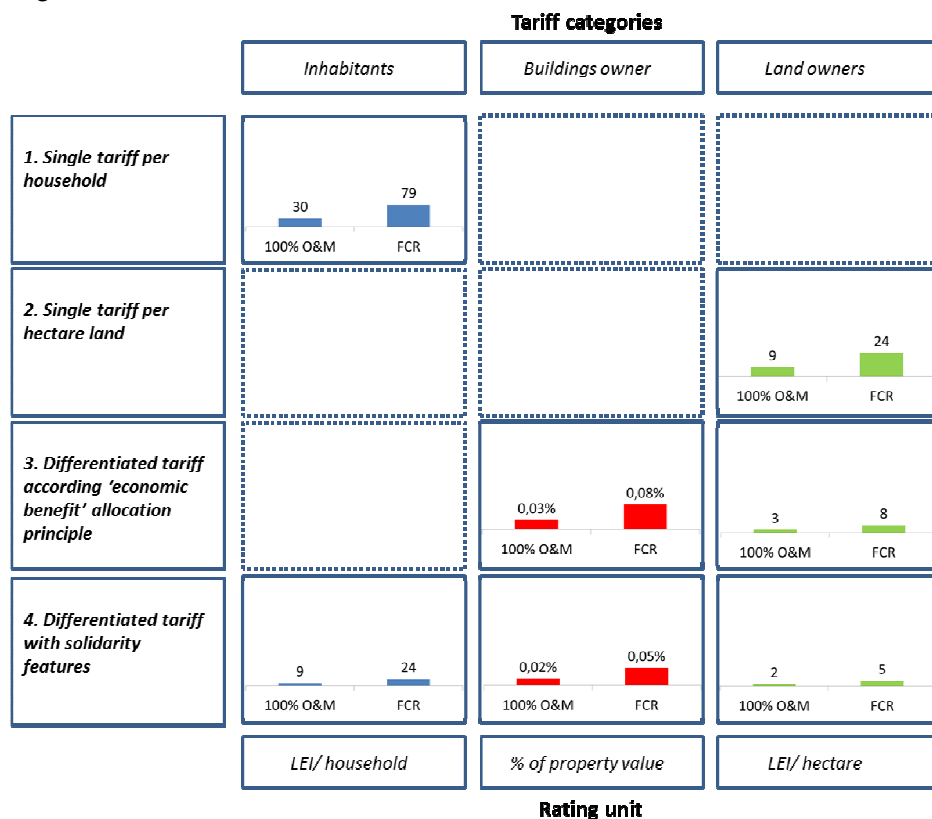
Indicative calculations have also been made, using the different tariff alternatives. These are in fact based on scenario 4 as information to present the results based on scenario 3 is not available.

Figure: Tariff differentiation RBA Someș Tisa.<sup>2</sup>



<sup>2</sup> Calculations are based on data provided by ANAR and statistical information available at <http://epp.eurostat.ec.europa.eu>.

Figure: Tariff differentiation RBA Jiu.



#### Conclusions:

- An analysis on micro level (all RBA's) is needed to get a better insight in the possible regional differences.
- Based on the limited calculations performed during the project, the implementation of the tariff alternatives seems affordable for the different target groups<sup>3</sup>:
  - *For Somes Tisa*: the flood prevention payment for an average household would range between 0.7 - 1.1% of household annual income. In case of alternative 4 in which the costs are spread among a wider group of users, the household income fraction decreases to about 0.2 – 0.3%. In this alternative owners of buildings and land are assumed to absorb an important part of the costs as main beneficiaries. As put forward owners of buildings pay 0.11 – 0.20% and land owners 11 – 20 LEI per ha. To put this in perspective the current payment for the property tax on buildings and the land tax in Romania can serve as a benchmark. The applicable rate of the property tax that is levied on buildings, payable by the owner, typically varies by 0.25% and 1%. The rate of the land tax ranges from 1 to 10 LEI per hectare dependent on the location of the property (urban/ rural areas).
  - *For Jiu*: the flood prevention payment for an average household would range between 0.1 - 0.4% of annual income. In case of alternative 4 the household income fraction decreases to about 0.04 – 0.11%. Owners of buildings pay 0.02 – 0.05% and land owners 2 – 5 LEI per ha.
- To support working with the cost recovery model excel workbooks and a manual are made available.

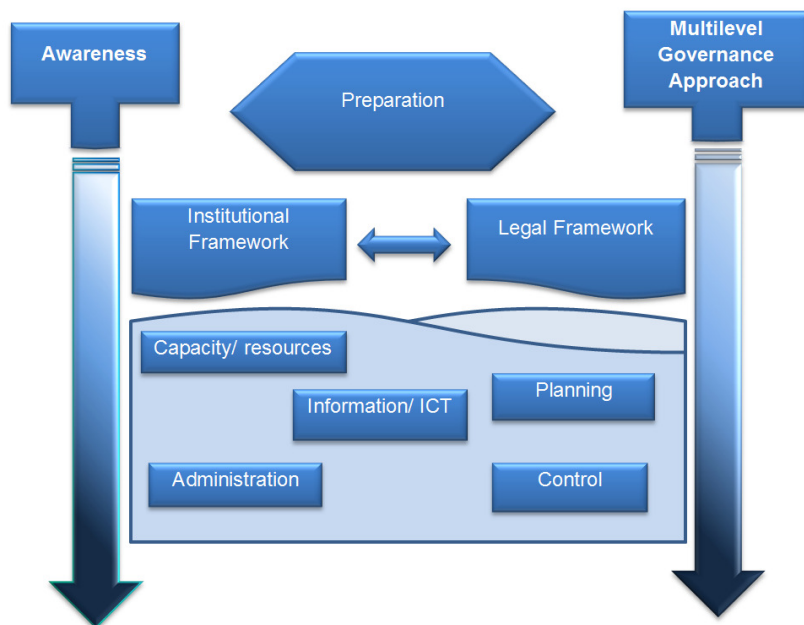
<sup>3</sup> A thorough analysis should be performed by the Romanian authorities to establish the affordability in the general national context.

The following recommendations were identified:

In the way forward to implementation of the proposed cost recovery framework, there are different aspects and principles to consider and mainly a process of change is needed. It can be the right moment for this process of change. Flooding is high on the political agenda because of occurring floods and the fact that the first results of the risk maps have recently been shared with the media and the public. So, this was the first step in creating awareness about flooding topics.

In the flowchart below the different steps for the introduction of a cost recovery scheme for flood prevention are illustrated.

Figure: Flowchart implementation of the cost recovery framework (source: project team).



Three periods in time need to be considered:

- short term (till 2020);
- mid term (2020 – 2030);
- long term (after 2030).

## Explanation of the different steps and phases

### *Preparation*

This phase is very important to determine the future implementation strategy. A dedicated team (executive and on political level) should be formed to be responsible for this process.

The following activities need to take place:

- Information sharing with stakeholders in and outside of ANAR to create a mutual level playing field.
- Reflection on the process of change that is needed.
- Choice of final scenario to implement (3 or 4).
- The evaluation of the current tariff system/ service level of flood protection and the choice of a future tariff system.
- Training of the staff of ANAR and the RBA's to be able to work with the cost recovery framework as to build up the needed data set for up to date insight in the financial gap and determine the tariff level. It is possible to use the principle of 'train the trainer' for this.



Of course, the process should go in stages and specific Romanian demographic and macro economic data and circumstances need to be taken into account<sup>4</sup>.

On the short term, it could be most practical to take small steps and gain more revenues for the task of ANAR, so the budget for operation and maintenance can increase (scenario 1). This could probably for the coming years (short term) give some financial relief. This can be done by:

- Increase of the current contribution tariffs (not a high political commitment expected).
- Introduction of flood protection contribution by ANAR (governmental decision is needed).
- Finding more clients (retention basins, irrigation works, see chapter 2).
- Improving efficiency.

From this situation further development towards scenario 3 or 4 can be prepared. It can be a good idea to first implement scenario 3 and later on merge with scenario 4 as local involvement can increase in this way, step by step.

The result of the preparation phase should be a go/no go for the following steps forward.

### ***Legal framework***

The legal/policy framework needs to get prepared/changed to make the implementation of the cost recovery framework possible.

The following considerations are relevant:

- The aspect of cost recovery related to the flood protection task is integrated into the water law with ANAR as responsible institution.
- The service level related to flood protection or the flood risk safety norms.
- The flood emergency policies are further developed than the flood prevention policies.

### ***Institutional framework***

The institutional framework determines which institutions are and will be involved in the task of flood protection and the related cost recovery.

### ***Capacity/resources***

The following capacity and resources can be needed for successful implementation:

- Human capital.
- Equipment.
- Capacity building.

### ***Control***

Control mechanisms and supervising are needed to create transparency and accountability. With a CRF in place, the paying beneficiaries have the right to know and understand how the collected revenues are spent. Examples are mentioned in the report.

### ***Administration***

A good administration system should be put in place to enable adequate projections of multiyear operating budgets required for execution of the flood prevention task, from which also the rates for the service will be derived. It should allow to repeat the procedure regularly (each year), so to resemble the actual situation with regards to supply costs, income level, tax base, affordability etc. In reference to the current accounting system, it is important to regularly evaluate the status of the assets as to include accurate information on the (remaining) lifetime and to specify the flood prevention-related costs in the overall costs.

### ***Information/ICT***

The development of physical (infrastructure), socio-economic, financial (CRF) and institutional water information systems on flood protection is needed to support decision makers (databases, ...). Information systems are already put in place on the level of ANAR and the RBA's. Attention is needed for their coherence, consistency, reliability and public disclosure (transparency) as well as to their costs and benefits. At first, assessment of existing information systems (at ANAR, RBA's) and accountability procedures can take place, after which the information gap can be determined.

### ***Planning***

The whole process of the policy planning, the planning of infrastructure up to the planning related to emergency situations needs assessment and possibly improvement.

### ***Awareness about (the costs of) flood protection***

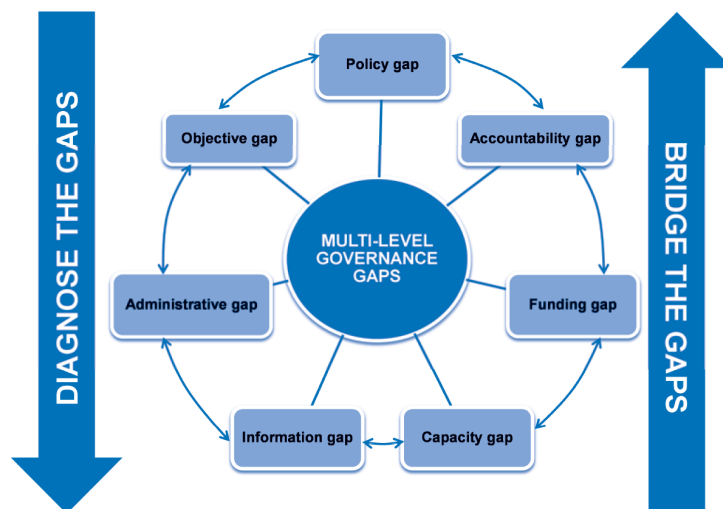
During the whole process awareness of involved stakeholders is very important. The relevant question is if stakeholders, such as the population, farmers, companies and environmental NGO's, are adequately involved in water management, at policy or at project level?

Public awareness is needed to inform the population and all stakeholders about the need to start paying to remain protected against flooding. This can be a combination with the awareness campaign that is foreseen in the communication of the results of the risk maps with the RBA's and the public. Stakeholder involvement should be added or further developed as a modern principle. It can contribute to a stable system, a system supported by the population where it is in fact made for. This can be connected to the existing river basin committees. Referring to the press release that took place on the presentation of the risk maps in the beginning of April, was a first step.

### ***Multi level governance approach***

The OECD multi-level governance framework (OECD 2011) can help as in this way an analysis can take place of the 'roadmap' that needs to be taken into consideration. This framework is summarized in the following scheme:

Figure: The OECD Multi-Level Governance Framework.



Source: OECD (2011), *Water Governance in OECD Countries: A Multi-Level Approach*, OECD Studies on Water, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264119284-en>.

### **Other recommendations**

- The Dutch water system levy as decentralized instrument of the regional water authorities can serve as an example for Romania as revenues are collected at the local level where policy guidelines are given on the national level and the actual setting of the tariff levels is done on local level. The approach in the Netherlands is a result of years of experience and compared to the current situation in Romania it would take a considerable period of time to implement this instrument in a comparable way.
- Evaluation/auditing of the execution of tasks and risks related to flash floods in more detail and define a strategy for improvement of which a dedicated cost recovery model can also be a part.
- Evaluation of the current flood protection tasks of the unregistered water courses (awareness, administration, cost recovery). A good solution is also needed for prevention of flooding caused by (lack of maintenance of) the unregistered tributaries for which the local level have responsibilities that should be taken into account more seriously. A start can be to raise awareness at the local authorities by involving them in this subject and start building up a database with all needed information to professionalize this task on the local level. ANAR can play a role in this.
- Connection of the spatial planning as an instrument for the land use with the water management/flood protection task.
- Flood protection should be made a chapter in the strategies for local development as part of an integrated approach the local authorities should commit to.
- A feasibility study can be done on flood insurance as adaptation instrument.

The central government authority should be the driving force for the implementation of a customized cost recovery framework for flood protection in Romania. ANAR can provide the technical support, facilitating the processes.

The current project focused on the elaboration of a general framework for revenue collection suitable for Romania's conditions and testing it for the specific conditions of 2 basins with very different economic, social and environmental profiles. The success of an efficient model at national level is based on extended analysis for all RBA's as well as an analysis of the national system of tax collection and distribution. The involvement and consultation of relevant stakeholders at local and regional level and sustained awareness campaigns addressed to all levels of the society (population, businesses, authorities) for stimulation of contributions at individual level, will further create the path to practical implementation.

## 1 Introduction

### 1.1 Problem definition

At this moment the Romanian water authorities are upgrading their flood protection measures to increase the level of protection of the population and to get in compliance with the EU Flood Directive. Currently there is *no specific financial system* to cover the costs of flood protection. Almost every year floods occur in Romania and people are drowning, houses are destroyed and local economy is disrupted.

The EU Water Framework Directive (WFD) and the EU Flood Directive (FD) are the most relevant legislation boundaries for the project. Furthermore, this project is based on the knowledge and experiences with the Dutch water governance system that has been in place in different forms since the Middle Ages.

The goal is to develop a sustainable financing system covering costs of flood protection adjusted to the Romanian situation (i.e. the contingency approach).

### 1.2 Scope of the project

The scope and activities of the project are illustrated in the project proposal [ref. 1]. The proposal was designed – in cooperation with the client – during the period 2011-2012 and granted a subsidy of the Partners for Water program in 2012. The activities for the project started early 2013 but got postponed until the end of October 2013.

The scope of the project is more specifically defined during the course of the project and described in this section.

#### *Tasks and responsibilities ANAR*

The project takes the tasks and responsibilities of ANAR into consideration related to cost recovery of flood protection and not those related to other stakeholders like counties and municipalities. This means that the main water system and infrastructure and costs are considered, but not all.

The responsibility of ANAR is the protection against flooding that is caused by exceeding of defined (and documented in hazard maps) water levels in the rivers (high water protection). ANAR has in general the responsibility to implement the policies and strategies regarding water resource management at national level and at the level of the river basins.

The tasks of ANAR related to flooding concern the operation and maintenance of existing and new infrastructure. The remaining tasks are also related to awareness, communication, prevention, intervention, technical consultancy in case of occurrence of flood events.

#### *Water system*

Rivers with a surface in river basins over 10 km<sup>2</sup> are registered by ANAR. Cadastral rivers receive a code (combination of letters and numbers). At national level it is estimated that for a total of 23.370 km (which is 30% of total water courses in Romania) no cadastral survey has been made yet. That means that only estimates per basin are existing at this stage. An inventory of smaller rivers and their impact from the point of view of flood protection is not carried out in Romania, yet.

#### *Cost recovery*

The objective of the project is to design a cost recovery model for flood protection in Romania in accordance with the provisions of art 9 of the WFD.

The EU Water Framework Directive (WFD) requires the development of procedures to ensure protection and sustainable use of water resources. One of the requirements is to promote sustainable use of water by using economic instruments. Under article 9 Member States need to take into account the principle of **cost recovery for water services** in accordance with the polluter pays principle. This is one of the key concepts of the WFD.

The European Commission considers that the abstraction, impoundment, storage, treatment and distribution of surface water or ground water (see Article 2 WFD) for the purpose of hydroelectric power production, navigation and flood protection are included in the definition of water services. Hence, **cost recovery in principle includes impoundment works** with the objective of flood protection. The WFD covers all water bodies (surface water, groundwater, transitional water and coastal water). Therefore, a wide variety of **impoundment types** can be distinguished. Impoundments are constructed for a range of purposes, including water supply, hydropower generation and flood control. The overall objective is to store water temporarily for later use or release, thus smoothing out natural variations in the hydrological regime.

Related to cost recovery and the flood protection task Romania has the responsibility towards the EU to deliver an approach in 2014. This report can be used in the communication with the EU.

The EU Flood Directive (FD) covers all **types of floods**, both along rivers and in coastal areas. According to Article 2 “*flood’ means the temporary covering by water of land not normally covered by water. This shall include floods from rivers, mountain torrents, Mediterranean ephemeral water courses, and floods from the sea in coastal areas, and may exclude floods from sewerage systems.*” In the prelude under (10) it is recognized that different types of floods occur throughout the Community, such as river floods, flash floods, urban floods and floods from the sea in coastal areas. The Directive states that given the differences across regions within Europe “*Hence, objectives regarding the management of flood risks should be determined by the Member States themselves and should be based on local and regional circumstances.*” From this it can be concluded that besides floods from rivers and sea, also other risks, such as urban floods and sewer floods, should be taken into account.

#### *Flash floods*

An important part of the floods in Romania are caused by so called flash floods, which occur due to extreme weather events on water courses not managed by ANAR in a structural way. The local municipalities are responsible for emergency actions when they occur. ANAR can be consulted for technical advice and is responsible for preventive measures (informing about event), interventions, as well as ensuring the flood protection role/purpose of the flood protection infrastructure after an event. Taken into consideration the difference in approach between the FD and the WFD, the fact that designing a cost recovery model dedicated to flash floods is very complex and also not included in the scope of the project proposal, it was decided not to consider flash floods furthermore in this project.

The cost recovery model will be designed in a way that it can be used to build up on or assess useful data by different organizations, like local authorities.

### 1.3 Project team

The project team is presented in the next table.

Organization	Person(s)	Task(s)
<b>Van Dijk Water Management B.V.</b>	Mrs. J. van Dijk	<b>Project management, water authority model, water governance</b>
<b>Business Development Group</b>	Mrs. F. Nanu, Mrs. I. Groza	<b>Project management Romania, legal, economical expertise</b>
<b>Ecorys</b>	Mr. L. Beumer, Mr. M. Wienhoven	<b>Financial and economical expertise</b>
<b>VNG International</b>	Mr. J. Eigeman	<b>Institutional expertise, water governance</b>
<b>UVW: Dutch water authorities WRO: water authority Roer en Overmaas</b>	Mr. M. de Ruijter, Mr. M. Koster, Mr. H. Lutgens	<b>Water governance, financial models, water authority model</b>
<b>ANAR</b>	- Mr. O. Gabor - Mrs. E. Tuchiu - Mr. S. Rindasu - Mr. C. Rusu	- <b>Deputy General Director</b> - <b>Director - Management Plans Department</b> - <b>Director- Emergency Situations Department</b> - <b>Project coordinator</b>
<b>Ministry of environment and climate change</b>	Mr. G. Constantin	<b>Manager of the Water Resources Department</b>

During the project the team was in touch with Mrs. V. Cozianu from the Dutch Embassy in Romania and with the contact person from the Partners for Water program.

### 1.4 Evaluation of Equilibrium results

This project is logically following the results of former projects that have been implemented in Romania. In 2006 and 2007 the Equilibrium I project was successfully implemented within the LOGO East programme of VNG International - the international cooperation agency of the Association of Netherlands Municipalities. The results were published and presented in September 2007 in a report entitled: "Equilibrium: restore the balance between expenses and income".

After this the approach is directed to the internal perspective, by defining and describing Romanian water management system based on structuring and explaining: tasks – processes – products/services – activities, to ultimately identify cost centres and correlate expenses with revenues' drivers – project Equilibrium Europe II. The main achievement of this project, that was partly financed through the NWB (Dutch Water Authorities Bank) fund, is the supply of an accounting system to apply an adequate costing system to register and allocate costs.

During the project it was understood that the Equilibrium results are implemented in the accounting system used by ANAR to monitor monthly costs of water services for RBA's. This was of help with the data gathering in the project.

## 1.5 Reading guide

After the introduction of the project, the following chapters follow:

- Problem analysis
- Cost recovery framework
- Scenarios
- Pilots

Finally the report is concluded with the overall conclusions, recommendations, references and appendixes.

The structure of this report also takes into account the applicable evaluation requirements of the Partners for Water program, the main financier of the project.

## 2 Problem analysis

### 2.1 Water authorities and legal framework

The National Administration "Romanian Waters" (ANAR) is the sole operator of surface water resources, natural or artificial (regardless of the ownership of the associated infrastructure) and of groundwater resources, whatever their nature and related facilities. ANAR allocates the right for use of water resources in accordance with their natural potential and has 11 regional branches, which in number and location correspond to the hydrographic river basins of Romania.

It should be noted that a number of other authorities directly or under territorial authorities play a role in the water sector, but to a different extent.

Each of the 11 basins has a River Basin Committee with 21 members<sup>5</sup> representing key stakeholders including: representatives of ANAR (central and local level), the local environmental protection agency, local public health authorities, two mayors of municipalities and a mayor of a city or a commune in the basin, a representative of an NGO, one prefect (government representative at the county level), all presidents of the county councils in the basin, three representatives of water users selected based on the water supply demand and wastewater restitutions (water company, major consumers, etc.) and a local representative of the consumers protection office.

Main tasks of the committees include: collaboration with the River Basin Authority in the implementation of national water management plans; recommending priorities for financing of sustainable development programs; proposing revisions of water management standards, e.g. water quality standards, specific to the sub-basin; and public information and participation regarding water resources issues and management. Furthermore it is noted that local government at this level has assumed to have a leading role in some tasks of WFD implementation such as surface water characterization, identification of pressures, impact analysis and also in policy harmonization and local investment allocations. ANAR offices issue water withdrawal permits and are also responsible for monitoring water quality. The EU Water Framework Directive (WFD) and the EU Flood Directive (FD) are the most relevant legislation boundaries for the water assignments.

On national level the Water Law, Law No. 107/25 September 1996 with further revisions and updates is relevant as legislative framework in the field of *prevention* of flooding. The water law explains that the prevention and control of floods is a law objective and in chapter V (on the Economic Mechanism) a clear role and task for ANAR is confirmed<sup>6</sup>.

In the national Strategy for Flood Risk Management on a Medium and Long Term 2010 – 2035, the policy framework and goals related to floods are explained. A summary of this strategy can be found in appendix II. In appendix III the management strategy for emergency situations is mentioned.

The main legal framework is summarized in the next table:

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<sup>5</sup> According to GD 270/2012

<sup>6</sup> the full text of Chapter V is provided in Appendix I to the present report



Type of regulation	No.	Date	Title
Law	107/1996	25.09.1996	The Water Law
Law	404/2003	07.10.2003	Approval of the Government Emergency Ordinance no. 107/2002 on the establishment of the "Romanian Waters, National Administration
Law	310/2004	28.06.2004	Amending and supplementing the Water Law no.107/1996
Law	112/2006	04.05.2006	Amending and supplementing the Water Law no.107/1996
Government Emergency Ordinance	130/2007	12.11.2007	Amending and supplementing the Law no. 17/1990 on the legal status of the marine waters, the territorial sea, the contiguous zone and the exclusive economic zone of Romania
Government Emergency Ordinance	3/2010	05.02.2010	Amending and supplementing the Water Law no.107/1996
Government Decision	846	11.08.2010	Approval of The National Strategy for Flood Risk Management on medium and long term
Government Emergency Ordinance	64/2011	29.06.2011	The geological storage of carbon dioxide
Government Emergency Ordinance	71/2011	31.08.2011	Amending certain laws to eliminate provisions related to the incentives for public sector personnel

In Romania, the public services regarding water supply and sewerage are organized at the level of communes, cities, municipalities or counties under the management coordination & responsibility of local government authorities (according to the Law no. 51/2006 on community services of public utilities, Law no. 215/2001 on public administration). 'Regionalization' is a main characteristic of the Romanian drinking water and wastewater sector policy. This policy aims at improving the sector performance by proper management and efficiency of water / wastewater services as well as benefiting from economies of scale.

## 2.2 Financial mechanisms

The financial water mechanisms that are executed by ANAR contain two main components:

1. Specific water resource management activities (to guarantee the water quantity demand in raw water sources, storage, impoundment, regulation, quantitative and qualitative assessment of water resources, operative hydrological activities, hydrological prognoses, receiving the pollutants in surface water according to legal requirements, flood protection).

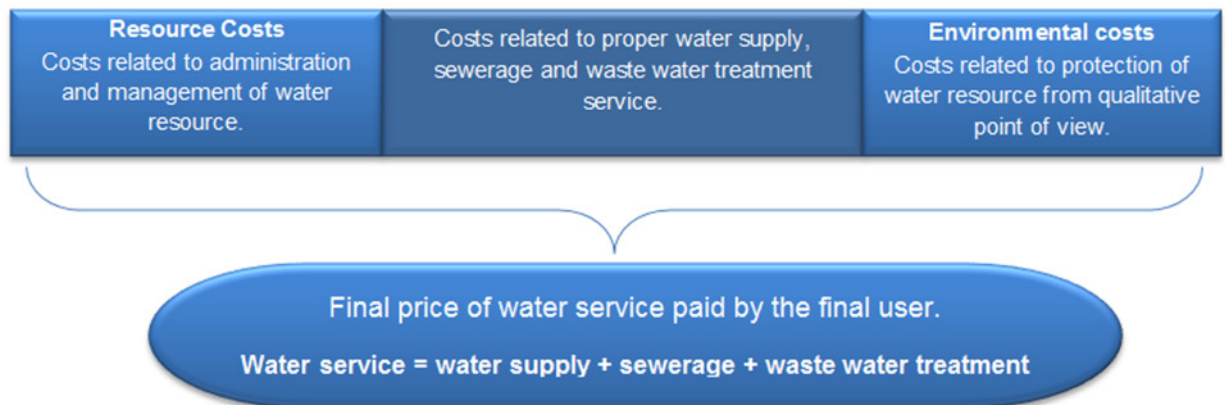
Water users related to the specific water resources management activities are:

- For surface water: operators (households and others), public and cultural institutions, industrial & agro-zoo technical units, hydropower and thermo energy operators, lock services for navigation, irrigations, aquaculture.
- For groundwater: industrial operators; households, public and cultural institutions and, other users of groundwater, aquaculture, agricultural operators.

### 2. Drinking water supply/waste water services.

Water users related to drinking water supply/wastewater services (Regional Water Operators) are all users (population, industry, agriculture) connected to the drinking water supply and sewerage /wastewater treatment plant centralized network.

The following scheme shows the cost elements of water services prices.



Besides, some characteristics of the ANAR revenue structure are:

- Contributions for using water resources related to population, industry, agriculture, energy production, irrigations.....) have the same level on national scale but differ for each user (population, industry, etc.) The levels are set up through Government Decision (1202/2010) and based on the principle of river basins solidarity. The consequence is, that there is no real flexibility for RBA's to collect more revenues.
- The pricing of water services is calculated by the Ministry of Environment approved by the Ministry of Finance and becomes compulsory based on a government decision. The last Government Decision on specific contributions for water management in Romania is GO 328/ 2010.
- The hydropower sector is the main client group for ANAR in terms of revenues (about 50% contribution). They are charged for both the use of the water resources and for the realized water height difference.
- From the 1.3 billion RON (total budget of ANAR), only 800.000 RON (or about 0.06%) is meant for flood protection. During floods ANAR and Hidroelectrica collaborate in the mitigation of floods through the use of hydropower infrastructures (management of water levels).
- Hidroelectrica owns an important part of the flood protection infrastructure, especially river dams with multiple purpose functions, including flood protection (about (?) dams have a flood protection role). In case of flooding measures at the multipurpose reservoirs are formally asked by ANAR as the logical priority is to end flooding.
- Incentive instruments are put in place (penalties when the quantity increases and bonuses when the quality increases).
- In case of water scarcity the users are prioritized: the population has the first priority against use of water for other purposes followed by water supply for animals, restoration of the intangible water provisions for fire protection and ensuring the necessary flows for maintaining the ecological equilibrium of the aquatic habitat.

Currently, the revenues from contributions collected by Apele Romane are under pressure because of the following reasons:

1. The reduction of the water use:
  - a. Successes in pollution reduction of wastewater due to investments implemented in the last few years and the decrease in the use of drinking water.
  - b. The reduction of water demand for irrigation: in the communist period around 3 million ha were irrigated, while currently only 300,000 ha are irrigated
  - c. The general decline of industrial activities in Romania
2. Pricing measures for flood protection is complex for reasons of missing a direct relation between the waterworks to protect and the water price. Currently, costs for

investments, research & monitoring activities are covered by the state budget. The operation and maintenance costs for flood protection are covered at a level currently estimated by ANAR at an average 65% of the total need; this represents a minimum for maintaining the national system for water management at an acceptable level of functionality. ANAR has an internal norm that specifies the yearly allocations for the operation and maintenance costs of the infrastructure (calculated as percentages from of the total investment value of flood protection works). These allocations are to be made from the ANAR estimated income based on contributions of water users in the previous year. This means water users and polluters are actually also paying for flood protection but without a clear separation of records. Also in the case of energy production there is not a clear line as Hidroelectrica pays a price for the use of water for energy production while at the same time some of the Hidroelectrica's infrastructure has a multipurpose function (energy production, water supply for population, irrigation and flood protection). As the price paid by Hidroelectrica is preferential (lower than the one for population and other business) it has only a very small upward effect on the price of energy.

3. The collection rate is about 80% due to financial constraints caused by historical conditions (for example: citizens on the countryside have their own water resources for centuries, self-abstractions are free when the volume is less than 0.2 l / s (approx. 1 billion m<sup>3</sup> at national level). The collection rate of the contributions is in fact increasing, the policy of ANAR is to implement measures for increasing the collection rate to 100% in the near future.
4. The agricultural land owners do not have the culture of paying for water infrastructure, they do not pay any contribution for the drainage channels (under the management of the National Agency for Land Reclamation -ANIF).

Currently, part of the population (4.8 million insurance policies representing over 60% of the total 8.4 million dwellings in Romania) pays for the compulsory safety insurance, so it is not easy to discuss the possibility to introduce a separate insurance for flood protection. At the same time, insurance companies avoid areas with high flood risks.

### 2.3 Cost-recovery principle

In general, the cost recovery principle consists in ensuring that each category of users of a certain service pays all the costs that it generates. In the context of the WFD, the need for adequate recovery of costs of all water services with a significant impact on water status is stressed. The definition of water services in the WFD is very general and not exhaustive, however, could also include flood protection.

Cost recovery in WFD terms goes beyond an assessment of the mere financial status of water service providers. Importantly, according to the WFD:

- subsidies (including support from international donors) are not a means to 'recover' costs;
- rather they are subtracted from total revenues of water services when the rate of cost recovery is calculated.

Cost recovery refers to recovery of all or some costs of a particular service rendered via payment of a fee and/ or levies.

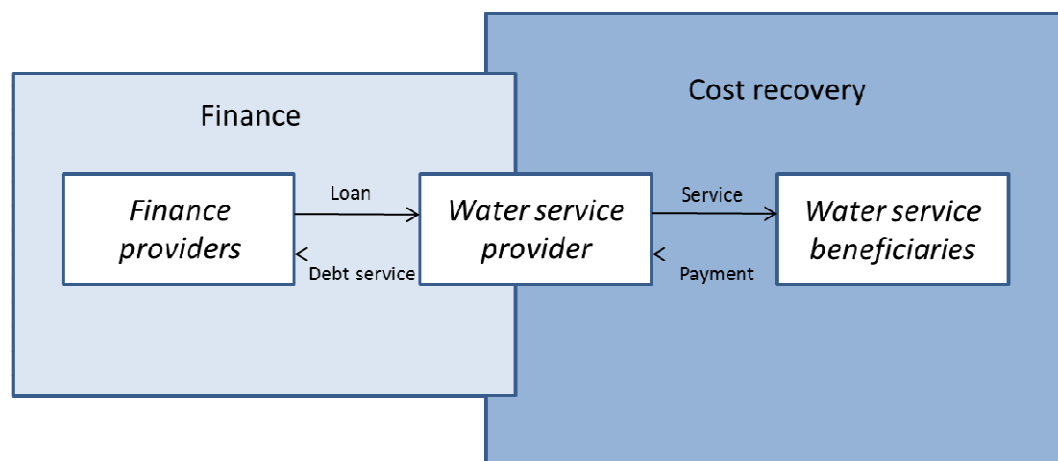
General taxation does not exactly fit this definition since general taxation is not a payment for specific services rendered but a compulsory non-earmarked transfer to the government for public services in general. Tax revenues augmented with borrowed funds are used by the public sector to cover government spending.

In relation to public infrastructure investments, the terms funding and financing are often used interchangeably: paying for a service or product. However, strictly speaking, funding and financing are two different things. In the framework of cost recovery, one should note the distinction.

Funding is a payment for the provision of a particular service or product. The paying body is the recipient of the service or product, but possibly another third party. Examples from water management include: payments of drinking water bill, paying for water purification through a pollution tax and abstraction of raw water.

Financing deals with the financial resources needed to bridge the gap between investment spending and income from service payments over time. For example, the construction of a wastewater treatment plant requires a significant investment. The infrastructure then is financed by mobilizing financial resources from banks and investors that expect repayment of the money provided, mostly with an interest payment. For this, typically, payment of effluent charges are used. For additional financing holds: the money paid comes back with an interest; for funding: money is provided free of charge in return of a product or service delivered.

Figure 2.1 Funding and financing of public infrastructure



#### *Full cost recovery*

At present it is not unusual for water service providers to merely consider costs of operation and maintenance when estimating recovery rates. This is because capital costs have a tradition of heavy subsidization and have thus seldom given rise to concern. The WFD however explicitly requires authorities to take the costs of capital into account for an appropriate assessment of cost-recovery levels. Generally, the cost of a capital asset are to be recovered over the life of that asset so as to generate sufficient (dedicated) cash reserves for replacement of enhancement programs.

The WFD moreover goes beyond the request to consider mere financial costs of water services by moreover requesting authorities to account for (external) environmental and resource costs (costs of depletion) of water uses as well. If environmental damage or depletion occurs, this generally reduces the welfare of a society in one way or another. If a water service provider takes measures to reduce this damage, these cost to society are internalized. As a consequence, the utility will face the costs of environmental

protection/depletion prevention and will have to take care that these costs are also recovered.

#### *“User pays” principle*

Achievement of cost recovery for flood protection implies introduction of some sort of water-pricing policy to be able to set prices for provision of flood protection so that all costs related to supplying this service are covered. In principle, such costs are to be recovered from those who benefit from provision of the service. Introducing adequate pricing provides incentives for beneficiaries to efficiently use water resources, and thereby contribute to the environmental objectives of the WFD. Cost recovery has to be attained in a way that respects the principles of ‘the polluter pays’ and ‘the user pays’. That is, water prices do not only have to generate sufficient revenues to cover costs, but also have to provide users with incentives to economize on water use and to avoid excessive use.

Ideally, each beneficiary exactly pays the costs incurred by their use of the service. In practice several reasons exist why this is not possible. Particularly, in relation to flood protection, the infrastructure serves multi-purposes so an allocation of costs among these services will always have a certain degree of arbitrariness. Besides, problems with measuring individual benefits as basis for cost distribution impede the exact allocation of cost among users. Both issues complicate recovery of prime costs according to the amount of benefit received via use-dependent charges for flood protection.

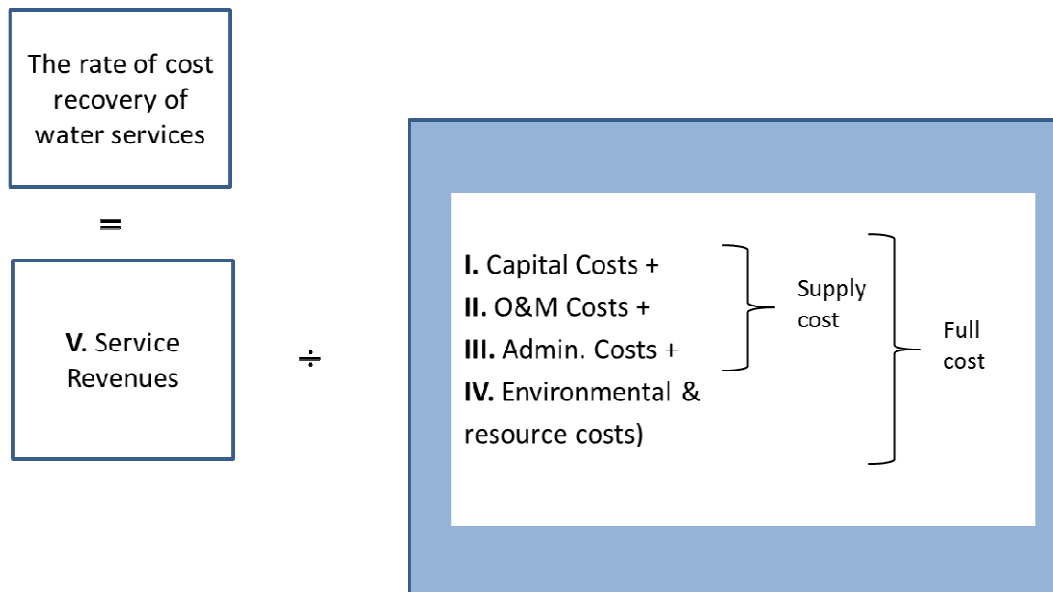
All the same, it is argued that introduction of the ‘polluter pays’ and ‘user pays’ principle in the WFD effectively precludes general taxation as an adequate pricing system as a result of absence of a strong link between benefit and payment. It is important that rates are equitable so that not one customer class is subsidizing another. This is a very important issue in water pricing, because subsidies – in particular to capital costs of water service provision – are still wide-spread. General taxation implies high state budget dependency which in times of economic decline and budget cuts can pose a risk. Financial stability is important to ensure reasonable rates and the ability to borrow money when necessary. Lack of financial autonomy of the service provider – e.g. dependence on state budget, inability to revert revenues directly to the service, maintained authority of central government over the setting of tariffs – highly constraints the ability to fully recover costs efficiently.

## 2.4 Cost-recovery framework

Full cost recovery equals recovering or funding the full costs of the service. The principle of cost recovery, as called for in the WFD, applies to the recovery of capital costs as well as operating costs (financial sustainability). In addition, also environmental and resource costs under the definition of the WFD (should) form an integral part of cost recovery. Discounting of externalities into the asset management decision formula promotes ‘true-cost accounting’ (TCA) and so enhances economic sustainability.

The figure below contains a visualization of the set-up of the cost recovery framework (CRF). According to this framework the rate of cost recovery is determined by dividing the services revenues by its full cost. Several cost elements need to be considered. In the figure below the different elements mentioned in the framework are shortly explained.

*Figure 2.2 Cost-recovery framework WFD in a nutshell*



## I. Capital costs

Three types of capital costs have to be distinguished:

- **cost of replacing existing assets:** The cost of replacing existing assets can be included according to the depreciation method. Depreciation means distributing the (initial investment) costs of an asset over the estimated useful life time of the asset. It does not involve any cash outflow. Instead, this method builds up internal source of financing to cover future asset renewal.
- **cost of investments in new assets:** Similar to replacement of existing assets in the future, costs of investments in new assets should be spread over a number of years in order to secure a fair distribution of costs between current and future users and to avoid dramatic changes in service charges whenever investments in new assets have to be financed.
- **expected return on capital:** When aiming for full cost recovery, interest paid on debts owed to investors and, if applicable, a reasonable return (profit) on investment need to be accounted for. The last cost item is particularly relevant from the perspective of finance ability of water services outsourced to the private sector. Companies should receive a return on investment at least equal to cover debt cost as well as compensate shareholders for the risk of putting money in the company. In case of public service with on-going return in the form of public benefits, this may seem odd. It can be argued however, that at a minimum a modest provision is needed to create an equity buffer for unforeseen events.

It should be noted that currently in accordance with Romanian legislation depreciation is not applied for public infrastructure. RBA's currently do not collect funds for replacement of existing assets. In what follows, annual costs are presented accounting for reinvestment of existing infrastructure via straight line depreciation.

## II. Operating and maintenance costs

Operating and maintenance costs are those that relate to providing the service, amongst others, employment costs and the costs of employing third parties. Maintenance costs relate to keeping the assets in serviceable condition throughout their economic life.

Under the Law 10/1995 regarding the quality in construction, managers and users of constructions shall secure the intervention works on constructions, according to the

regulations and resulted from the technical and operational assay in time of the constructions, hydro-technical equipment and installations. The value of the maintenance and repair works is calculated based on the value of the asset.

### **III. Administrative costs**

Administrative costs relate to the costs of regulating the water service, e.g. through a water abstraction licensing system. These costs have to be identified and included, since there are often more costs and organizations involved in the provision of water services than the one that is directly responsible for the act of providing the supply of water to or collecting wastewater from a user.

In the O&M-cost ratios presented in the normative, implicitly, a provision for administrative costs is included.

### **IV. Environmental and resource costs**

Additional to the financial costs (capital costs, O&M) for the supply of the water service also environmental and resource costs must be taken into account. Environmental costs can be defined as the costs of damage imposed on the environment and ecosystems and on those who use this environment. Resource costs are the costs of foregone opportunities which other uses suffer due to e.g. over-abstraction of groundwater.

Environmental and resource costs have to be estimated by means of time and resource intensive (specialized) techniques. When the identification of environmental damage and the quantification of this damage's monetary value are yet not well advanced, a preliminary cost recovery analysis that only concerns financial costs can be a first step.

### **V. Revenues**

Financial sustainability is achieved when operating revenues generated to "customer" payments meet supply costs. If measures are taken to reduce any environmental damage and/or account for resource costs, the costs faced by the service provider increase and hence additional revenues are needed.

## **2.5 Current rate of cost-recovery**

From the theoretical framework presented above, the current rate of cost recovery for provision of flood protection services in Romania was analyzed. A review was accomplished of the financial and economic costs.

A detailed survey was developed in cooperation with ANAR and used to gather baseline data on flood protection infrastructure for the 11 Romanian river basins on:

- historical investments;
- planned investments;
- O&M costs;
- environmental & resource costs;
- financing;
- revenues.

The data collection was coordinated centrally through ANAR. The below table represents an overview of the cost data collected through the survey.

<b>Survey data</b>	<b>Specification of data collected</b>
Existing water works	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); replacement value in 2013 prices; implementation date and estimated economic lifetime.
New infrastructure	Overview of proposed (new) works and estimated investment value as per the (updated) River Basin Development Plan 2013-2016.
Operation & maintenance costs	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.
Financing	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.
Revenues	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&M expenses.

The gathering of different (financial) data was a substantial part of the work of ANAR (and BDG) in this project and it also was very time consuming. For this reason the processing of data could only take place towards the end of the project.

As most of the data presented in the above table was not readily available in the format requested, an additional effort by the RBA's was necessary to compile a useful data set.

Not all financial data requested has been provided or only at a more aggregated level. Data on environmental and resources costs associated with the provision of flood protection in Romania RBA's are not systematically collected and/or administered in a central database. Economic costs were hence excluded from the cost recovery exercise presented.

Information on annual revenues from the contribution distributed from the RBA's to ANAR is limited available for 2013 only. Information on the annual O&M budget available for each RBA is missing.

The pilots did not yield new information on revenues nor costs. A detailed analysis of cost recovery on national and pilot level is therefore only possible in a very limited way.

### 2.5.1 Cost on capital

#### *Existing assets*

As has been pointed out, the Romanian legislation does not provide for calculation of depreciation on public capital assets. As a consequence, at the moment no financial

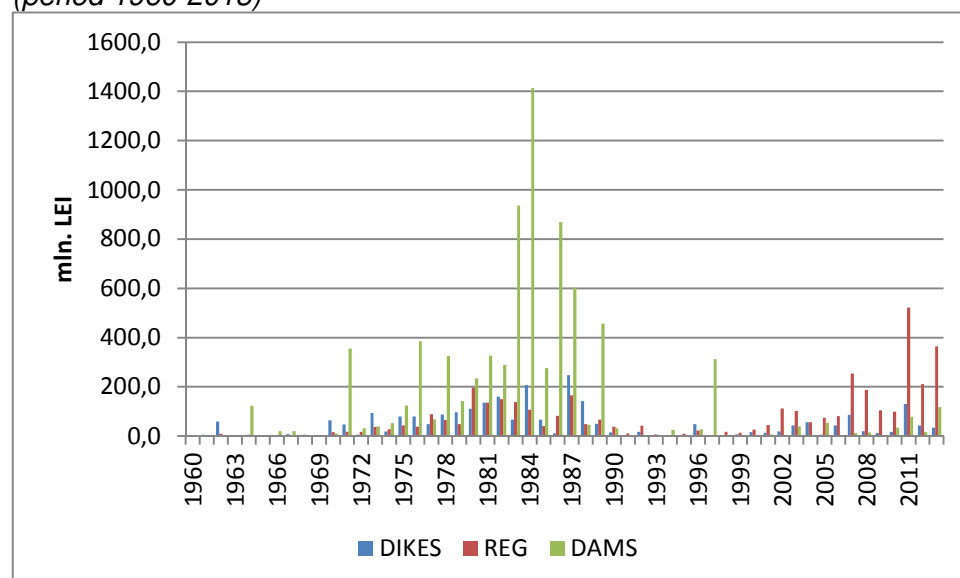


reservations are made for their replacement. In recognition to a possible scenario in which responsibility for funding of capital assets is transferred to the service provider, we however calculated the appropriate amount of reservations based on a comprehensive overview of fixed assets administrated by ANAR with flood protection uses. Particularly, quantitative data on replacement value, first year of operation and lifetime of the various historically acquired flood prevention assets was collected through a questionnaire for each of the 11 RBAs.

Figure 2.3 provides an overview of type and timing of investments in flood prevention assets in Romania. Two major investment periods emerge: early '70 to mid '80 and '90s. Investments appear to stand in correlation with the severe floods in this period. The replacement value of accumulated fixed assets in 2013 prices adds up to 14.6 billion LEI. This is the current value of total past investments up until 2013 registered by ANAR.

If these values are applied, total replacement value of flood prevention assets is calculated at 389 million LEI annually (2013 prices). In other words, yearly a reservation of this magnitude would balance investment budget with (re)investment activities (ideal complex<sup>7</sup>).

*Figure 2.3 Investments in flood infrastructure under ANAR administration (period 1960-2013)*



Of course, this is just an indication of the reservation payments sufficient to replace obsolete public capital assets eventually and there is too little information on asset state and performance to reach a more accurate and reliable estimate at this point. As a consequence the result has to be interpreted with caution. It is recommended here, to investigate the current state of existing assets and to re-asses their replacement value and the point in time for replacement. Consecutively, the amount needed to eventually replace public assets has to be determined, taken into account inflation as well.

It is likely that in the case transfer of (re)investment responsibility to the water service provider and introduction of a cost recovery policy takes place, the reservation will not immediately be recoverable from flood protection charge and will have to be subsidized, at least temporarily, to avoid dramatic price increases. However, it is maintained here

<sup>7</sup> Ideal complex refers to a so called zero net investment state in which depreciation is equal to investment. In such a situation the water service provider can sustain the current level of services that it provides the public from its capital stock.

that it is necessary to account for deterioration of public assets to be prepared for the need to replace them eventually. In the end, without cost recovery, costs are also born by the population and the private sector via redistribution of general taxes, irrespective of the view generally held that supply of water services is free. Cost recovery is mere a way to create a direct link between provision and use of a service to ensure sustainability of the service. Complementary to introduction of some mechanism for recovering of costs, the need to pay for a water service should be recognized by consumers. The service provider should hence be held accountable for providing good service quality.

#### *New investments*

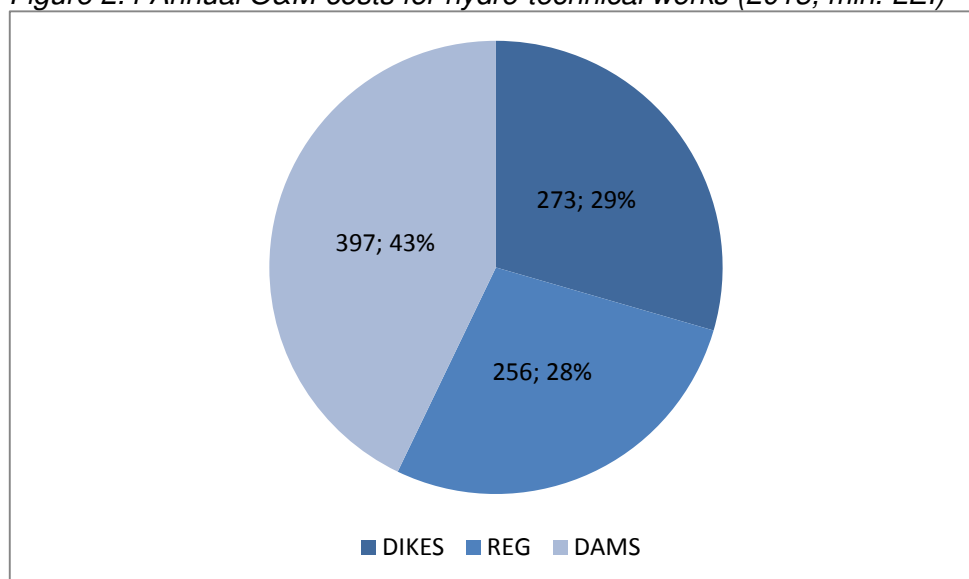
Costs of investments for new assets were included in the analysis, only based on planned investments for the different RBA's in the River Basin Development Plan (RBDP). This plan, focused on quantitative water management, also includes an up-to-date action plan for flood protection in the different river basins to the year 2016.

Given that presently in accordance with the European Flood Directive (FD) additional measures to address flood risk in Romania are investigated, significant additional new investments are expected and already in preparation in Romania. These investments are not included yet in the proposed and planned investment volumes reported in the RBDP. The impact of planned new investments on current and future cost recovery rates is discussed in more detail later in this report in the pilot chapter.

#### 2.5.2 O&M costs

Figure 2.4 displays operational and maintenance costs for 2013 when the coefficients from the normative are applied. The annual costs amount to approximately 926 million LEI. The budget for dikes and regulation works is comparable. In absolute terms the budget for maintenance and repair of dams is the largest.

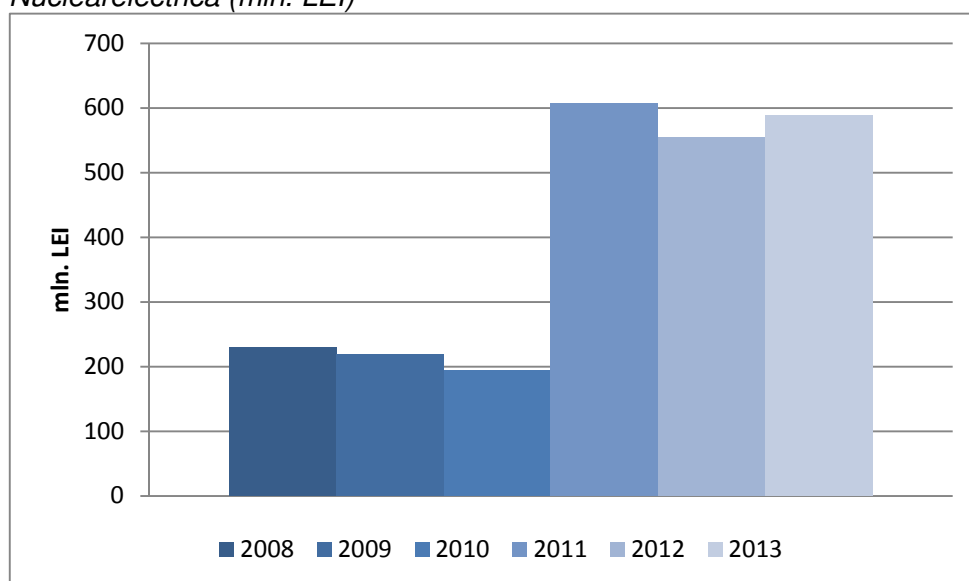
Figure 2.4 Annual O&M-costs for hydro-technical works (2013, mln. LEI)



### 2.5.3 Current revenues

Regarding financial inflows, ANAR charges utilities for bulk water allocation and discharge. The Ministry of Finance determines the level of these charges. Figure 2.5 depicts ANAR's operating revenues from abstraction fees and separate contracts with Hidroelectrica and Nuclearelectrica. Revenues in the past few years have fluctuated around 600 mln. LEI annually, dependent on raw water intake and applicable charge. On top of these revenues ANAR generates income from water effluent charges and sand extraction. These revenues are however excluded from the figure because a clear connection with the presented cost figures is missing. The other revenues to some extent all depend on maintenance of ANAR's hydro-technical works.

Figure 2.5 Annual revenues from raw water abstraction contribution, Hidroelectrica and Nuclearelectrica (mln. LEI)\*



\* For 2008, 2009 and 2010 information on revenues from Hidroelectrica and Nuclearelectrica is missing.

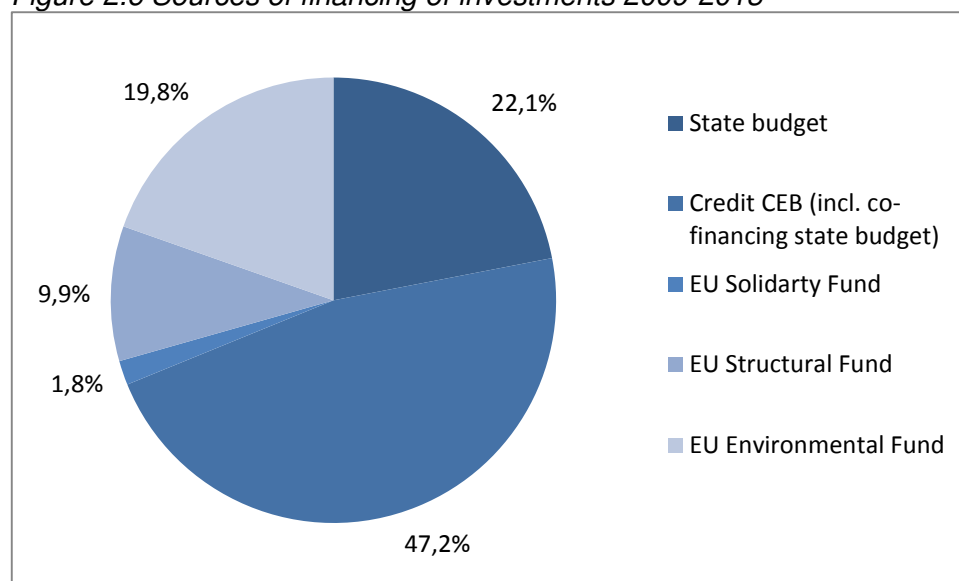
\* In 2010 a law change took place regarding the tariffs

#### 2.5.4 Financial sources for existing investments

At the moment investments in flood prevention works are streamed through the Ministry of Environment and Climate Change. Currently all investments for rehabilitation and development of flood protection infrastructure are co-financed from:

- I. State budget: the funds from state budget are the primary source of financing infrastructure. The state yearly awards budget. The procedure of funds allocation is through annual public debate. State budget is also allocated for co-financing external sources of financing.
- II. External sources: investments have partially been financed by attracting:
  1. EU-funds: Structural Fund, Solidarity Fund, Environmental Fund;
  2. Credits from the Council of Europe Development Bank (CEB).

Figure 2.6 Sources of financing of investments 2009-2013



According to the existing legislation ANAR has not the authority to apply for loans directly. All loans are managed by the government through the Ministry of Finance.

#### 2.5.5 Current rate of cost-recovery

Based on the presentation of the acquired data a significant gap remains between annual costs and revenues. Revenues are estimated to be less than 65% of the budget that is required to repair and maintain the quality of the assets administrated by ANAR according to the normative for adequate O&M. Currently, investments are funded by state budget and there is no recovery of capital costs through the water charges. If revenues were to be divided by the full (financial) cost, the cost recovery rate would drop to about 45%.

For a proper understanding of this result it is important to keep a number of things in mind:

- The operational cost recovery rate takes the normative O&M cost as a basis. A comparison with actual expenditures needed at RBA level for good O&M management could tell if the standard values are realistic. It can be argued that at present cost recovery is 100% since expenses are programmed according to the available budget. It's questionable, however, if the O&M expenditures are at the right level.
- In the O&M calculation 100% of the costs have been allocated to the flood prevention purpose. In practice, dikes, dams and regulation works can serve multiple

purposes and so should cost be allocated amongst them. Such an exercise is very challenging and time consuming as it should be executed for every single asset.

- Costs are covered by general budget rather than by earmarked service charges. Although in a stable political and economic situation the risk of financial instability might be low, if the tie turns there might be budget issues. Also, as a whole, such a system does provide incentives for behaviour change.
- Environmental costs and resource costs are disregarded in the calculation of the recovery rate.

## 2.6 Governance

Looking at the governance aspects we focus on the whole process of ruling the water-system as a part of the public sector, from decision-making on taking measures, determination of risks and costs, to budget consequences and of course how accountability and transparency are being organized. A cost recovery model is not just a technical instrument, it offers an excellent opportunity to find out a proper balance between the technical need and the economical boundaries.

In terms of state responsibility we regard the need to:

1. safeguard citizens and property;
2. prevent society from extreme damage and;
3. determine acceptable risks (probability X impact = risk).

Governance in the water policy field in Romania (according to the Water Law and the National Administration for Romanian Water Status) can be synthesized using the following five dimensions:

1. Levels and scales of governance: Where? Multi-level.
2. Actors in the policy network: Who? Multi actor.
3. Problem perceptions and policy objectives: What and why? Multi-faceted.
4. Strategies and instruments: How? Multi instruments.
5. Responsibilities and resources for implementation: With what? Multi resource based.

Starting point (why and what) is that flood protection is necessary and the level of protection is still an urgent matter for which investments will be needed. Due to the nature of the service, flood protection is considered primarily a government task (and responsibility) embedded in a legal framework (security, water, environment) highly affected by EU regulation (for example WFD). It belongs to the government core business, also because flood protection policy should be based on an adequate analysis of risks and a set of administrative criteria about how to judge which risk level is acceptable.

When a new cost recovery model will be introduced, it can also be made more accountable, legitimate, equitable and transparent and more responsive to correcting mistakes than the current system. This can also guide the discussion about governance aspects, like transparency and accountability.

To raise and secure the budgets for flood protection measures on the long term 3 main routes can be distinguished:

- I. Re-allocation of government budgets.
- II. Introduction of a (general) tax on flood protection.
- III. Introduction of a retribution to be paid by the (direct) users/beneficiaries.

The scenarios will be derived from these three approaches to gather financial means. The scale of the budget is a political decision according to financial and technical norms.

An important aspect is the fact that flood protection is related to complex issues of public and private risk calculations. The estimation of what is the value of the outcome in terms of budgets and regulations should take into account the principles of the rule of law as for example elaborated in the OECD report [ref 1].

In short as derived from the OECD principles:

- a) A powerful and effective administrative organization (river basin approach).
- b) A legally embedded system of water law, including proper law enforcement.
- c) An adequate financing system (self-supporting, polluter pays principle).
- d) A long-term vision and systematic (also long-term) planning approach (including asset management and maintenance).
- e) The participation of stakeholders (the interest, pay, say principle).

### **INTERMEZZO**

*In the discussions on introduction of a new system of financing flood protection (cost-recovery) it is important to determine a framework of what risks are acceptable in terms of social and economic damage. This prominently is a political issue. ANAR can offer an objective image of the risks according to natural and physical conditions (as is presented in the recent risk maps). It is also possible to present figures about the economic damages based on data of property etc. In the end, the investments on flood protection have to be embedded in a legal frame work that fits into EU regulations. The principles of cost-recovery of flood protection are a mixture of specific cost allocation to specific objects (e.g. property) and general cost allocation related to the general responsibility of the State (national safety, integrity of personal and physical security), apart from exceptional situations. These discussions can also stimulate a broader public awareness of the impact of flood protection and the complex set of trade-offs that have to be made.*

## **2.7 Stakeholders**

Involvement and input of most relevant stakeholders is important as this will give insight in their role and position and influence the public acceptance of the suggested cost recovery model. The most important stakeholders are mentioned in 'the national strategy for flood Risk Management on a Medium and Long Term 2010 – 2035', in which the (policy) responsibility of every stakeholder on national level is mentioned. As there are many stakeholders (about 10 on national level, many more on regional level), we selected the main stakeholders and proposed to ANAR to involve them in the project through interviews or workshops, in close cooperation with ANAR.

On national level we selected the following stakeholders:

- Ministry of Finance;
- Ministry of Regional Development and Public Administration and the local administrations<sup>8</sup>;
- Ministry of Internal Affairs.

At ANAR's request a prudent approach towards collective communication with other stakeholders was taken during the project. The project team organized individual meetings with stakeholders that have a relevant role and interest in the cost recovery issue such as the National Agency for Land Management (ANIF) and the Association of Municipalities in Romania (AMR), the National Inspectorate of Emergency Situations (tentative) and the Pool for Insurance against Natural Disasters (PAID).

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<sup>8</sup> Romania will go through decentralization processes (both de-concentration and transfer of powers), the water sector is not expected to be affected as the current organization per river basins is effective and will remain in place

The results of the meetings are reported separately.

According to ANAR and the ministry, due to the poverty level in high risk areas the general public opinion on the subject of flood protection is 'the national government/institutions should protect us, no payments from us can be expected unless the service level is very clear and visible to motivate any form of payment'.

A list of all stakeholders in the area of flood protection is mentioned in appendix IV.

## 2.8 Conclusions

The WFD demands the design of a cost recovery model related to water services. In the broad interpretation of the concept, flood protection could be defined as a specific water service. In that case, water policy should enclose elements of cost recovery for flood protection in accordance with the polluter pays principle. Tailoring present water pricing policy to more explicitly link costs and benefits stimulates and promotes sustainable financing.

The local legislation is updated according to the requirements of the FD and WFD but there it is not yet implemented a compatible financial mechanism into the practice. Good evaluation of legislation and suggestions for improvement of the current financial mechanism are needed. Also, although legislation related to a participative approach in case of floods is in place, there is no clear (legislative) incentive for a participative approach related to flood protection is existing. For this, the participation meetings that have been organized for the development of the river basin management plans, might be an example.

Flood protection is not yet accounted for in the contribution/revenue system of ANAR. In the project, knowledge on the current state was developed in order to explore and assess the feasibility of specific cost recovery options for flood protection services offered by ANAR. Through ANAR, in the project, all RBA's and the Ministry have been involved in a comprehensive data gathering process. It can be concluded that at present there is a significant gap between annual costs and revenues related to flood protection services by ANAR/RBA's. Total revenues are less than 65% of the required budget for adequate O&M. If revenues were to be divided by the full (financial) cost, the cost recovery rate would drop to about 45%.

Even so, the data allows for indicative analysis only on national and regional (RBA) level. Whereas the data about past investments seem accurate and complete, the information on investments in the immediate and short term future is not exhaustive. Partly because the FD related investments are not determined yet. It is also needed to evaluate the current state of the assets in order to project future rehabilitation works. Furthermore, only investments in flood prevention works under administration of ANAR have been taken into account hence leaving out investments by other actors. Finally, cost allocation is an issue, given the difficulty in interlinking the purpose of the assets and financial expenditures.

The data about O&M costs and revenues is only partly complete. The project has not benefitted of data on the real annual expenses on O&M related to the flood works located in the RBA's. Therefore only indicative conclusions on the current cost recovery level can be drawn.

Taking into account the current view of the society about floods and flood protection, the involvement of stakeholders should be done adequately. Of course, ANAR is aware of

their position on the subject of cost recovery before actively approaching other stakeholders. On the other hand a more active involvement of the main stakeholders earlier in the project undoubtedly would lead to a more open and smoother communication and cooperation with other stakeholders. As the first flood risk maps are available now it is a good moment to actively communicate the results to targeted stakeholders, like the public through intervention of the county councils and municipalities.

The first step on the communication of the risk map results was done through a press release mid April 2014 that was followed with a lot of interest and questions from the public. Awareness can gradually grow in this way. As an example, the exercise of the public communication related to the elaboration of the river basin management plans could be further followed and improved.



### 3 Scenarios

#### 3.1 Introduction

Amongst the wide range of natural hazards that affect the development of regions within the European Union, flooding was and still is one of the most harmful. Floods may cause casualties, displace people, damage agriculture and the environment, severely hamper economic development and undermine economic activities.

This means that it should become transparent (through cost allocation) which costs are earmarked for flood protection and how (through which budgets or revenues) and to what extent these costs are recovered. As said before, the financial model should also comply with EU legislation, i.e. article 9 of the WFD.

In the current situation costs are already made for investments and operation and maintenance of flood protection infrastructure (including inspections, organization, etc.), but the related budgets are not earmarked as well as the revenues to cover all these costs. Moreover, it is not known to what extent all costs are recovered. Besides, in the (near) future the level of costs will increase to reach a better level of flood protection, based on intensifying investments and related costs according to new EU regulations. When costs and revenues will be earmarked and also balanced there will be a better guarantee that they are in fact used for the flood protection task.

Therefore different scenarios for a cost recovery model will be explored and presented. These scenarios are taking into account the following aspects:

- Involved institutions
- Target group (to whom addressed)
- Financing possibilities
- Governance
- Time frame and phasing (progressive or conservative equilibrium between costs and revenues).

First of all a number of possible scenarios are described from a broad perspective. After that “unlikely” scenarios are rejected as some assumptions have to be respected like a continuation of the institutional setting of ANAR and the legal conditions of cost recovery.

For all relevant scenarios a SWOT analysis are made to help to prioritize these scenarios. The preferred scenarios are analyzed in detail including an investigation of conditions and relevant information needed for possible implementation. Implementation possibilities are investigated and tested through execution of two pilots, in two different RBA's.

#### 3.2 Inventory of scenarios

A cost recovery framework embedded in a balanced governance model is not just book keeping, it is more than a set of accountancy rules. Trust, reliability and satisfied clients (citizens, farmers, enterprises) are related to basic values that have to be elaborated in a governmental approach. The scenario's presented facilitate the process of making choices in this field.

#### **Scenario 0** *Current situation: “no change”*

In this scenario the current situation will continue as it is now. This means that the ANAR budget for O&M is partly covered by the revenues that are gathered from contributions for raw water abstraction and wastewater discharge. Currently, only about 65% of the necessary budget for O&M is available, which also implies that only 65% of the O&M activities will be carried out. Contrary to O&M budgets, investments in flood protection infrastructures are covered by the national (state) budget.

In the current situation there is no cost recovery related to the task of flood protection. The risk of the current situation is the decrease in the performance of the flood protection task, so decrease of the quality of the current system. If this continues too long there is a risk that much more future investments are needed to maintain or bring the system back to the required quality level. The current situation won't be considered as a separate scenario but is starting point for possible future scenarios.

In this scenario the great advantage is that it is easy, no costs of change. Disadvantage is that nothing will change: no full cost-recovery, opportunities for investment depending on the national budget, no compliance with EU regulations and the risk that high penalties will be fined. In short: not a sustainable system.

**Scenario 1. Current situation +: covering O&M costs up to 100%**

In this scenario the coverage of the O&M budget increases to 100%. There are three ways to organize this:

1. An increase of the level of contributions that ANAR charges for their water service users.
2. Introduction of a temporarily levy on national scale that ANAR charges from the whole population.
3. An increase of the contributions of the central state budget (e.g. a percentage of the investments in accordance with the normative for new investments put in function in the previous year).

Balancing can be done yearly, according to the expected annual revenues of ANAR. This means that the rates must increase when water use decreases in households and industrial processes.

This can be a temporarily measure. If the difference between 65% and 100% cannot be covered fully during X years that means that national government will be accountable for the risks. Another approach is that ANAR will be allowed to cover the difference by loans guaranteed by the national state during a transition period. After that transition period loans will be paid back. This means that the transition period will last longer.

Related to the current situation and scenario 1 it would be logical to consider possible cost reduction in the ANAR organization and/or find new clients and/or evaluate the current tariffs.

The advantage of this scenario is that it is rather simple (that is to say if the State is willing to pay). The disadvantage is that there still is no compliance with the EU regulations and there is again a risk that high penalties will be fined.

**Scenario 2. Centralized: state budget**

Flood protection is an exclusive task for the national state. National government is taking decisions on investments every year. Next to investments, every year a budget for maintenance and the administrative system should be added to the budgets, calculated on the basis of the total amount of the investments. If the assigned national budget is not sufficient to cover these (new) costs, other parts of the national budget should be cut. This means a re-allocation of national resources (or a shortage in covering costs of flood protection). A part of the budget can be gathered from contributions of water resources as now already is done.

ANAR is the Agency that executes all tasks according to flood protection. ANAR is to be consulted about the level of urgency in flood protection. The national government (under parliamentary control) takes decisions on risk level and urgency matters. ANAR offers a budget proposal (including necessary investments) for 3 years, annually updated according to actual conditions). However, this scenario does not fit into the WFD.

The advantage of this scenario is that it is rather simple to elaborate in terms of decision-making. The disadvantage is that there still is no compliance with the EU regulations and there is a risk that again high penalties will be fined.

**Scenario 3<sup>9</sup>. Mixed centralized (registered rivers) and decentralized (unregistered rivers): state budget + retributions**

Flood protection is a government task for different layers of government (layered responsibility). A legal framework and a clear task format exist between national and local government.

Within the registered watercourses the national government and ANAR take care of the trans-boundary rivers and rivers of national relevance (e.g. the Danube, Tisa, Prut) for investments as well as costs for operation and maintenance. An important consideration must be given to the cross border aspects.

The local government (county level) and the RBA's take care of smaller watercourses and unregistered tributaries (problems of flash floods included). Local government cooperates up to the level of the RBA. RBA decision making will be organized by RBA board, elected by the counties. Contracts between counties and the RBA will govern the assignment of each RBA. ANAR offers a budget proposal to the counties (including necessary investments) for 3 years, annually updated according to actual conditions).

National government and decentralized responsible counties take care of their own revenues to cover the costs. A legal basis for a local retribution on flood protection and prevention (connected to housing tax and land tax) will be set up. Moreover this could consider all water management tasks.

ANAR (and RBA's) is (are) accountable for all tasks of flood protection, at national and local level as an executive agency. ANAR has to be consulted about the level of urgency in flood protection. National government and local government have to decide on the level of urgency within a legal framework.

Starting point of each assignment (national and local) is a clear risk analysis, updated periodically, supported by the public risk maps and also exposed to a broad public. Furthermore, this needs to be supported by a permanent campaign of public awareness (internal and external). This scenario should be executed in advance of a new legal framework, as far as possible.

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<sup>9</sup> advantages of scenario's 3 and 4 will be presented after 4b.

## **INTERMEZZO**

*An important argument to choose for a retribution connected to the local tax on housing and land is a more clear basis for the measures financed from the locally gathered funds. Protected property value is the basis for a retribution. This also gives the opportunity to differentiate tariffs:*

- 1. Differences between regions: the more vulnerable a region is, the higher the retribution (to some extent!). This has to be justified by a really higher level of investment in protection works and in prevention measures.*
- 2. Differences between values of property: the higher the value of buildings and land, the higher the retribution. The more value to protect, the more you pay to protection funds.*

### **Scenario 4 a Mixed centralized and decentralized (all watercourses): local retributions**

Flood protection is a government task for different layers of government and no distinction is made between flood protection with national relevance and regional relevance (this can be organized through delegation or otherwise). A legal framework and a clear task format exist between the national and local government (final responsibility on national level), see also scenario 3 with regard to the task format between national and decentralized level. The governance code of ANAR (and RBA's) is based on cooperation with local authorities/government. Budget of ANAR is supplied by "local retributions" connected to local taxes on properties (buildings, houses) and land ownership. The tariff (amount) will differ according to the value of buildings (houses, factories, office buildings etc.) and land. Only owners pay. There is one national rate (determination on national level, local collection).

### **Scenario 4 b Mixed centralized and decentralized (all watercourses): (differentiated) local retributions**

This scenario is comparable to scenario 4a with the following additions:

- Local tariffs to be decided by local councils (differentiated) (determination on local level, local collection).
- The governance code of ANAR is again based on cooperation with local authorities. Local authorities get the right to make contracts with the RBA's about the level of protection and the level of investment in protection works. Local government is legally obliged to arrange this assignment in terms of budgets and regional regulations.

Both versions of scenario 4 should be considered from county level in an executive mixture with the 11 RBA's. The administrative design is based on local responsibility and the regional executive power of ANAR and existing RBA's. It is a complex solution and implementation will cost time. For sustainable legitimacy the multi governance approach offers good perspectives. Water-management as a whole and flood protection in particular needs to be rooted in a system of accountability and transparency in a broader sense. Every time public money is spent (gathered by tax or by general raised retributions), a public guarantee is necessary just as the quality of technical and administrative results delivered by the professionalism of ANAR, nationally and in the 11 regions. A sharper exposure on local (county) level might be helpful.

In both versions ANAR offers a budget proposal (including necessary investments) for 3 years, annually updated according to actual conditions. In setting up the retribution

system a contribution bound to hydropower industries and to daily water supply could be continued but renewal of the system can also mean that no longer separate contributions will be asked.

Starting point of each assignment (national and local) is a clear risk analysis, updated periodically, supported by public risk maps and also exposed to a broad public. Furthermore, this needs to be supported by a permanent campaign of public awareness (internal and external). This scenario should be executed in advance of a new legal framework as far as possible.

The advantages of scenarios 3 and 4 are that they are in full compliance with EU regulations, contain a better basis for good governance principles as accountability and transparency and give room for improving the basis to raise public awareness for people that need flood protection. Most important is that a better insight in costs is secured as well as a better basis to invest, based on plans fitting properly to varying regional needs of flood protection measures (investments).

Disadvantage of scenarios 3 and 4 is the need for an extended change of the legal framework. Furthermore the implementation process will take (much) time and will be complicated as it is a multi-governance course.

For scenario 4 responsibility for local government will increase significantly as well as the political risk at the start. However this can be diminished by investing in capacity building common to decentralization processes. Scenario 4 does not need changes in the frame of competence of RBA with the exemption of financial aspects regarding the budget-supply by local retributions.

### 3.3 Legal requirements

To make a good comparison of the different scenarios possible they are first judged on the requirements as mentioned in article 9 of the WFD. Furthermore (see appendix V) all scenarios are scored in a so called Strengths, Weaknesses, Opportunities, Treats (SWOT) analysis from the position and competences of ANAR.

Requirements art. 9	Considerations
Cost recovery*	All scenarios aim for partly (x %) or full cost recovery.
Differentiated to target groups	In general the more decentralized scenarios are more applicable to tariff differentiation, related to different target groups like population, agriculture and the industry. It is noted that regions/RBA's/counties can differ a lot when population density is considered.
Stimulating behavior**	Related to flood protection we believe that stimulating behavior could be found in implementation of a different way of spatial planning **. The more decentralized scenarios score better on this aspect.
Incentives of affordability	Social aspects/development of regions should be taken into account. The more decentralized scenarios (3, 4) score better on this aspect.
Polluter pays principle	This aspect is not easy to relate to flood protection but could be related to local land use and for example to hydro power stakeholders. The more decentralized scenarios (3 and 4) score better on this aspect.
Solidarity	This aspect can be looked at in two different ways. When the interpretation is used that the whole population has the same rights and responsibilities no matter where they live, the more centralized scenarios score better. When a connection is made with risk management the more decentralized scenarios score better as local components are considered.

Legality	This aspect is interpreted as related to changing/improving the current Legal framework. The more decentralization takes place (scenarios 3 and 4), the more complex the legal framework will be.
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*\* According to art 9 this must include environment and resources. In the Romanian situation the information to quantify this is not available, yet.*

*\*\* How to relate this to flood protection? It is not easy to relate this directly to population or protected stakeholders. We believe it can be related to spatial planning policies.*

### 3.4 Conclusions

The presented results offered an objective set of choices to ANAR that have been discussed between the Romanian project team and the ANAR management. From this discussion the scenarios 3 and 4a and b were detected as the preferable scenarios.

The scenarios 3 and 4 are mixed scenarios that are in fact the most obvious. They fit in the growing tendency worldwide to use multi-level governance solutions. The administration is rather complex but it remains possible to execute an accountable, legitimate, equitable and transparent system.

Scenario 3 is an option to be considered with central level taking care of the registered rivers and the local level taking care of the tributaries that are not registered in the ANAR register. Within the registered rivers a distinction can be made between the rivers that are trans-boundary or of national relevance. The rest can be the responsibility of the counties and municipalities. But also in these circumstances the management of a river must be done with an unitary approach to include the tributaries no matter if they are or are not registered in ANAR cadastre or how many regions (local administrations) they cross. Scenario 3 resembles the Dutch water management practise the most.

Scenario 4 is much alike scenario 3. Most important difference is that the budget is mainly based on local retributions. It means that the regional governance quality is an essential part of the sustainability of the system. It is also a real decentralization process. It is also thinkable that scenario 3 will be implemented first and that it can gradually develop further towards scenario 4.

## 4 Pilots

### 4.1 Introduction

After designing the scenarios and consulting about them with ANAR and MMSC on national level, it was decided that it is important to get feedback and more insight in the scenarios from some (pilot) RBA's. The goal of the pilots was to evaluate the feasibility of the preferred scenarios selected for further evaluation in the practical (daily) context of the pilot RBA's and taking into account the specific request of ANAR that its position will remain unchanged. The bottlenecks, learning points and improvements will be used to adjust the cost recovery framework.

The two pilot RBA's were preselected by ANAR and verified by the project team, taking into account the following criteria:

- Different water systems (trans-boundary versus regional).
- Different flood risk profiles or priority.
- Different income situations (i.e. more/less hydropower dams).

The selected RBA's are Somes Tisa and Jiu. The RBA Somes Tisa in the North West encountered floods, mainly due to the internal waters while the southern Jiu basin encountered floods mainly due to the Danube river. RBA Somes Tisa also participated in the Equilibrium project.

The approach can be summarized as follows:

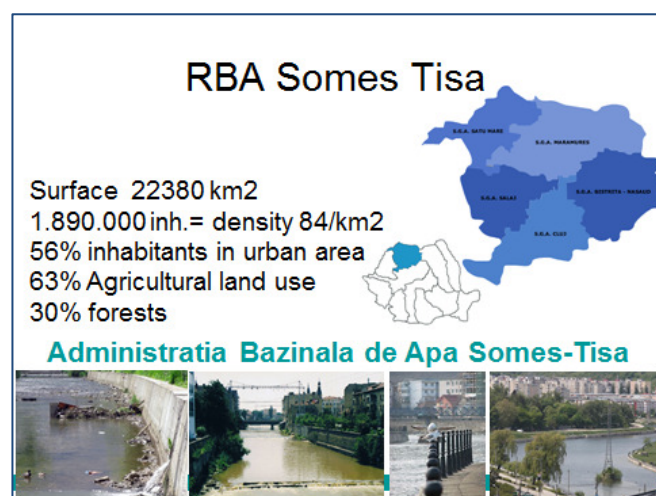
- Study of the areas.
- Discussion with the RBA's.
- Preparation of pilot document/questionnaires.
- Missions to both pilot areas (presentations, interviews, excursions).
- Analysis and reporting of the results.

The pilot report can be found as reference [nr 7].

### 4.2 RBA Somes Tisa

#### 4.2.1 River basin characteristics

In the following picture a summary of the main characteristics is mentioned.

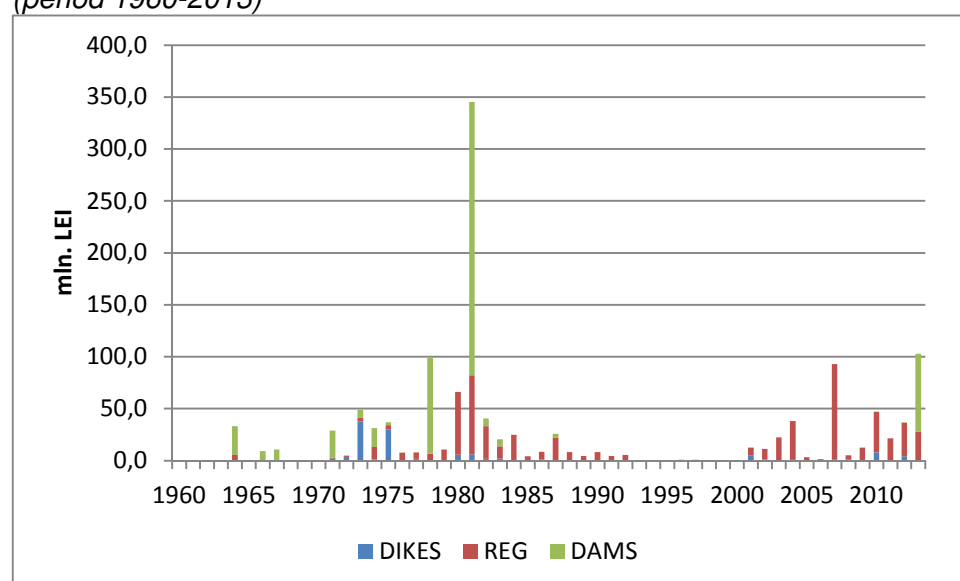


#### 4.2.2 Cost recovery assessment (current situation)

Total financial costs for flood prevention services provided by the RBA include costs of regulation and storage of surface water by means of dikes, dams and regulation works. Total investments for provision of flood management services in the period 1960-2013 are presented in figure 4.1.

Total investment volume in the period 1960-2013 adds up to about 1,300 mln. LEI. Investments in regulation works and dams are covering the larger part of this amount (respectively 638 and 550 mln. LEI) whereas investments in dikes are relatively low (118 mln. LEI). A significant part of the investment volume is concentrated in the period 1975-1985 and 2000-current. The investments waves are correlated with flood event occurrence in these years triggering flood prevention action.

*Figure 4.1 Investments in flood infrastructure under administration of RBA Somes-Tisa (period 1960-2013)*



The (normative) recurrent (annual) costs for provision of the infrastructure that include O&M costs as well as administrative costs are calculated at 85 mln. LEI in 2013. There are no records available from the pilot on actual annual expenses to reference this number. However, it has been noted in the discussion with the RBA that the financial resources to meet the “prescribed” O&M-activities are missing. As a result, service activities are prioritized and actual annual expenses are (well) below normative values. On the short term, via prioritization infrastructure failure can be prevented. For the long term, however, this approach is not sustainable and most likely also more expensive because insufficient attention to O&M will generally reduce the effective asset lifetime.

At the moment there is no dedicated system for recovering the costs from flood protection-related earmarked benefits. The revenues collected at the RBA level via water charges typically link to water abstraction (raw water price) and discharge (water effluent charge). From this perspective, cost recovery for flood protection as such does not exist. Revenues collected at the RBA level are first relocated to ANAR and then (re)distributed back to the individual RBA's. As mentioned, the available annual budget at RBA level is lower than needed for good O&M practice, typically around 65%.

#### 4.2.3 Evaluation of scenarios



The representatives of the RBA Someș-Tisa expressed that, in their opinion, due to the diversity and economic development of the counties that are part of the RBA, the preference for a certain scenario could differ. For example, within the county Bistrița there are more rural areas, therefore the scenario 2 could be most feasible for the short term. Instead the Salaj county, that is more industrialised, the preference for the scenario 3 was stated while Cluj county has the preference for scenario 4 due to the fact that in the current situation there is already a cooperation process with municipalities, as it is the Cluj-Napoca town. Scenario 4 could be upgraded by bringing the trans-boundary and big rivers Someș, Tisa, Prut, Siret and the Danube under the national budget.

#### 4.2.4 Cost recovery plan (future costs)

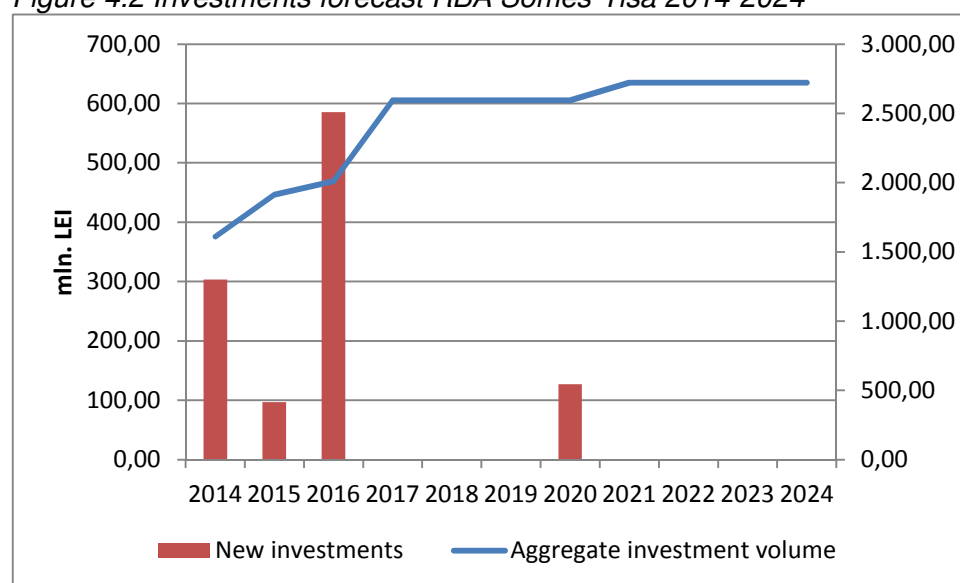
##### *Investment plan*

The first ingredient of a cost recovery plan is the investment plan. The investment plan provides an overview of investments in the next years. Also, funding needs and hereof expected capital cost are dealt with in the investment plan.

Figure 4.2 presents an investment forecast for Someș-Tisa for the next 10 years. Basis for the presented forecast are the flood infrastructure investments reported in the River Basin Development Plan (RBDP). These are classified as incremental investments: the investments cause additional costs for the water service provider (as compared to in principle cost-neutral rehabilitation investments). Also visualized in the figure is the aggregated volume invested which, logically, increases with investment expenditures.

The forecast takes into account the most recent information available on needed investments in the upcoming period. It is vital to regularly (annually) update the investment plan to maintain cost recovery at the appropriate level i.e. re-evaluate proposed scale and timing of planned investments and/ or add additional investments considered necessary to the investment plan. As far it concerns the Flood Directive, the need for financial capital will likely increase to cover new investments that are required to meet the standard of protection.

*Figure 4.2 Investments forecast RBA Someș-Tisa 2014-2024\**



\* in 2013 prices

##### *Financing*

The investment plan shows the financing need following rehabilitation of aged and/or development of new flood prevention works in the RBA. Investments can either be

financed by debt or equity (or combination). In the example worked out in this section, debt financing is assumed. Financing need can be estimated by comparing available cash fund to the service provider (from grants, reserves) with the projected investment value.

In the current situation and legislative context in Romania the RBA has to apply for finance at the national level where the investment decision is made. The Romanian state (acting through the Ministry of Public Finance) will provide the financial supplements to cover investment expenditures. The RBA itself is not authorized to borrow money to finance the investments. This means that, as far investments are covered with loans, financing costs currently fall to national government that uses tax receipts as the source of interest payments.

#### *Revenue requirement*

Essential step in the cost recovery analysis is the decision on the recoverable costs. The approach to cost recovery can be worked out in a cost recovery plan which defines the competent authority to set charges and the manner of calculating those charges, the costs to include in the recoverable costs and who pays what. Depending on the objectives, and the source and timeframe of funding available, different cost recovery schemes could be considered.

Based on the cost information provided by the RBA the level of revenues was calculated that needs to be generated to be sufficient for covering annual costs, i.e., O&M costs and capital costs.

As the objective of the pilot is to explore different cost recovery options, three variants for cost recovery have been developed presented in figure 4.3:

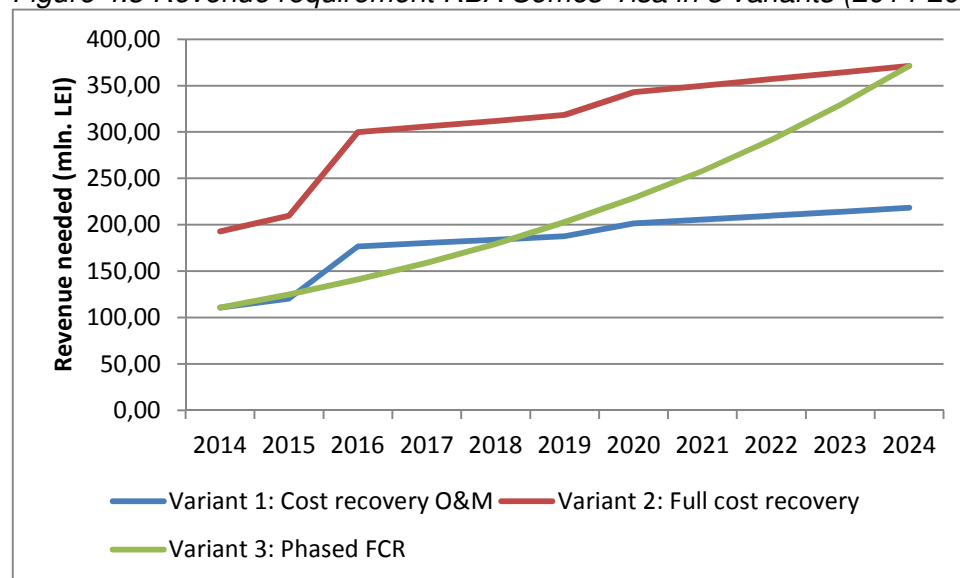
- **Variant 1: cost recovery O&M.** At the moment cost recovery is not earmarked and not sufficient to cover annual O&M costs. Also, future O&M costs are likely to increase with new investments and inflation. From the perspective of good asset management the situation is unsustainable. In this variant it is assumed that revenues are generated by the RBA at 100% of the O&M cost.
- **Variant 2: full cost recovery (FCR).** As variant 1, but in this case full cost recovery is assumed, i.e., O&M and capital costs of existing and new investments are taken into account. In this scenario the start value is well above the introduction value in variant 1. The revenues generated are sufficient to cover new investments in the future.
- **Variant 3: gradual increase to FCR level.** In this variant a 10-year period is assumed to reach FCR level to smoothen the introduction of recovery schemes.

The variants introduced above have an illustrative nature only and serve to illustrate different objectives and paths for achieving cost recovery. Clearly, the realism of the variants directly links to institutional and legislative aspects. In variant 1 the current situation more or less remains, while variant 2 and 3 assume a reform from general taxation as an indirect (recovery) instrument to direct full cost recovery for flood prevention services.

In the variant 1 total revenues needed to cover annual O&M costs increase from approximately 110 mln. LEI in 2014 to 220 mln. LEI in 2024. Variant 2, which additionally accounts for the accumulation of capital to reinvest and payment of the debt service, the revenue requirement is almost doubled and ranges from 190 to 370 mln. LEI in the period 2014-2024.

It should be noted that in the current situation projected costs are already partly covered by the O&M-budget received from ANAR (filled with generated revenues) and allocation of general state budget (through raised taxes). In fact, the variants help to explicate the costs associated with flood protection in the RBA, whereas not necessarily large volumes of additional revenues are required to cover the costs. For example, assumed that currently 65% of total O&M costs related to maintenance of the flood prevention infrastructure are covered, in fact an additional 35% revenues is needed in variant 1.

Figure 4.3 Revenue requirement RBA Somes-Tisa in 3 variants (2014-2024)\*



\* Real prices, inflation set at 2%.

#### 4.2.5 Tariffs

##### Tariff setting

Ideally, the tariff should be set so that over a period over time:

- revenues collected equal (net<sup>10</sup>) costs;
- tariff fluctuations are paced evenly over the period.

To be self-sufficient a utility has to set tariffs, which should rightly reflect the costs so that sufficient revenues are generated to cover operating and capital costs incurred. Under the cost recovery approach the tariff is hence set with reference to the total revenue requirement. Year to year fluctuations in operating cost and investment expenditures can give cause to large price adjustments. Sharp increases in bills may be considered undesirable. The valid period to consider for the calculation of the tariff in a year could be extended to several years, flattening cost peaks.

It is possible to levy different tariffs against different categories (see text box). First, costs are allocated amongst the relevant tariff categories defined. Secondly, the tariff for each category is then calculated by dividing the costs by the number of units in which the tariff base is expressed (e.g. households, € property value). Different approaches result in different tariffs, dependent on e.g. how the user pay principle is applied.

#### Example tariff calculation procedure: Dutch Water Authority Model

<sup>10</sup> In case of grants

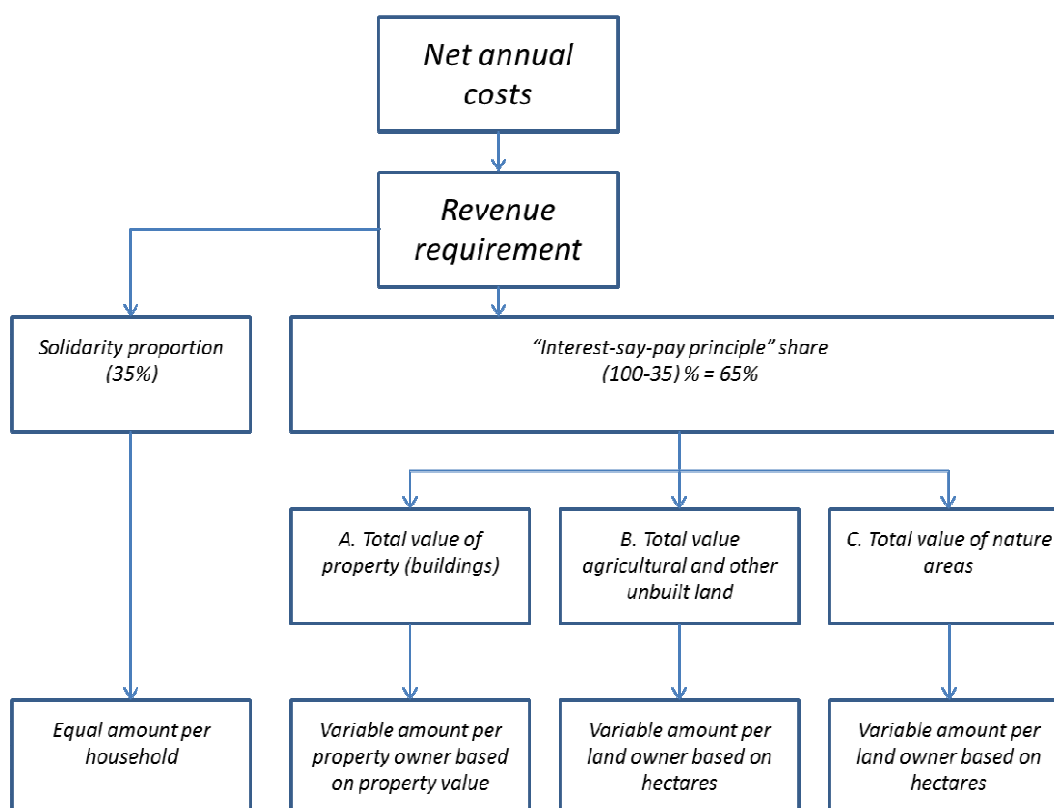
In the Netherlands costs incurred by regional water authorities to keep the ground dry and the water clean are recovered by a water system levy. Within the water system levy two main categories are recognized:

- residents
- owners

The water system levy for **residents** is equal for all forms of housing. Residents pay a fixed amount per house.

The levy for **owners** eminently visualizes the *interest-payment-say principle* upon which pricing policy is based. According to this principle, the larger the interest, the higher the payment. In this equation interest is measured in terms of value that is protected by the water quantity services deployed by the water authority. Owners pay according to the value of the property (houses, commercial buildings) or land (unbuilt).

The below figure visualizes the tariff setting procedure followed by the water boards. Typically, tariffs in the Netherlands (2013) range, for residents: 150 - 530 LEI per household; for property owners: 0.016 - 0.056% of property value; land owners: 150 - 940 LEI per ha unbuilt land, 6 - 33 LEI per ha nature area\*.



\* The water system levy covers all the costs of regional water control: protection, quantity and related quality. On top of that, investment and O&M expenses for major flood defence works of national importance (main rivers and coast) are financed using funds raised by general income tax.

Detailed information of the Dutch water system levy is mentioned in appendix VI.

#### Tariff levels

Based on the revenues needed to cover the annual costs appropriate tariffs can be set. As can be seen from the Dutch example a variety of tariff structures may be considered.

The information below sets out some alternatives for how tariffs are set and the imposed overall cost recovering tariff. The exercise findings for both the variant with cost recovery of 100% O&M and full cost recovery are considered. Again, the numbers are for illustrative purposes only and are not necessarily realistic.

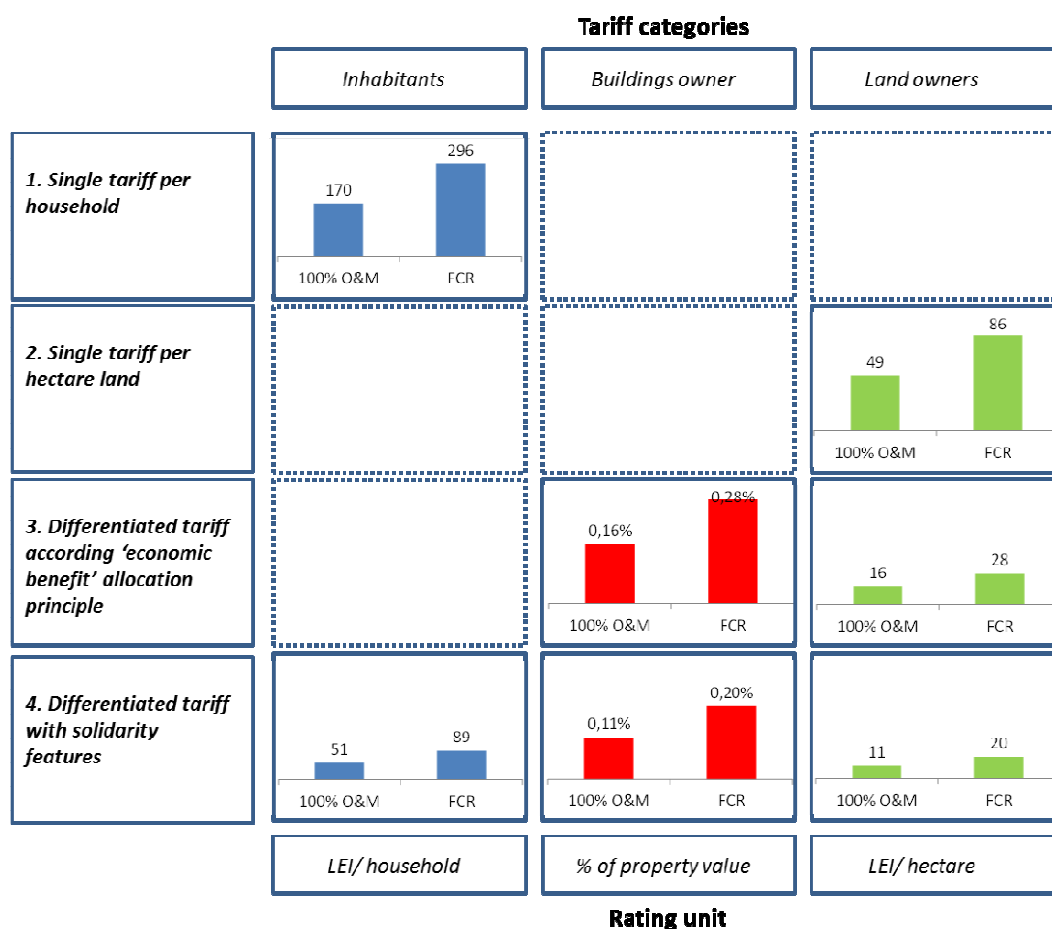
Four different alternatives are reviewed:

- **A.1. Single tariff per household:** In this alternative costs are equally distributed among the population living in the Somes-Tisa river basin. Simply, a single tariff is obtained by dividing annual costs by the number of households.
- **A.2. Single tariff per hectare land:** In this alternative the tariff is obtained by dividing annual costs by the surface area land in the RBA.
- **A.3. Differentiated tariff according 'economic benefit' allocation principle:** While alternative 1 and 2 do not distinct between user groups within the RBA, in alternative 3 the allocation of costs is based on the economic value of the property (assumed) protected. Within each property category (building and land), costs are shared according to market value.
- **A.4. Differentiated tariff with solidarity features:** Similar to alternative 3 costs are shared among user groups in proportion to the potential benefits generated from good flood management practice. Only, households living in the area are added as a third category to redirect part of the costs from property owners as people living and working in the area who do not own property also benefit. In the example, a 30% 'solidarity levy' is assumed.

The quantitative results of the analysis are presented in the figure below. In this figure effective tariff rates for operational (100% O&M) and full cost recovery (FCR) are presented for the four alternatives, for the base year 2014. The alternative approaches consequently lead to large variations in proposed tariff for a specific user group. As more user groups are defined unit prices fall. In alternative 4 costs are divided over the largest number of units and hence that unit tariff is the lowest.

The instrument design can be further adjusted to incentive certain effects, to include progressive pricing ('capacity to pay') principles, to exclude all but the direct beneficiary group from payment (e.g. based on protected flood area) or to gain public acceptance (funds must be spent and seen spent on flood prevention).

Figure 4.4 Estimated required 2014 flood prevention tariffs RBA Somes-Tisa in 4 alternatives.



#### Affordability

The results above might be seen as a first step in the discussion for fulfilling the objectives in the WFD with regards to the cost recovery and pricing issue. It is also a good basis for discussions with respect to the implications for affordability. Direct FCR may lead to too high tariffs, that people cannot afford. A step by step approach could then be a more desirable and feasible option.

With respect to affordability, a first rough estimate of the financial burden (value fraction) for each user group was derived to explore the possibility to raise flood prevention cost-recovery rates in the RBA.

Statistical information on (disposable) income of households at RBA level is not available, so instead regional (Eurostat) income statistics were used. It can be concluded that the average annual household income in the North-East Romania in 2014 is about 26,100 LEI. For the Somes-Tisa region we will take the data for the North-East region as a proxy. Based on this, the flood prevention payment for an average household would range between 0.7 - 1.1% of annual income (for recovery of respectively 100% O&M and FCR from population).

In the above presented alternative 4 in which the costs are spread among a wider group of users, the household income fraction decreases to about 0.2 – 0.3%. In this alternative owners of buildings and land are assumed to absorb an important part of the costs as main beneficiaries. As put forward owners of buildings pay 0.11 – 0.20% and land owners 11 – 20 LEI per ha. To put this in perspective the current payment for the

property tax on buildings and the land tax in Romania can serve as a benchmark. The applicable rate of the property tax that is levied on buildings, payable by the owner, typically varies by 0.25% and 1%. The rate of the land tax ranges from 1 to 10 LEI per hectare dependent on the location of the property (urban/ rural areas).

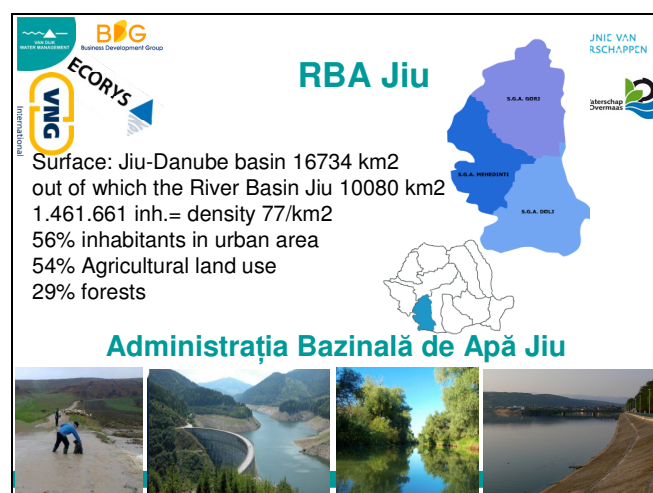
Further investigation in a next step is recommended. The estimate is an average figure based on an approximation of e.g. household income in the region, on a lower regional level, the level of income can differ significantly. It is recommended to make a thorough assessment of the maximum amount households and other user groups are able to spend because the effectiveness of the instrument largely is dependent hereon.

The cost recovery model is supported by an excel file (and manual), that is presented in appendix VII.

### 4.3 RBA Jiu

#### 4.3.1 River basin characteristics

In the following picture a summary of the main characteristics are mentioned.

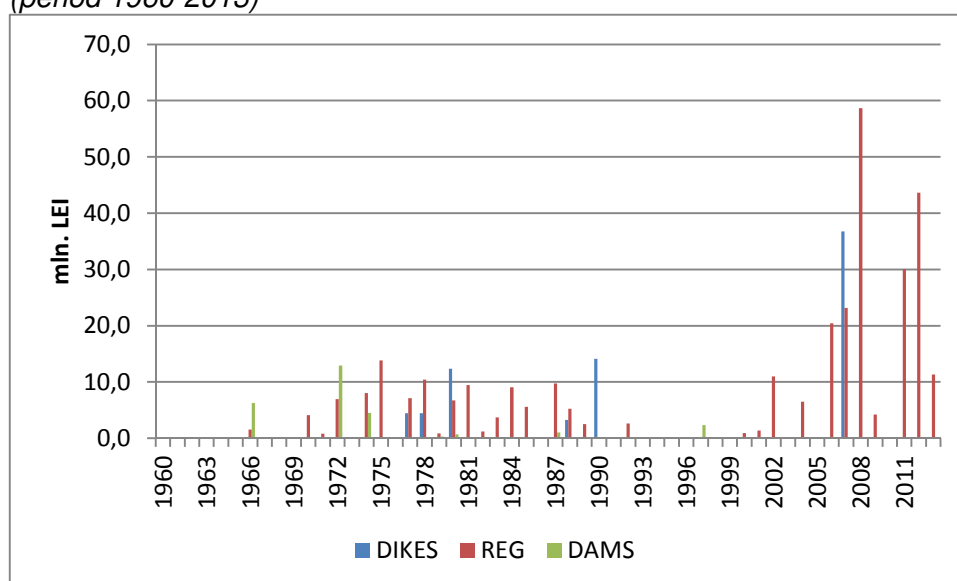


#### 4.3.2 Cost recovery assessment (current situation)

Total investments for provision of flood management services in the Jiu river basin in the period 1960-2013 are presented in figure 4.5. Investment figures for flood prevention services provided include costs of regulation and storage of the surface waters managed by the RBA by means of dikes, dams and regulation works.

Total investment volume in the period 1960-2013 adds up to about 425 mln. LEI. Investments in regulation works are covering the larger part of this amount (321 mln. LEI). whereas investments in dikes and dams are relatively low (respectively 76 and 28 mln. LEI). A significant part of the investments occurred in most recent years, 2000-current, whereas in the period 1970-1990 yearly around 5 – 10 mln. LEI was invested.

Figure 4.5 Investments in flood infrastructure under administration of RBA Jiu (period 1960-2013)



The (normative) recurrent (annual) costs for provision of the infrastructure that include O&M costs as well as administrative costs are calculated at 15 mln. LEI in 2013. Again, from the pilot records on actual annual expenses to reference this number is missing. However, similar to the Somes-Tisa river basin there are insufficient financial resources to meet the “prescribed” O&M-activities and so most urgent O&M is postponed. For the long term, as mentioned, this approach is not sustainable and likely more expensive because insufficient attention to O&M will generally reduce the effective asset lifetime.

At the moment there is no dedicated system for recovering the costs from flood protection-related earmarked benefits. The revenues collected at the RBA level via water charges typically link to water abstraction (raw water price) and discharge (water effluent charge). From this perspective, cost recovery for flood protection as such does not exist. Revenues collected at the RBA-level are first relocated to ANAR and then (re)distributed back to the individual RBA's. As mentioned, the available annual budget at RBA level is lower than needed for good O&M practice, typically around 65%.

#### 4.3.3 Evaluation of scenarios

In general, the RBA Jiu has expressed their preference for the scenario 3 as it resembles mostly with the current situation and taking into consideration that local authorities are not too much involved yet. Implementation of scenario 3 means involvement of MMSC, ANAR, RBA's, county councils and municipalities. Implementation can possibly take place on a medium term period. It was suggested that contributions (levels) can be determined by the county councils and municipalities.

Another possible new tariff was mentioned. At the moment the RBA does not collect any money for the exploitation of flood retention basins. A clear legislation that allows collecting money for the safety against flooding that retention basins are serving is lacking. The protected areas include a variety of localities and economic units and agricultural land. Therefore, a distinction of the target groups that are/will be protected should be made. Two types of tariffs could be used: at the national and at the regional level.



Possible changes are related to the need for changes in the legal framework and this is felt as a burden. The legal framework seems in general complex and it is possible that applicable legislation is not always known to all.

In the future administration plan (government level) more regionalization is foreseen. This could be connected with the implementation of a payment structure.

Different districts mentioned that it is a good idea to involve the local authorities as often problems occur because of the unregistered watercourses. At the local level capacity and knowledge building needs to take place. The needed equipment in case of flooding is not always available on the local level.

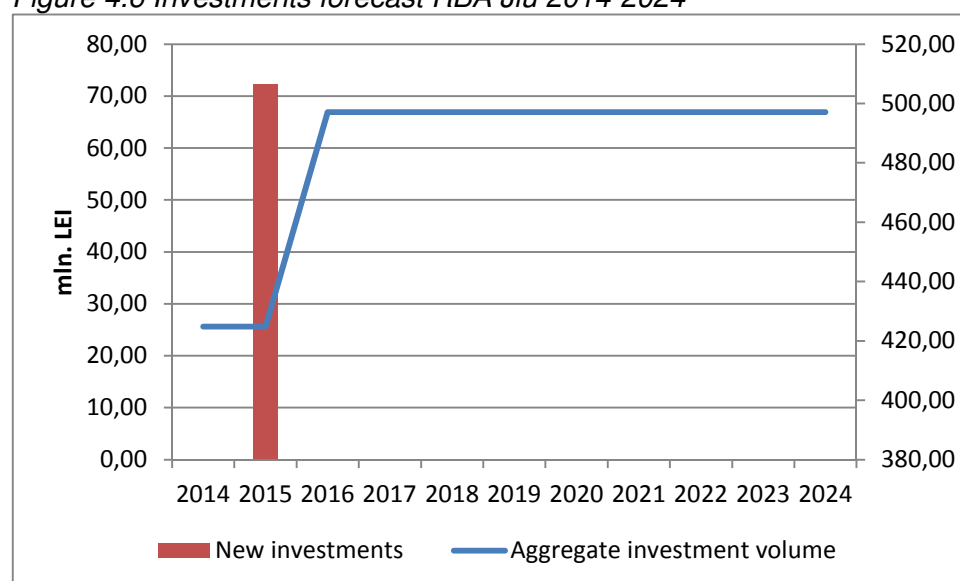
#### 4.3.4 Cost recovery plan (future costs)

##### *Investment plan*

Figure 4.6 presents an investment forecast for the investments in the Jiu river basin for the next 10 years. Basis for the presented forecast are the flood infrastructure investments reported in the River Basin Development Plan (RBDP). At present, investments are planned for 2015 only. These are classified as incremental investments: the investments cause additional costs for the water service provider (as compared to in principle cost-neutral rehabilitation investments). Also visualized in the figure is the aggregated volume invested which, logically, increases with investment expenditures.

The forecast takes into account the most recent information available on needed investments in the upcoming period. It is vital to regularly (annually) update the investment plan to maintain cost recovery at the appropriate level i.c. re-evaluate proposed scale and timing of planned investments and/ or add additional investments considered necessary to the investment plan. As far it concerns the Flood Directive, the need for financial capital will likely increase to cover new investments that are required to meet the standard of protection.

*Figure 4.6 Investments forecast RBA Jiu 2014-2024\**



\* in 2013 prices

### *Financing*

From the above the financing need following rehabilitation of aged and/or development of new flood prevention works in the RBA can be derived. Investments can either be financed by debt or equity (or combination). In the example worked out in this section, debt financing is assumed. Financing need can be estimated by comparing available cash fund to the service provider (from grants, reserves) with the projected investment value.

In the current situation and legislative context in Romania the RBA has to apply for finance at the national level where the investment decision is made. The Romanian state (acting through the Ministry of Public Finance) will provide the financial supplements to cover investment expenditures. The RBA itself is not authorized to borrow money to finance the investments. This means that, as far investments are covered with loans, financing costs currently fall to national government that uses tax receipts as the source of interest payments.

### *Revenue requirement*

Essential step in the cost recovery analysis is the decision on the recoverable costs. The approach to cost recovery can be worked out in a cost recovery plan which defines the competent authority to set charges and the manner of calculating those charges, the costs to include in the recoverable costs and who pays what. Depending on the objectives, and the source and timeframe of funding available, different cost recovery schemes could be considered.

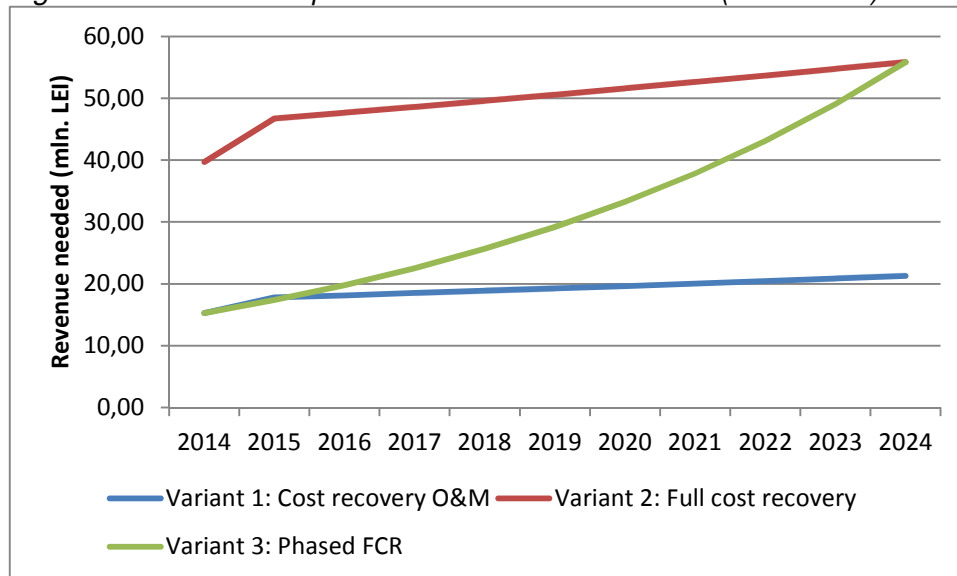
Based on the cost information provided by the RBA the level of revenues was calculated that needs to be generated to be sufficient for covering annual costs, i.e., O&M costs and capital costs.

In paragraph 4.2.4 the 3 variants of cost recovery were presented.

The needed revenues related to variant 1 (cost recovery O&M) increase from approximately 15 mln. LEI in 2014 to 21 mln. LEI in 2024. For variant 2 (FCR) which additionally accounts for the accumulation of capital to reinvest and payment of the debt service, revenues needed increase from 40 to 56 mln. LEI in the period 2014-2024.

It should be noted that in the current situation projected costs are already partly covered by the O&M-budget received from ANAR (filled with generated revenues) and allocation of general state budget (through raised taxes). In fact, the variants help to explicate the costs associated with flood protection in the RBA, whereas not necessarily large volumes of additional revenues are required to cover the costs. For example, assumed that currently 65% of total O&M costs related to maintenance of the flood prevention infrastructure are covered, in fact an additional 35% revenues is needed in variant 1.

Figure 4.7 Revenue requirement RBA Jiu in 3 variants (2014-2024)\*



\* Real prices, inflation set at 2%.

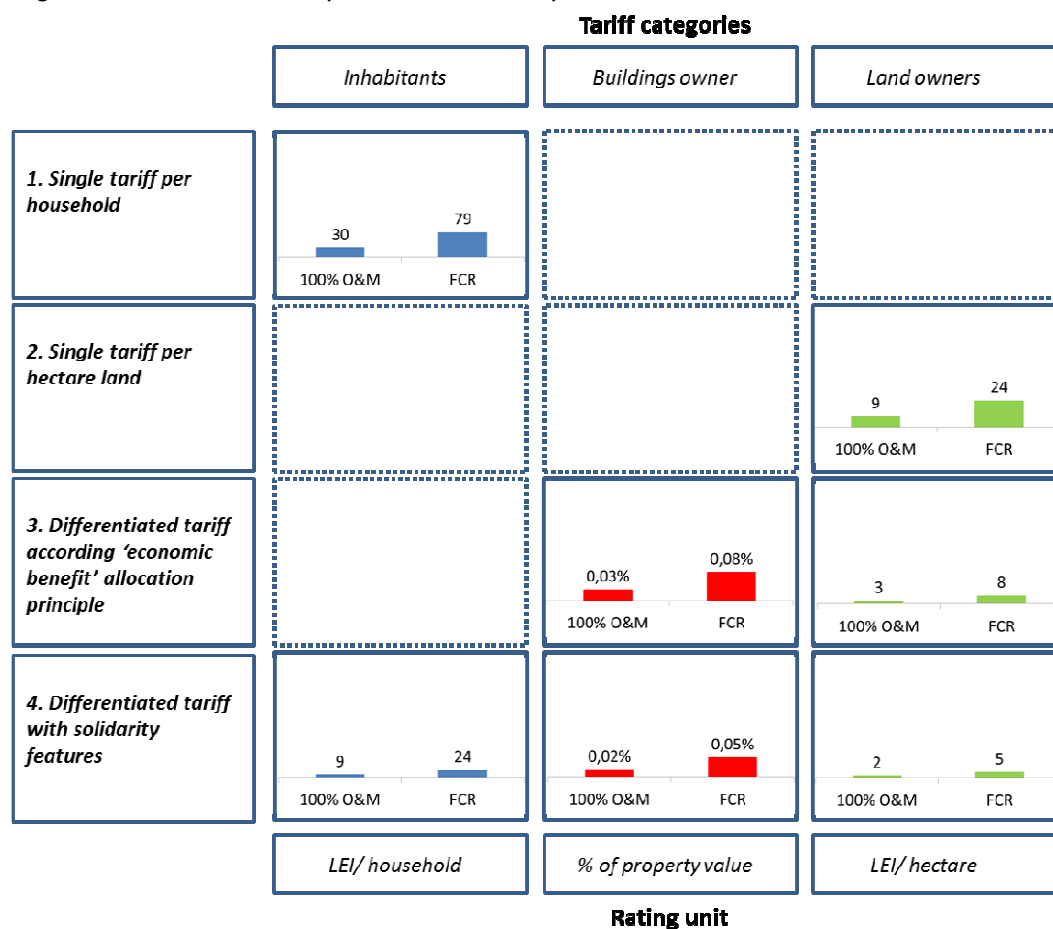
#### 4.3.5 Tariffs

With reference to the presented tariffs alternatives, four alternatives were reviewed:

- **A.1. Single tariff per household:** In this alternative costs are equally distributed among the population living in the Jiu river basin. Simply, a single tariff is obtained by dividing annual costs by the number of households.
- **A.2. Single tariff per hectare land:** In this alternative the tariff is obtained by dividing annual costs by the surface area land in the RBA.
- **A.3. Differentiated tariff according 'economic benefit' allocation principle:** While alternative 1 and 2 do not distinct between user groups within the RBA, in alternative 3 the allocation of costs is based on the economic value of the property (assumed) protected. Within each property category (building and land), costs are shared according to market value.
- **A.4. Differentiated tariff with solidarity features:** Similar to alternative 3 costs are shared among user groups in proportion to the potential benefits generated from good flood management practice. Only, households living in the area are added as a third category to redirect part of the costs from property owners as people living and working in the area who do not own property also benefit. In the example, a 30% 'solidarity levy' is assumed. The quantitative results of the analysis are presented in the figure below. In this figure effective tariff rates for operational (100% O&M) and full cost recovery (FCR) are presented for the four alternatives, for the base year 2014. The alternative approaches consequently lead to large variations in proposed tariff for a specific user group. As more user groups are defined unit prices fall. In alternative 4 costs are divided over the largest number of units and hence the unit tariff the lowest.

The instrument design can be further adjusted to incentive certain effects, to include progressive pricing ('capacity to pay') principles, to exclude all but the direct beneficiary group from payment (e.g. based on protected flood area) or to gain public acceptance (funds must be spent and seen spent on flood prevention).

Figure 4.8 Estimated required 2014 flood prevention tariffs RBA Jiu in 4 alternatives



### Affordability

The results above might be seen as a first step in the discussion for fulfilling the objectives in the WFD with regards to the cost recovery and pricing issue. It is also a good basis for discussions with respect to the implications for affordability. Direct FCR may lead to too high tariffs, people cannot afford. A step by step approach could then be a more desirable and feasible option.

With respect to affordability, a first rough estimate of the financial burden (value fraction) for each user group was derived to explore the possibility to raise flood prevention cost-recovery rates in the RBA.

Statistical information on (disposable) income of households at RBA level is not available, so instead regional (Eurostat) income statistics were used. It can be concluded that the average annual household income in the South-West Romania in 2014 is about 21,758 LEI. For the Jiu river basin we will take the data for South-West Romania as a proxy. Based on this, the flood prevention payment for an average household would range between 0.1 - 0.4% of annual income (for recovery of respectively 100% O&M and FCR from population).

In the above presented alternative 4 in which the costs are spread among a wider group of users, the household income fraction decreases to about 0.04 – 0.11%. In this alternative owners of buildings and land are assumed to absorb an important part of the costs as main beneficiaries. As put forward in figure 4.8 owners of buildings pay 0.02 – 0.05% and land owners 2 – 5 LEI per ha. To put this in perspective the current payment for the property tax on buildings and the land tax in Romania can serve as a benchmark.

The applicable rate of the property tax that is levied on buildings, payable by the owner, typically varies by 0.25% and 1%. The rate of the land tax ranges from 1 to 10 LEI per hectare dependent on the location of the property (urban/ rural areas).

Further investigation in a next step is recommended. The estimate is an average figure based on an approximation of e.g. household income in the region, on a lower regional level the level of income can differ significantly. It is recommended to make a thorough assessment of the maximum amount households and other user groups can spend because the effectiveness of the instrument largely is dependent hereon.

The cost recovery model is supported by an excel file (and manual), that is presented in appendix VII.

#### 4.4 Lessons from the pilots

For the implementation of a future scenario the RBA's Somes Tisa and Jiu identified the following needed changes and requirements (see x):

	<b>National/regional rivers (3)</b>		<b>Mixed, local retributions: national decision (4a)</b>		<b>Mixed, local retributions: local decision (4b)</b>
x	Competences of RBA /other personnel	x	Competences of RBA /other personnel	x	Competences of RBA /other personnel
x	More formation of personnel	x	More formation of personnel	x	More formation of personnel
x	Training of personnel	x	Training of personnel	x	Training of personnel
	Awareness of flood protection task	x	Awareness of flood protection task	x	Awareness of flood protection task
x	Transparency	x	Transparency	x	Transparency
x	Cooperation	x	Cooperation	x	Cooperation
x	Culture in organizations	x	Culture in organizations	x	Culture in organizations
x	Integrity in organizations	x	Integrity in organizations	x	Integrity in organizations
x	Budget for other organizations		Budget for other organizations	x	Budget for other organizations
x	Equipment for other organizations		Equipment for other organizations	x	Equipment for other organizations
x	Communication with public	x	Communication with public	x	Communication with public
	Other		Other	x	Other

Different control mechanism need to be put in place, continued or improved. For example, internal/external auditing of the quality of flood protection is needed. There is already some kind of auditing system put in place, this has at least to be evaluated or redesigned when a new system will be implemented.

## 5 Conclusions and recommendations

### 5.1 Conclusions

It can be argued that it's a state responsibility to safeguard citizens and property, to prevent society from extreme damage and to determine acceptable risks. Flood protection activities are based on risk analysis. Based on the balance between costs and benefits of investments in flood prevention, safety norms are determined. In Romania, the determination of safety norms is still on the way.

The WFD requires the design of a cost recovery model related to water services. In the broad interpretation of the concept, flood protection could be defined as a specific water service. In that case, water policy should enclose elements of cost recovery for flood protection in accordance with the polluter pays principle. Tailoring present water pricing policy to more explicitly link costs and benefits stimulates and promotes sustainable financing.

The local legislation is updated according the requirements of the FD and WFD, however, a compatible financial mechanism is not yet present. Flood protection is not yet accounted for in the contribution/revenue system of ANAR. Costs are covered by general budget rather than by earmarked service charges. Although in a stable political and economic situation the risk of financial instability might be low, if the tide turns there might be budget issues. Also, as a whole, such a system does provide incentives for behaviour change.

In the project, knowledge on the current state was developed in order to explore and assess the feasibility of specific cost recovery options for flood protection services offered by ANAR. It can be concluded that at present there is a significant gap between annual costs and revenues related to flood protection services by ANAR/ RBA's. Total revenues are less than 65% of the required budget for adequate O&M, and the gap is expected to increase over time as a result of increasing costs and decreasing revenues. If revenues were to be divided by the full (financial) cost (including capital costs), the cost recovery rate would drop to about 45%.

Even so, the data allows for indicative analysis only on national and regional (RBA-) level. Whereas the data about past investments seem accurate and complete, the information on investments in the immediate and short term future is not exhaustive. Partly because the FD related investments are not determined yet. It is also needed to evaluate the current state of the assets in order to project future rehabilitation works. Furthermore, only investments in flood prevention works under administration of ANAR have been taken into account hence leaving out investments by other actors. Finally, cost allocation is an issue, given the difficulty in interlinking the purpose of the assets and financial expenditures.

The cost recovery framework gives an opportunity to clarify the technological and economical needs balanced against acceptable costs, risk profiles, necessary investments and a balanced partition between individual, local and national contributions.

The NL organization related to flood protection with division of responsibilities between the national and the regional level resembles the proposed scenario 3 for Romania. The Dutch water system levy as decentralized instrument of the regional water authorities can serve as an example for Romania as revenues are collected at the local level where policy guidelines are given on the national level and the actual setting of the tariff levels

is done on local level. The approach in the Netherlands is a result of years of experience and compared to the current situation in Romania it would take a considerable period of time to implement this instrument in a comparable way.

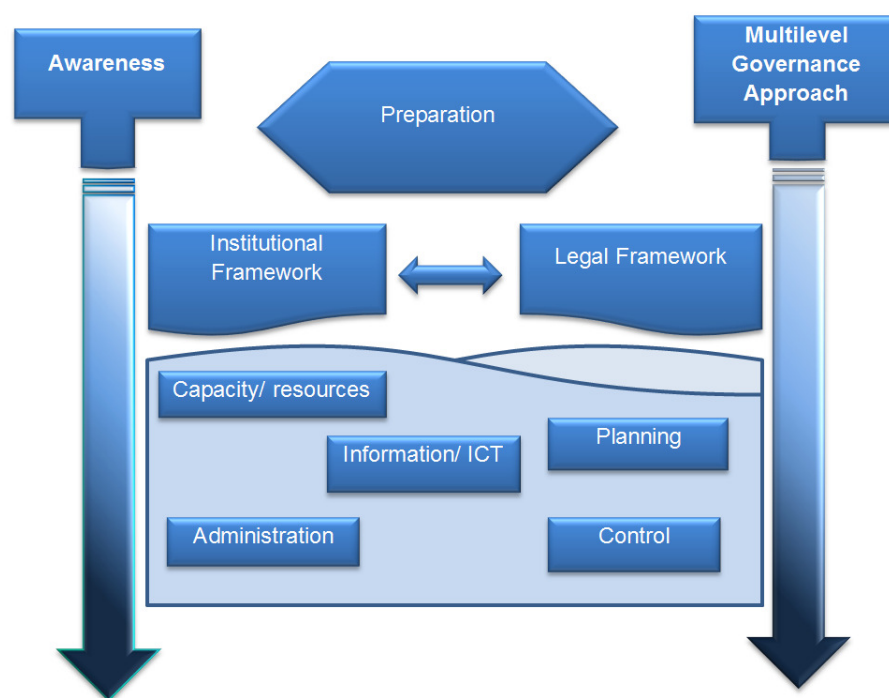
## 5.2 Recommendations

### *Cost recovery plan*

Related to the process of the way forward to implementation of the proposed cost recovery framework, there are different aspects and principles to consider and mainly a process of change is needed. It can be the right moment for this process of change. Flooding is high on the political agenda because of occurring floods and the fact that the first results of the risk maps have recently been shared with the media and the public. So, this was the first step in creating awareness about flooding topics.

In the flowchart below the different steps for the introduction of a cost recovery scheme for flood prevention are illustrated.

Fig. 5.1 Flowchart implementation of the cost recovery framework (source: project team)



Three periods in time are considered:

- Short term (till 2020)
- Mid term (2020 – 2030)
- Long term (after 2030)

Explanation of the different steps/phases:

### **Preparation**

This phase is very important to determine the future implementation strategy. A dedicated team (on work and on political level) should be formed to be responsible for this process.

The following activities need to take place:

- Information sharing with stakeholders in and outside of ANAR to create a mutual level playing field.
- Reflection on the process of change that is needed.
- Choice of final scenario to implement (3 or 4).
- The evaluation of the current tariff system/ service level of flood protection and the choice of a future tariff system.
- Training of the staff of ANAR and the RBA's to be able to work with the cost recovery framework as to build up the needed data set for up to date insight in the financial gap and determine the tariff level. It is possible to use the principle of 'train the trainer' for this.

#### **The tariff instrument and system**

To achieve sustainable cost recovery well-designed tariffs are crucial. To obtain the tariff, the financial model at RBA level developed in the project can be used to determine the yearly gap. The following requirements need to be taken into account:

- Tariffs levels should not be kept artificially low as this can hurt long term sustainability of providing services for all;
- Tariff setting requires reconciling policy objectives through an appropriate process;
- Access and affordability constraints need to be defined regionally/ locally.
- The criteria of affordability need to be defined (often % of household income) and instruments can be developed to help low income groups.

Regarding to the Romanian demographic and macro economic data, the following information should be considered:

- The population of Romania is slightly decreasing and there are substantial regional differences in population density.
- About half of the population lives in the rural and the urban areas.
- There are regional differences in income: around Bucharest are the highest incomes. The west and the center of the country follow, after that the north west and the southern region, where the differences are small. In the North East (RBA Prut Barlad region) of the country the incomes are the lowest.
- Optimistic expectations of economic growth: 2,5 - 3,5 %.
- There are increasing agricultural incomes due to increase of exports.
- The percentage of housing property owners is quite high: > 90%.

In general tax collection can be improved. The property tax is reasonably accepted and the collection is done by the local municipalities. In appendix VIII detailed information about private housing and property tax is included.

For the short term, it could be most practical to take small steps and gain more revenues for the task of ANAR, so the budget for operation and maintenance can increase (scenario 1). This could probably for the coming years (short term) give some financial relief. This can be done by:

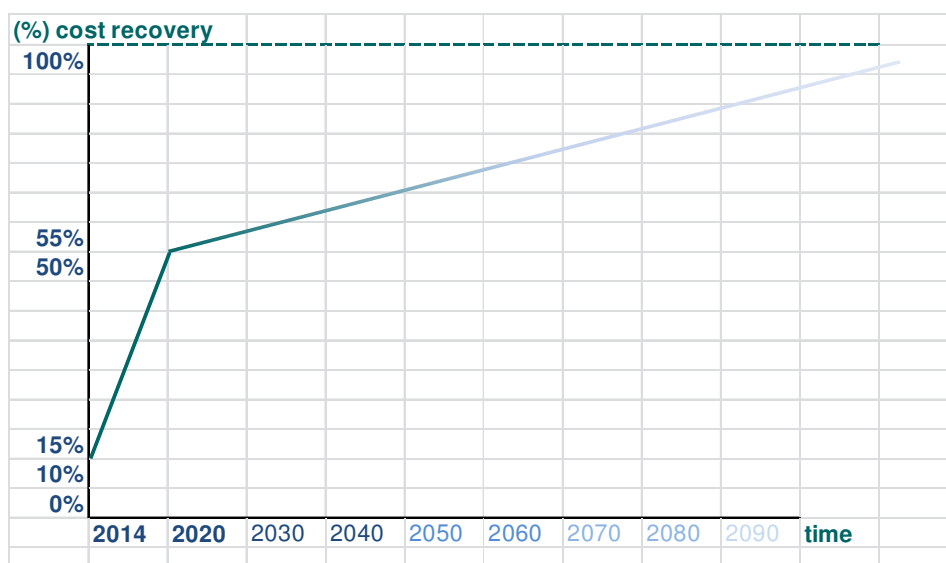
- Increase of the current contribution tariffs (not a high political commitment expected).
- Introduction of flood protection contribution by ANAR (governmental decision is needed).
- Finding more clients (retention basins, irrigation works, see chapter 2).
- Improving efficiency.

From this situation further development towards scenario 3 or 4 can be prepared.



In the following graph this approach is summarized. Short term: increase of O&M to 100%, mid and long term: recovery of other costs i.e. depreciation, capital costs, ...

Fig 5.2 Cost Recovery: phasing of implementation (indication)



The result of the preparation phase should be a go/no go for the following steps forward. In implementing any new system it should be clear that after a decision has been taken, elaboration takes time. So, during the preparation time (coming months) a good approach to phase the implementation of a new system can be found.

Formulation of some different business cases can support the implementation process.

### **Legal framework**

The legal/policy framework needs to get prepared/changed to make the implementation of the cost recovery framework possible.

The legal gap related to the cost recovery framework for flood protection refers to the following considerations:

- The aspect of cost recovery related to the flood protection task is integrated into the water law with ANAR as responsible institution.
- The service level related to flood protection or the flood risk safety norms.
- The flood emergency policies are further developed than the flood prevention policies.

A scoping study for recommendation on the legal framework for decentralized flood management and cost recovery is needed to further elaborate the actions mentioned in the cost recovery plan.

The legal framework must be adjusted to make implementation of the framework possible. The legal policy changes of the preferred scenarios 3 and 4 are summarized (not limited) in the following table:

	National/regional rivers (3)		Mixed, local retributions: national decision (4a)		Mixed, local retributions: local decision (4b)
X	National water law: More autonomy for RBA's	X	National water law: More autonomy for RBA's	X	National water law: More autonomy for RBA's
X	Governmental decisions: legal basis for flood protection contribution.	X	Governmental decisions Legal responsibility of RBA's for regional rivers, non registered watercourses	X	Governmental decisions Legal responsibility of RBA's for regional rivers, non registered watercourses
	Governmental ordinances		Governmental ordinances		Governmental ordinances
X	Guidelines	X	Guidelines	X	Guidelines
	SLA's*	X	SLA's*	X	SLA's*
	Delegation	X	Delegation because of flood protection task	X	Delegation because of flood protection task
	Mandates		Mandates		Mandates
	Related laws/policy: landuse, spatial planning		Related laws/policy: landuse, spatial planning		Related laws/policy: landuse, spatial planning
	Other, Change in financial laws?		Other, Change in financial laws?		Other, Change in financial laws?

\* Service level agreements

The new released risk maps, including the definition of service level or flood protection thresholds (safety norms), should support the introduction of a new financial system in order to sustain the floods protection activities. They can also function as an incentive for communication with other stakeholders in order to improve awareness, mutual cooperation and governance related to flood protection.

### ***Institutional framework***

The institutional framework determines which institutions are and will be involved in the task of flood protection and the related cost recovery.

The institutional framework is more complex for scenario 4, compared to scenarios 3 as local institutions will get involved. The result is presented in the following table:

	National/regional rivers (3)		Mixed, local retributions: national decision (4a)		Mixed, local retributions: local decision (4b)
X	MMSC*	X	MMSC	X	MMSC
X	ANAR	X	ANAR	X	ANAR
X	RBA's	X	RBA's	X	RBA's
	County councils	X	County councils	X	County councils
	Municipalities	X	Municipalities	X	Municipalities
	Other		Other		Other

\* Ministry of environment and climate change

Evaluation of the current flood protection tasks of the unregistered water courses (awareness, administration, cost recovery) is needed.

A good solution is also needed for prevention of flooding caused by (lack of maintenance of) the unregistered tributaries for which the local level have responsibilities that should be taken into account more seriously. A start can be to raise awareness at the local authorities by involving them in this subject and start building up a database with all needed information to professionalize this task on the local level. ANAR can play a role in this.

### **Capacity/resources**

The following capacity and resources can be needed for successful implementation:

- Human capital.
- Equipment.
- Capacity building.

	National/regional rivers (3)		Mixed, local retributions: national decision (4a)		Mixed, local retributions: local decision (4b)
X	Competences of RBA /other personnel	X	Competences of RBA /other personnel	X	Competences of RBA /other personnel
	More formation of personnel	X	More formation of personnel	X	More formation of personnel
X	Training of personnel	X	Training of personnel	X	Training of personnel
	Cooperation		Cooperation		Cooperation
	Culture in organizations		Culture in organizations		Culture in organizations
X	Integrity in organizations	X	Integrity in organizations	X	Integrity in organizations
	Budget for other organizations		Budget for other organizations		Budget for other organizations
X	Equipment for other organizations	X	Equipment for other organizations	X	Equipment for other organizations
X	Communication with public	X	Communication with public	X	Communication with public
	Other		Other		Other

The needed resources are more extensive in scenario 4, compared to scenario 3 as more institutions are involved and need to implement a change process.

### **Control**

Control mechanisms and supervising are needed to create transparency and accountability. With a CRF in place, the paying beneficiaries have the right to know and understand how the collected revenues are spent.

Examples of control mechanisms are:

- auditing of execution of the flood protection task;
- accountants check on financial reporting;
- enforcement of existing legal requirements;
- monitoring;
- benchmarking;
- evaluation.

Of course existing control mechanisms can be used or extended for this purpose.

### ***Administration***

A good administration system should be put in place to enable adequate projections of multiyear operating budgets required for execution of the flood prevention task, from which also the rates for the service will be derived. It should allow to repeat the procedure regularly (each year), so to resemble the actual situation with regards to supply costs, income level, tax base, affordability etc. In reference to the current accounting system, it is important to regularly evaluate the status of the assets as to include accurate information on the (remaining) lifetime and to specify the flood prevention-related costs in the overall costs.

Administration also relates to administrative boundaries that might need re adjusting to create an effective way of working.

### ***Financial administration***

The period of EU support for investments for flood protection is guaranteed until 2020. It is important that financial resources are available on the longer term. If possible, the financing flows/money streams for water management/flood protection should be insulated from political interference. In the current system this is not the case as political management of governmental institutions is the common practice.

It is also important to consider perception costs. Cost recovery is only appropriate where benefits outweigh start up and monitoring costs of administering tariff collection. Benefits of a cost recovery scheme could be higher efficiency in operation and quality of service. Also legitimacy and subsidiarity should be considered: is there a role for the government and what is the appropriate government level: national, regional or local level.

### ***Information/ICT***

The development of physical (infrastructure), socio-economic, financial (CRF) and institutional water information systems on flood protection is needed to support decision makers. (databases,...). Information systems are already put in place on the level of ANAR and the RBA's. Attention is needed for their coherence, consistency, reliability and public disclosure (transparency) as well as to their costs and benefits. At first, assessment of existing information systems (at ANAR, RBA's) and accountability procedures can take place, after which the information gap can be determined.

As more institutions are involved in scenario 4, the information need is more intense and complex than for scenario 3 and information needs to be shared between more institutions. In case of scenario 4b it is of course needed to have a good information system of the different beneficiary groups.

### ***Planning***

The whole process of the policy planning, the planning of infrastructure up to the planning related to emergency situations needs assessment and possibly improvement.

### ***Awareness about (the costs of) flood protection***

During the whole process awareness of involved stakeholders is very important. The relevant question is if stakeholders, such as the population, farmers, companies and environmental NGO's, are adequately involved in water management, at policy or at project level?

Public awareness and awareness of public is needed to inform the population and all stakeholders about the need to start paying to remain protected against flooding. This can be a combination with the awareness campaign that is foreseen in the communication of the results of the risk maps with the RBA's and the public. Stakeholder involvement should be added or further developed as a modern principle. It can

contribute to a stable system, a system supported by the population where it is in fact made for. This can be connected to the existing river basin committees. Referring to the press release on the presentation risk maps that took place in the beginning of April, this was a first step.

Some success factors for a good awareness campaign are:

1. A sense of ownership and autonomy related to an initiative.
2. Respect from and personal contact with decision makers.
3. The feeling to be able to influence politics.
4. Small scale (local service level and getting to know local infrastructure/measures).
5. A good, simple and clear legal framework.
6. Sufficient information (the whole complex picture of flood protection).
7. Objective and active press/media.

It is important not to convince but to consult, a balanced cooperation between ANAR and the RBA's and local and regional authorities is needed for this. As this is a multi-actors situation it is important that roles and responsibilities are clearly defined for all parties involved and clearly communicated.

On the other hand, it could be an asset to invest in local initiatives. Participation of citizens is an innovative approach in the world of governance and sharing responsibility can be a re-enforcement of government authority. A comprehensive analysis is recommended to evaluate the population perception related to the flood risks especially but not restricted to high risk areas.

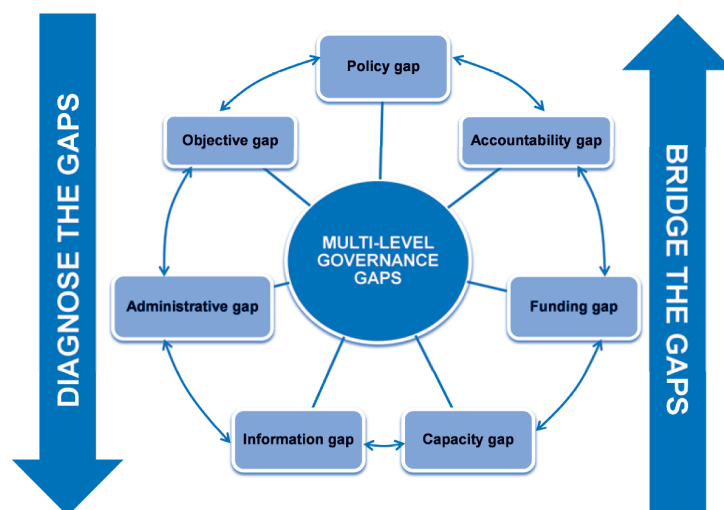
Based on the results of this assessment further steps must be elaborated for a **comprehensive communication campaign** to also include communication of the option chosen by the Romanian authorities for the cost recovery scenario. Taking into consideration the stronger impact of the flash floods, the messages that will be created should be adjusted to integrate any type of flood events and help increasing the common knowledge on issues such as: interdependencies between big and small water courses, the impact of deforestation, the effects of the climate change or public and personal (local and central) responsibilities in living with water, building responsible, etc. Layers of communication should be defined engaging various types of stakeholders throughout the process with a bottom-up approach and clear messages formulated and conveyed in a creative and attractive manner. It is worthwhile to try it out for the innovation of the Romanian water sector. It could be developed as a pilot and extended at regional/national level using EU support (democratic innovation and sustainable development). A separate proposal for this can be prepared by the project team.

### ***Multi level governance approach***

The OECD multi-level governance framework (OECD 2011) can help as in this way an analysis can take place of the 'roadmap' that needs to be taken into consideration. This analysis can lead to recommendations for the Romanian situation where the multi-actors presence in the field of flood protection raise challenges as regards the definition of services and the general perception of responsibilities in prevention and intervention which can become a potential source of bottle necks in the implementation of a cost recovery model in the absence of a clear framework.

This framework is summarized in the following scheme:

Figure 5.3 The OECD Multi-Level Governance Framework



Source: OECD (2011), *Water Governance in OECD Countries: A Multi-Level Approach*, OECD Studies on Water, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264119284-en>.

This figure illustrates seven different categories of ‘gaps’ that have to be faced when designing and implementing water policy. Most aspects are addressed in the implementation process. Periodical auditing of the progress on these aspects can help to keep on track.

### Other

We advise to evaluate/audit the execution of tasks and risks related to flash floods in more detail and define a strategy for improvement of which a dedicated cost recovery model can be a part. Unfortunately flash floods are causing severe flooding risks. ANAR has the expertise to forecast, assess and monitor the situation also at local level and to elaborate scenarios for critical situations in local conditions. Consequently ANAR should be a technical adviser for the local authorities to support them in taking (political) decisions related to prevention of flooding and not only in emergency cases, after the damage has already been done. Making use of this expertise at local level will increase the success of implementing an effective cost recovery model.

A feasibility study can be done on flood insurance as adaptation instrument.

Besides development of a cost recovery framework it is also wise to practically connect the spatial planning as an instrument for the land use with the water management/flood protection task. In this way the probability of damages because of flooding can be diminished because building in high risk/vulnerable areas can be prevented. At the same time flood protection should be made a chapter in the strategies for local development as part of an integrated approach the local authorities should commit to. For this, an open dialogue of ANAR and the Ministry of Environment and Climate Change with the Ministry of Regional Development and Public Administration must be kept. The risk maps should be the basis for this dialogue.

It is also very important that the adequate evacuation strategy (currently in the responsibility of the Ministry of Internal Affairs), stays in place and gets evaluated periodically according with EU regulations transposed in the national legislation.

The current project focused on the elaboration of a general framework for income collection suitable for Romania’s conditions and testing it for the specific conditions of 2 basins with very different economic, social and environmental profiles. The central government authority should be the driving force for the further implementation of a cost

recovery framework for flood protection adjusted to Romania's conditions. ANAR can provide the technical support facilitating the processes.

The success of an efficient model at national level is based on extended analysis for all RBA's as well as an analysis of the national system of tax collection and distribution. The involvement and consultation of relevant stakeholders at local and regional level and sustained awareness campaigns addressed to all levels of the society (population, businesses, authorities) for stimulation of contributions at individual level, will further create the path to practical implementation.

## **6 References**

1. Managing water for all, an OECD prospective on pricing and financing, 2009
2. Water governance, brochure Dutch water authority association, 2010
3. The report of Equilibrium Europe II, June 14, 2010
4. OECD, water governance in OECD countries: A multi-level approach, OECD studies on Water, OECD Publishing, 2011.
5. Project proposal, September 2012
6. Pilot preparation document, April 2014
7. Pilot report, July 2014
8. OECD, water governance in the Netherlands: Fit for the Future? OECD studies on Water, OECD Publishing, 2014.



## COLOFON

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Client	: Apele Romane (ANAR)
Project	: Final report
Size report	: 65 pages
Author	: mrs. J. van Dijk, mr. M. Wienhoven, mr. L. Beumer, mrs. F. Nanu, mr. J. Eigeman
Project Manager	: mrs. J. van Dijk
Date	: November 10, 2014

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## Appendix I Text Chapter V Water Law

### **‘Art. 80**

- (1) Water represents a natural resource having an economic value, in all its forms of use. The conservation, reuse and saving of water shall be encouraged through *economic incentives*, inclusively for those which demonstrate a permanent concern for protecting the quantity and quality of water, as well as through implementing penalties to those who waste and pollute the water resources.
- (2) The specific economic mechanism for the quantitative and qualitative water management shall include the payment system, allowances and penalties as part of the financing practice of the water management system development and of ensuring the functioning of the Self-Managed Public Company “Romanian Waters “ based on economic principles.
- (3) The methodology of substantiating the payment system in the water field, as well as the procedure for its elaboration shall be established by the Ministry of Waters, Forests and Environmental Protection, with the agreement of the Ministry of Finance.
- (4) The payment system stipulated in paragraph (2) is based on the precept: *the beneficiary pays*, according to the provided services and to those services related to the rational use of water resources, which ensure:
  - a) economic stimulation of the sustainable water use and of the water quality protection;
  - b) territorial differentiation of prices and tariffs, on categories of sources and users, as a result of the different water supplying conditions, as long as the system can ensure balanced incomes and expenditures;
  - c) correction of the level of prices and tariffs depending on the general dynamics of prices;
  - d) transmittal to the users of economic influences resulted from the activities of providing water sources, from the quantitative and qualitative point of view;
  - e) minimization of production costs, through economic stimulation of the price, for the purpose of ensuring the maximum social profit; f) reflection of the water flow and volume demand into the water prices.

### **Art. 81**

- (1) The payment system, the allowances and penalties specific to the water management activity shall be implemented to all water users.
- (2) The provisions of paragraph (1) shall not be applied to the water transited for navigation, on the artificial navigable ways, as well as to the natural persons using the water, pursuant to Art. 9, paragraph (2).
- (3) The Self-Managed Public Company “Romanian Waters“ shall be the only supplier of water directly drawn off from surface water sources, natural or artificial, regardless of the holder of any title of the structure, and from underground water sources, except for the geothermal waters, as well as of products and services specific to water management, on the basis of agreements concluded for this purpose.
- (4) For the activities mentioned in paragraph (3), the Self-Managed Public Company “Romanian Waters“ shall be the only one entitled to implement the payment system, specific to water management activity.
- (5) For the treated supplied water, or for water management services, other than the specific ones, the supplier or performer shall be those juristic or natural persons, that, as appropriate, are in charge with the administration of hydraulic works or perform water management services.

### **Art. 82**

- (1) The allowances shall be granted to those water users that shall demonstrate a permanent concern for the rational use and for the protection of water quality, discharging together with the treated waste waters pollutants of concentrations and in quantities that are smaller than those stated in the water management license.

- (2) The penalties shall be applied to those water users, for which violations are found from the provisions of the agreements stated in Art. 81, paragraph (3), for exceeding both the quantities of drawn-off water, the concentrations and quantities of discharged pollutants.
- (3) The Self-Managed Public Company “Romanian Waters” is the only authority entitled to identify the cases for which allowances shall be granted or penalties shall be applied. The allowances shall be granted with the approval of the Ministry of Waters, Forests and Environmental Protection.

#### **Art. 83**

The system of payments, allowances and penalties, as well as the categories of water management products and services shall be established by governmental decision.

#### **Art. 84**

- (1) For the purpose of participating in the financing of investments for works and measures with a significant contribution to the improvement of the insurance of the water supply sources, to the water quality protection, as well as to the expenditures required for studies and applicative researches in the water field, a special fund, not included in the state budget, called the *Water Fund*, shall be constituted.
- (2) The Water Fund comprises the taxes and tariffs for the permitting and licensing services, established according to the law, as well as the penalties stipulated in Art. 82, paragraph (2).
- (3) The Water Fund is managed by a separate budget, developed by the Self-Managed Public Company “Romanian Waters”, and approved by the Ministry of Waters, Forests and Environmental Protection, which establishes also the methodology for the forming of this budget, with the agreement of the Ministry of Finance.
- (4) The Water Fund, together with other sources, shall be used for the financial support of:
  - a) the accomplishment of the National System for Quantitative and Qualitative Water Resources Surveillance;
  - b) the endowment of laboratories, transmissions and informational networks related to the National System for Quantitative and Qualitative Water Resources Surveillance;
  - c) the participation for the realization and modernization of the waste water treatment plants and installations in order to improve the quality of the water resources;
  - d) the accomplishment of public works of local interest with a significant social effect and for which the local authorities do not have sufficient financial resources;
  - e) the accomplishment of public works regarding the prevention and control of floods, works of intervention, prevention and control of natural calamities caused by the excess or lack of water;
  - f) the provision of the hydrological informational operative decision-making system in the water management field;
  - g) the elimination of destructions or the safety of the hydraulic structures of national or local interest, such as dams, embankments, etc.;
  - h) the accomplishment of protection works of the river basins against clogging;
  - i) the accomplishment of studies for the purpose of identifying the evolution and administration of the water resources;
  - j) the granting of allowances to those with significant results in the protection against the depletion and degradation of the water resources;
  - k) Basin Committee activities.

#### **Art. 85**

The financing of investments regarding water management works, structures or installations shall be ensured, totally or partially, as appropriate, from:

- a) the state budget or local budgets, for works declared of public utility, pursuant to the law;
- b) the water users' funds;
- c) the development fund of the Self-Managed Public Company “Romanian Waters”;

- d) funds obtained through credits or issue of bonds, guaranteed by the Government or the local public authorities, for the works of public utility or for partnership associations wishing to carry out such works;
- e) the Water Fund.'

Source: Law No. 107/September 25, 1996, Water Law, CHAPTER V.

## **Appendix II National strategies related to flood protection**

### **National Strategy for Flood Risk Management on a Medium and Long Term 2010 - 2035**

#### ***Purpose***

The strategy for flood risk management on a medium and long term aims to develop and implement an array of actions both at national and basin level, such as plans, programs, policy frameworks, coordination, facilitation, activities that increase the awareness and strengthen the social resilience, and at a local level, such as education programs for people living in risk areas, training programs, regulation through local flood protection plans, reports, forecasts, warning and information systems for the population located in areas with flood risk. In addition, the strategy takes into consideration the insurance programs, the risk evaluations, and the financial and rehabilitation mechanisms.

#### ***Objectives***

- Economic, aimed both at the protection of existing economic infrastructure offering security against flooding and at the insurance of economic opportunities for future generations.
- Social, aimed at the protection of the human population and communities by ensuring an acceptable level of protection against flooding and increasing the ability of the communities to develop under assumed flood risk conditions (increasing the resilience).
- Environmental, aimed at the achievement of the socio-economic goals set up in this strategy while maintaining a balance between the economic and social development and the environmental objectives.

#### ***Quantifiable targets for 2035***

- Gradually reducing the flood risk areas from floods with flows having an overflow probability of 1% with 61% compared to 2006, with compensatory measures for the retention of specific water volumes;
- Reducing the persons exposed to flood risks from floods with flows having an overflow probability of 1% with about 62% compared to 2006;
- Decreasing the social vulnerability of communities exposed to floods - 50% within 10 years and up to 75% in 30 years;
- Gradually reducing the flood damages to the stream crossing infrastructure compared to 2006 by 80%;
- Rehabilitating the areas with high vulnerability / annually relocating at least 400 km of flood protection embankments;
- Increasing the transport capacity of the main stream riverbeds with at least 30%, through maintenance measures in clogged areas and river restoration to it is original state;
- Correlating the riverbed management works with the fitting of the slopes in all river basins and sub-basins;
- Amending the regulations for the operation of multiple-use reservoirs, establishing a better correlation between the volumes of water required by utilities and flood mitigation, increasing the mitigation capacity by 20%;
- Annually rehabilitating 20 km of large river deviations;
- Rehabilitating under the Action Plan at least 80% of the dams and reservoirs that have an important role in the flood control;

- Reducing the areas with strong and excessive erosion by 50% - reforestation measures in catchments will be implemented in order to reduce runoff and for soil conservation purposes - with 50,000 ha of forests.

**Total cost of implementation (2010-2035): 17,463.55 million €, out of which:**

- 7,110 million € - Strengthening the flood defense capacity
- 1,000 million € - Funding and compensating measures
- 900 million € - Improving and maintaining the defense structures
- 663.4 million € - Reducing the vulnerability of the transport and technical-urban infrastructure
- 30 million € - Reducing the vulnerability of the agricultural land
- 3.5 million € - Reducing the vulnerability of the environmental infrastructure

### **Central public authorities involved in the implementation of the strategy**

#### **1. Ministry of Environment and Climate Change (MMSC)**

The measures and actions that must be included in the activity of the MMSC are the most important for flood risk mitigation and damage reduction. According to the organization and the current legal framework, MMSC has the following specific responsibilities in the flood risk management, as preventive measures and actions:

- Supporting the introduction of an insurance scheme against flooding for people and goods, actively contributing to the reduction of potential damages by excluding or limiting exposure to excessive risk and making bearable the living conditions under the risk of floods;
- Regularly analyzing and increasing the degree of protection provided by the existing protection systems;
- Developing and implementing in accordance with the law: feasibility studies and projects of national interest on the hydro-technical infrastructure, administered by the National Administration "Romanian Waters" and aimed at reducing the peak hydrographs of the flood waves, and other projects that target the population and property protection against floods and the riverbed management;
- Providing funding for flood defense works of national interest through the National Administration "Romanian Waters" (ANAR);
- Drafting laws and providing funds for the afforestation of degraded lands, establishing forest protection belts, planning of the torrential watershed / managing deforestation;

#### **2. Ministry of Agriculture and Rural Development (MADR)**

MADR has the following specific responsibilities in regards to the flood risk management:

- Drafting laws and ensuring the funding of agricultural land zoning;
- Introducing sustainable agricultural practices;
- Identifying areas affected by soil erosion and the necessary measures for its mitigation;
- Maintaining the proper working conditions for the drainage and flood protection systems.

#### **3. Ministry of Internal Affairs (MAI)**

MAI promotes the legislation to finance in case of emergency the rehabilitation of the socio-economic objectives administered by the municipalities affected by floods.

#### 4. Ministry of Transport (MT)

MT is involved in the flood risk management by ensuring the necessary funds for executing the protection works for the transport infrastructure and for restoring the affected ones, as provided by the River Basin Master Plans and subsequently by the Flood Risk Management Plans.

#### 5. Ministry of Regional Development and Public Administration (MDRAP)

The main responsibility of MDRAP in the flood risk management is the development and homogenization of laws regarding human settlements, including the areas subject to flooding.

#### 6. Ministry of Health (MS)

MS is involved in the flood risk management through the ministry departments, the Emergency Operations Centre and the subordinated sanitary units.

#### 7. Ministry of National Education (MEN)

MEN is involved in the implementation of the national strategy for flood risk management by:

- Conducting research and development projects aimed at flood risk mitigation;
- Promoting and supporting the implementation of projects and programs aimed at the training of children and young people towards a responsible attitude on flood risk.

#### 8. Ministry of Economy (ME)

ME aims to ensure the financing of investment programs for the hydropower plants which also have an important role in the flood risk mitigation.

#### 9. Ministry for Information Society (MSI)

MSI provides the functioning of necessary communication links in emergency situations caused by floods.

#### 10. Ministry of Public Finance (MFP)

MFP is involved in the implementation of the national strategy by:

- Approving the technical and economic indicators from the feasibility studies for investments aimed at flood risk management done either with public funds, subject to Government approval, or with external loans contracted or guaranteed by the state, regardless of their value;
- Developing economic mechanisms aimed at providing the necessary funds in order to increase the safety and to develop new works with a role in flood risk management.

### ***Other institutions, authorities and businesses involved in the implementation of the strategy***

#### 1. National Administration "Romanian Water" (ANAR)

ANAR is involved in the flood risk management mainly through its river basin departments by:

- Properly maintaining the water courses, according to the law;
- Maintaining the integrity and functionality of the administered flood protection infrastructure;
- Establishing inventories of materials and flood defence mechanisms for the managed hydraulic structures;
- Restoring the administered works affected by floods;
- Proposing new protection works against flooding and optimizing the existing ones.

## 2. National Institute of Hydrology and Water Management (INHGA)

INHGA has the following responsibilities in managing flood risks:

- Developing hydrological forecasts and issuing hydrological warnings;
- Participating in the development of hazard maps and flood risk maps;
- Developing the guidelines in regards to the river basin management and planning.

## 3. National Meteorology Administration (ANM)

In terms of flood risk management, ANM has the following responsibilities:

- Providing weather surveillance;
- Developing forecasts and issuing weather warnings on different time intervals;
- Maintaining web applications to disseminate weather data and warnings, including cartographic products on temperature and precipitation, radar images for areas affected by hazardous phenomena, data models, etc.

## 4. National Administration of Land Reclamation (ANIF)

ANIF as the main owner of the flood defence systems and the drainage facilities along the Danube is involved in:

- Maintaining the managed facilities for internal water drainage, flood defence and soil erosion control;
- Providing high capacity pumps for the accumulated water in flooded agricultural areas;
- Developing flood defence plans for the hydro systems placed near Danube and the defence works located on rivers as a separate section in the county flood defence plans;
- Establishing the inventories with the necessary protection materials and flood defence systems for the hydraulic structures of the administration;
- Providing the operative intervention to the flood defence hydro-technical constructions;
- Ensuring the water discharge from the diking facilities through drainage mechanisms or additional sources;
- Recording the works affected by floods and restoring them;
- Proposing the establishment of new works for flood protection and optimizing existing ones.

## 5. Hidroelectrica Company

As the owner of the hydropower structures having also a flood mitigation role, the company takes the following actions:



- Ensuring the safe operation of the hydropower infrastructure that also serves to mitigate floods;
- Analysing the behaviour and the physical and functional state of the hydraulic infrastructure and implementing measures for structural repair, rehabilitation or reconstruction.

6. National Company of Motorways and National Roads in Romania (C.N.A.D.N.R.)

In flood risk management, CNADNR has the following responsibilities:

- Designing, building, modernizing, rehabilitating, repairing, maintaining and operating the national roads, for the purposes of safe traffic during flooding emergencies;
- Redeploying as fast as possible the national roads infrastructure affected by floods.

7. General Inspectorate for Emergency Situations (IGSU)

IGSU, integrating the National Operational Centre for Emergency Situations and providing the Permanent Technical Secretariat of the National Committee for Emergency Situations, is responsible for the following measures:

- Planning and preparing resources and services for the operative intervention;
- Participating in the development of guidelines / manuals containing the activities and responsibilities of local authorities in the flood management and the action plan before, during and after the flooding;
- Centralizing and disseminating flood damages in order to adopt the necessary measures for flood reconstruction and for the development / verification of risk maps.

8. State Inspectorate for Construction (ISC)

ISC represents the state control in implementing the essential construction requirements built in floodplains. It is also part of the joint committee appointed by the prefects, to assess damages of the constructions caused by floods.

***Regional factors involved in the implementation of the strategy***

1. County Committee for Emergency Situations (CJSU)
2. County Councils
3. Local Committee for Emergency Situations (CLSU)
4. Local Councils (cities, towns and communities)
5. Citizens

Besides the **National Strategy for Flood Risk Management on a Medium and Long Term 2010 – 2035**, the flood risk management is mentioned in two other national strategies, as it follows:

**National Strategy for Climate Change 2013 – 2020**

Floods, landslides and torrents have been defined by experts as the main threats for the transport sector and particularly for the transport infrastructure. For this reason, adaptation projects to climate change must begin with the construction / rehabilitation of dams and riverbank protection systems. Moreover, in Romania, the adaptation to climate change in the agricultural sector must include measures to reduce the flood risk and support the farmers to face losses in agricultural production. The tourism sector in Romania has been also affected by extreme weather events such as floods and intense storms that have affected the tourism infrastructure. Therefore, it is very important to increase the investments in infrastructure for flood protection and water management.

Measures to be taken for flood risk management:

- Choosing local flood protection works for some localities and socio-economic structures instead of large and extensive flood protection works;
- Choosing the regularization of watercourses and the slowdown and decrease of floods as they occur instead of rehabilitating the existing dams or building new ones;
- Using the latest methods and technologies for the rehabilitation / construction of dams and for the protection works in conjunction with the local plans for urban development;
- Periodically reviewing the flood risk management plans and if necessary updating them, taking into account the possible effects of climate change on the occurrence of floods;
- Increasing the public awareness on flood risk, the appropriate measures taken before and after the flooding events and the insurance contracts;
- Improving the response capacity of local authorities with responsibilities in the management of emergencies arising from floods, hydraulic structure accidents and accidental pollutions.

**National Strategy for the Reduction of Drought Effects, and on the Prevention and Mitigation of Land Degradation and Desertification on a Short, Medium and Long Term**

- Developing the management master plans for the 11 river basins. This measure is necessary for a better planning and organization of the territory and for complying with European standards. These plans will also include development measures for the water works, installations and water management facilities;
- Improving the dissemination of hydrological and meteorological warnings and forecasts and the development of communication system, their interpretation and standardization in order to prevent the harmful effects and to identify the measures to be taken in critical situations.

## Appendix III The management of emergency situations

**Types of risks considered as an emergency situation according with the Romanian legislation:** cases of force majeure caused by fires, earthquakes, **floods**, accidents, explosions, casualties, landslides or collapse of land, mass plagues, collapse of constructions, installations or facilities, running aground or sinking ships, falling objects from the atmosphere or space, tornadoes, avalanches, failure of public utilities and other natural disasters, or serious gruesome large public events caused or favored by specific risk factors.

**The National System for the Management of Emergency Situations consists of 3 types of structures:**

1. **Governance structures:** The National Committee for Emergency Situations under the Ministry of Internal Affairs (Permanent Technical Secretariat & National Operative Centre), the emergency committees (established at the local, county and national level)
2. **Intervention structures:** the General Inspectorate for Emergency Situations and county institutions such as community public services for emergencies (fire department, paramedics, etc.)
3. **Operational structures:** the operational emergency centers established at local, county and national level. At national level operational centres for emergency situations (permanent) exist at:
  - *Ministry of National Defence*
  - *Ministry of External Affairs*
  - *Ministry of Transport*
  - *Ministry of Economy and Commerce*
  - *Ministry of Agriculture and Rural Development*
  - ***Ministry of Environment and Climate Changes***
  - *Ministry of Public Health*
  - *Ministry of Communications and Informational Society Romanian Information's Service (SRI)*
  - *Special Telecommunications Service (STS)*  
*Protection and Security Service (SPP)*
  - *Central State Office for Special*

In case of an emergency situation at local level – village, commune, town - the person in charge of the local committee for emergency situations (usually the mayor) has to inform the County Committee for Emergency Situation. Depending on the type of incident (fire, flood, pollution, etc.) the County Committee has to inform and summon other county institutions (e.g.: the County Inspectorate for Emergency, Hospital, EPA, RBA, etc.). Even when the situation is solved or handled at county level the National Committee for Emergency Situation has to be informed.

In case the situation cannot be handled locally, the National Committee for Emergency Situation will inform and summon the other institutions at national level and put the intervention plan into force.

In case of a severe local situation that cannot be handled at county level or in case there is an emergency situation at a larger scale - regional, national - the Ministry of Internal Affairs through the National Committee for Emergency Situation is the one initiating the information and summon procedures and will also coordinate the intervention plan.

*Source: The Emergency Ordinance 21 of April 15, 2004*

## Appendix IV Stakeholders

Central public authorities	Ministry of Environment and Climate Change (MMSC)	X
	Ministry of Agriculture and Rural Development (MADR)	X
	Ministry of Internal Affairs (MAI)	X
	Ministry of Transport (MT)	
	Ministry of Regional Development and Public Administration (MDRAP)	X
	Ministry of Health (MS)	
	Ministry of National Education (MEN)	
	Ministry of Economy (ME)	
	Ministry for Information Society (MSI)	
	Ministry of Public Finance (MFP)	X
Other institutions, authorities and businesses	National Administration "Romanian Water" (ANAR)	X
	National Institute of Hydrology and Water Management (INHGA)	X
	National Meteorology Administration (ANM)	X
	National Administration of Land Reclamation (ANIF)	X
	Hidroelectrica Company	
	National Company of Motorways and National Roads in Romania (C.N.A.D.N.R.)	
	General Inspectorate for Emergency Situations (IGSU)	X
	State Inspectorate for Construction (ISC)	
Regional factors	County Committee for Emergency Situations (CJSU)	X
	County Councils	X
	Local Committee for Emergency Situations (CLSU)	
	Local Councils (cities, towns and communities)	X
	Citizens	X

## Appendix V SWOT analysis

In this appendix a SWOT analysis is presented from the point of view of the beneficiaries of flood protection.

### **Scenario 1** Current situation + covering of costs up to 100%

<b>Strengths</b> <ul style="list-style-type: none"><li>• Transparent, uniform, simple</li><li>• Easy administration</li><li>• Simple legal framework</li><li>• ANAR budget is covered</li><li>• In case of flooding the state is always responsible for damage compensation</li></ul>	<b>Weaknesses</b> <ul style="list-style-type: none"><li>• Awareness won't grow because of distance to population</li><li>• The consumer will be "punished" by higher tariffs when consumption/pollution is reduced (1.1)</li><li>• This scenario does not fit into the WFD</li></ul>
<b>Opportunities</b> <ul style="list-style-type: none"><li>• Internal/external auditing of quality of flood protection is needed</li></ul>	<b>Threats</b> <ul style="list-style-type: none"><li>• Public awareness related to flood protection will remain a weak point without a specific campaign</li><li>• Escalating prices - potentially high social impact and consequently high political influence</li></ul>

### **Scenario 2 Centralized: state budget**

<b>Strengths</b> <ul style="list-style-type: none"> <li>• Transparent, uniform, simple</li> <li>• Easy administration</li> <li>• Simple legal framework</li> <li>• ANAR budget is covered</li> <li>• In case of flooding the state is always responsible for damage compensation</li> </ul>	<b>Weaknesses</b> <ul style="list-style-type: none"> <li>• Awareness won't grow because of distance to population</li> <li>• Implications in the economic and financial status of ANAR which functioning is based on economic autonomy and management.</li> </ul>
<b>Opportunities</b> <ul style="list-style-type: none"> <li>• Internal/external auditing of quality of flood protection is needed</li> </ul>	<b>Threats</b> <ul style="list-style-type: none"> <li>• Political influence (annual decision process) that creates uncertainty for ANAR</li> <li>• Public awareness related to flood protection will remain a weak point without a specific campaign</li> </ul>

### **Scenario 3 Mixed centralized and decentralized: state budget + retributions**

<b>Strengths</b> <ul style="list-style-type: none"> <li>• Full Compliance with art 9</li> <li>• Fits in further decentralization process</li> <li>• Public awareness, participation, stakeholder involvement, public empowerment</li> <li>• Risk based approach possible</li> </ul>	<b>Weaknesses</b> <ul style="list-style-type: none"> <li>• New/complex legal framework</li> <li>• In case of flooding discussion about damage compensation</li> </ul>
<b>Opportunities</b> <ul style="list-style-type: none"> <li>• Internal/external auditing of quality of flood protection is needed</li> </ul>	<b>Threats</b> <ul style="list-style-type: none"> <li>• Political influence (annual decision process), but less uncertainty for ANAR compared to scenario 2.</li> <li>• Decentralization can be a threat for ANAR</li> </ul>

**Scenario 4 a en b** *Mixed centralized and decentralized: (differentiated) retributions*

<b>Strengths</b> <ul style="list-style-type: none"><li>• Full Compliance with art 9</li><li>• Awareness raising</li><li>• Influence of stakeholders</li><li>• Public empowerment</li><li>• Fits in further decentralization process</li><li>• Risk based approach possible</li></ul>	<b>Weaknesses</b> <ul style="list-style-type: none"><li>• New/complex legal framework</li><li>• In case of flooding discussion about damage compensation</li></ul>
<b>Opportunities</b> <ul style="list-style-type: none"><li>• Internal/external auditing of quality of flood protection is needed</li></ul>	<b>Threats</b> <ul style="list-style-type: none"><li>• Local retribution collection</li><li>• Local differences in population density and social/economical perspectives can lead to inequality</li><li>• Political influence (annual decision process), but less uncertainty for ANAR compared to scenario 2</li></ul>



## **Appendix VI The Dutch water system charges**

### **History**

The institution of the Dutch regional water authority arose in the Middle Ages when farmers began to organise themselves at a local level in order to improve the management of the dikes and polders.

This form of self-organisation was financed with local means. Initially these means consisted of payments in kind, for example, maintenance of dikes, embankments and waterways. Later on this system was replaced by financial contributions. Originally the costs were divided on the basis of private law amongst land owners with an interest in this care, and it was possible to derive certain rights from this. The drawback of payment in kind was the fact that it did not guarantee that the requisite maintenance would be carried out in time or adequately. Since the interest of the entire community was at stake here, the need arose for a management organisation that was enshrined in public law. The land owners exchanged their duty of maintenance for a duty of payment for the costs concerned. These costs were divided according to the amount of land they possessed and were then apportioned to all the land owners.

Through the assignment of administrative and legal powers (and for a long time even the power to administer justice), the financial aspects of the regional water authority organisation became more integrated in public law. In spite of this integration, the functional and decentralised character of regional water authorities has remained intact through the ages. This has had a permanent influence on the character of water system charges. These charges are based on the interest that people have in the tasks carried out by the regional water authority.

From the 1920s onwards, the number of home owners in urban areas that had an increasing interest in reliable flood protection and good drainage grew. The activities of regional water authorities focused more and more on the protection of this immovable property (buildings). The 'buildings' charge was introduced, as a result of which these buildings also fell under the apportionment levy. Recently more significance has been assigned to the general task interests (interest of living, working and recreation) within the regional water authority district. In view of this, residents (that is, people residing in the regional water authority district) were included in the apportionment levy. Since 1995 'residents' have been involved in the levy as a separate category and this category has been represented in the governing board.

### **The objective of water system charges**

Water system charges are mainly levied for expenses relating to the flood protection task, and water quantity and quality management tasks. Regional water authorities have a limited number of tax categories, which are laid down in Article 117 of the Water Boards Act:

- 'residents' (related to residential space);
- owners of open land which is not a natural area (farmers);
- owners of natural areas;
- owners of buildings (businesses).

Every household is taxed for an equal amount: owners of open land and of natural areas pay on the basis of the surface area of their property and owners of buildings pay on the basis of the economic value (the municipal value or the value for the purposes of the Valuation of Immovable Property Act).

### **Justification and tax base**

The justification for the levying of water system charges lies in the interest that people have in the tasks carried out by the regional water authorities. As regards the owners of the real rights, this can be seen from the point of view of the specific interest of the protection of the immovable property from flooding, the inconvenience caused by water and the importance of good quality surface water. These interests can be looked upon both from the point of view of maintenance of (the value of ) these properties and the use made of them.

Residents (households, in fact) have a more general interest in terms of living, working and recreating within the regional water authority district. In the allocation of costs, this general interest is determined by the density of the population and varies within the bandwidths of 20 and 50% of the total costs. Under certain conditions, the regional water authority can raise the share in the costs laid down in this way by 10% The other costs are divided amongst the specific stakeholders, the owners of (the real rights of ) buildings and land on the basis of its economic value.

The interest of the various stakeholder categories is linked to the tax bases applied:

- water system charge for open land and natural areas the surface area of the land
- water system charge for buildings the economic value of the building
- water system charge for residents fixed amount per living space

The extent of the interest in the water system, which depends on the nature and location of the immovable property, may vary somewhat between the various land owners (and sometimes between owners of buildings, too). In view of these differences, it is possible for regional water authorities to set up rate differentiation. If rate differentiation is applied, rates may vary considerably within the same regional water authority.

### **Supervision**

Where it concerns primary flood defence, the central government supervises the National Water Authority and the regional water authorities. Where it concerns secondary flood defence, the provinces supervise regional water authorities.

## Examples of water system levy application in The Netherlands.

### Justification: categories and bases

Target group categories	Tax bases
water system charge for <b>open land</b> and natural areas	the <b>surface area</b> of the land
water system charge for <b>buildings</b>	the <b>economic value</b> of the building
water system charge for <b>residents</b>	<b>fixed amount</b> per living space



### Profiles



Profile	Water system charge
1. Alone, no owner	Residents, fixed amount per household
2. More people, no owner	Residents, fixed amount per household
3. Alone, owner value € 100,000	Residents, fixed amount per household + fixed % property value
4. More people, value € 250,000	Residents, fixed amount per household + fixed % property value
5. Business premises, value € 1 million	fixed % property value
6. Cattle farm, 10 hectare value € 400,000	fixed % property value + fixed unbuilt amount X 10 hectare
7. Nature, 100 hectare	fixed nature reserve amount X 100 hectare

### Water system levy per profile

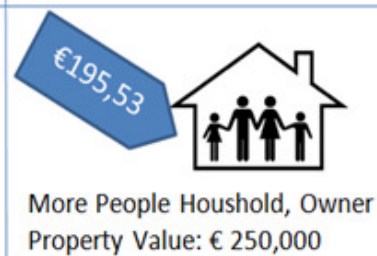
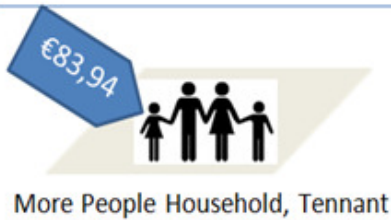
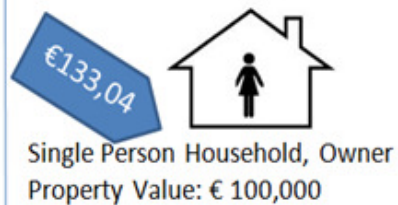
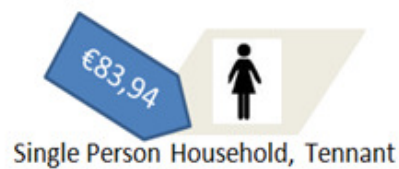
	Charge			
Profile	Residents	Built	Unbuilt	Nature reserves
Household Rental	*			
Household Owner	*	*		
Farmer		*	*	
Owner Natural reserves				*
Company non-agricultural		*		

### Water authority 1: Hollands Noorderkwartier

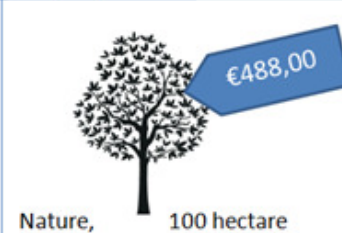
- Size: 196.400 hectare. Residents: 1,3 million. Dykes: 343 kilometers. Number of polders: 220.
- Peninsula with almost 90% of the territory below sealevel!

Area/Year	2009	2012	2013	Explanation
Residents	€ 72,40	€ 80,92	€ 83,94	Per household
Built area	0,03921%	0,0420%	0,0491%	Part of property value
Unbuilt area	€ 74,77	€ 86,25	€ 86,16	Per hectare
Nature reserves	€ 3,71	€ 4,49	€ 4,88	Per hectare

#### Differentiation Water System Charge WA 1 in 2013



#### Differentiation Water System Charge WA 1 in 2013



### Water Authority 2: Delfland

- Size: 41.000 hectare. One of the most densely populated and industrialized areas.
- Near the North Sea and includes Rotterdam main port (for the tax region).
- 700 kilometers of dunes, dikes and embankments.
- Over 50% of territory lies below sea level.

Area/Year	2010	2012	2013	2014	Explanation
Residents	€ 99,66	€ 113,40	€ 117,94	€ 114,44	Per household
Built area	0.0175%	0,0204%	0,0218%	0,0258%	Part of property value
Unbuilt area (ground)	€ 137,27	€ 119,11	€ 105,03	€ 90,91	Per hectare
Unbuilt area (roads)	€ 274,54	€ 238,22	€ 525,15	€ 454,54	Per hectare
Nature reserves	€ 3,41	€ 6,59	€ 4,59	€ 4,22	Per hectare

### Water Authority 3: Scheldestromen

- Size: 190.273 hectare ground – 21.360 hectare water.
- Flooded in 1953: 865 casualties in Zeeland
- Peninsulas. Dykes: 491 kilometers

Area/Year	2011	2012	2013	Explanation
Residents	€ 80,79	€ 80,79	€ 82,14	Per household
Built area	0,0549%	0,0537%	0,0564%	Part of property value
Unbuilt area (ground)	€ 59,71	€ 59,71	€ 62,47	Per hectare
Unbuilt area (roads)				Per hectare Per hectare
Nature reserves	€ 4,85	€ 4,93	€ 4,93	Per hectare

### Water Authority 4: Roer & Overmaas

- Size: 92.260 hectare. Dykes: 77 km.
- 90% surrounded by foreign countries:  
intensive cross border contacts and initiatives
- Presence of slopes and hilly terrain: erosion and floods  
in lower areas. Valuable nature areas.

Area/Year	2009	2011	2012	2013	2014	Explanation
Residents	€ 33,29	€ 35,54	€ 35,95	€ 35,68	€ 35,93	Per household
Built area	0,0184 %	0,0199 %	0,0204 %	0,0201 %	0,0208%	Part of property value
Open land (ground)	€ 28,85	€ 31,84	€ 32,13	€ 24,68	€ 24,92	Per hectare
Open land (roads)	€ 57,70	€ 63,68	€ 64,26	€ 123,40	€ 124,60	Per hectare
Nature reserves	2,19	€ 2,32	€ 2,34	€ 2,36	€ 2,42	Per hectare

## **Appendix VII The cost recovery model and user manual**

[separate files for client]

## Appendix VIII Private housing and property tax in Romania

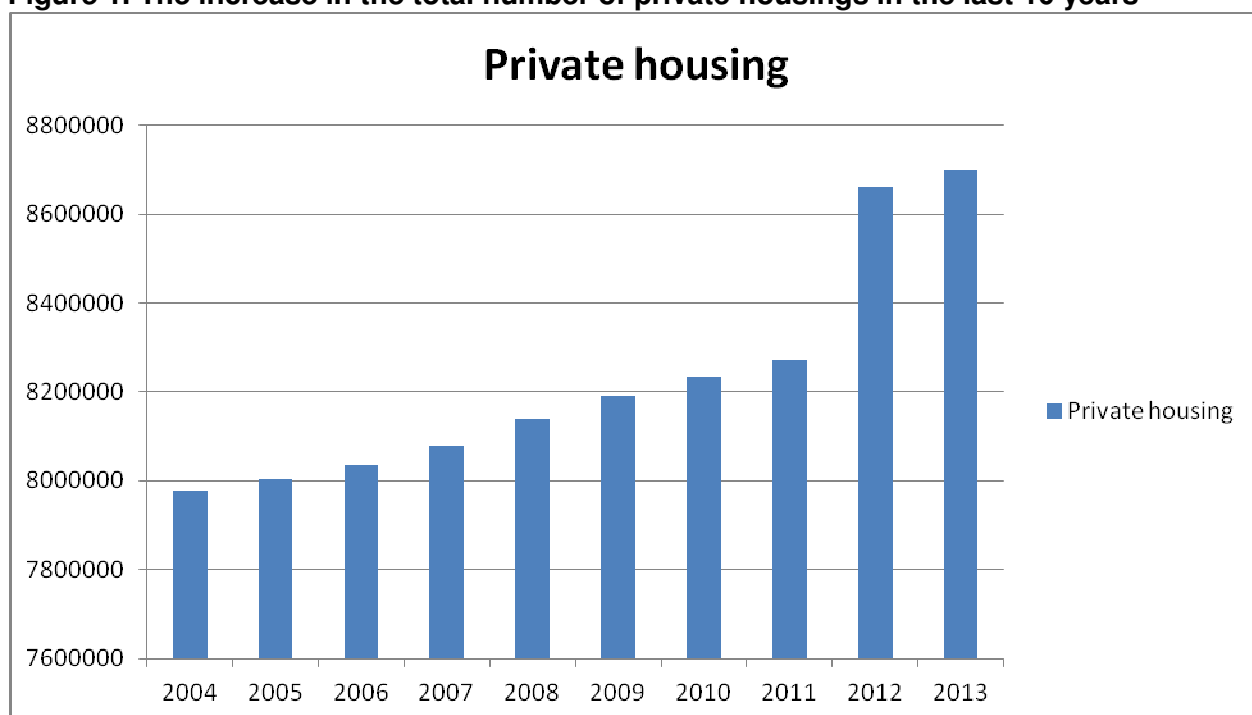
The number of private housings has been increasing in Romania in the last 10 years according to the information provided by the National Institute of Statistics (Table 1, Figure 1).

**Table 1. Total number of private housings in the last 10 years**

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Total no</b>	7976870	8004078	8036540	8079268	8137887	8191594	8233274	8272002	8659979	8697667

<https://statistici.insse.ro>

**Figure 1. The increase in the total number of private housings in the last 10 years**



Furthermore, according to Eurostat, Romania is occupying the first place in the EU with a percentage of 96,6% the housings being occupied by the owners as it can be seen in Table 2 and Figure 2 below.

**Table 2: Population by tenure status, 2012 (<sup>1</sup>)**  
(% of population)

	Tenant — market price	Tenant — reduced price or free	Owner occupied, with mortgage or loan	Owner occupied, no outstanding mortgage or housing loan
EU-28 ( <sup>2</sup> )	18,5	10,9	27,2	43,4
Euro area (EA-18) ( <sup>2</sup> )	22,3	10,8	28,3	38,6
<b>Romania</b>	<b>0,8</b>	<b>2,6</b>	<b>0,9</b>	<b>95,7</b>
Croatia	1,6	8,9	2,9	86,6
Bulgaria	1,3	11,3	2,0	85,3



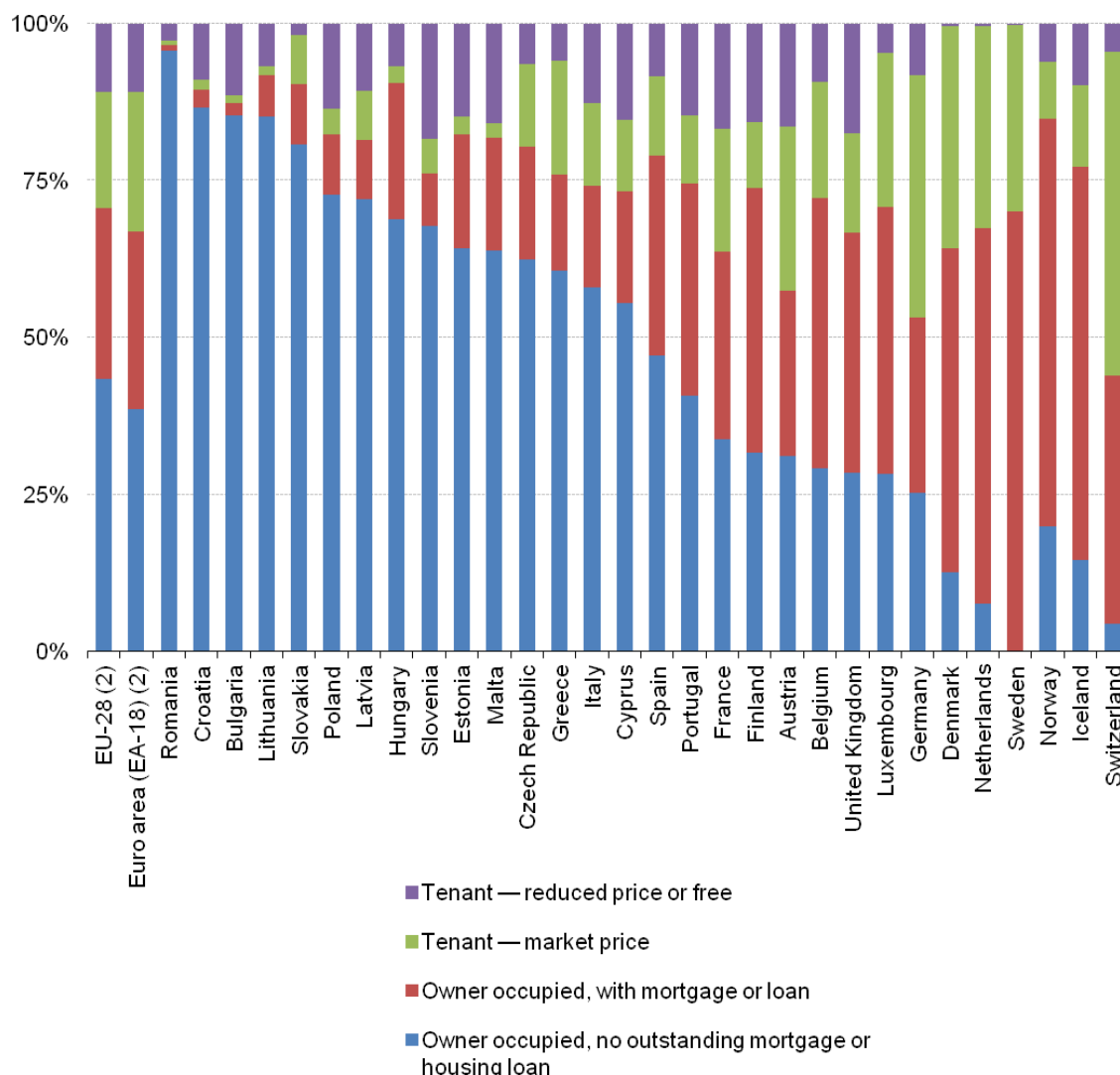
Lithuania	1,4	6,7	6,6	85,3
Slovakia	7,8	1,8	9,6	80,8
Poland	4,0	13,6	9,6	72,8
Latvia	7,8	10,7	9,5	72,0
Hungary	2,8	6,7	21,6	69,0
Slovenia	5,5	18,3	8,4	67,8
Estonia	3,0	14,7	18,0	64,3
Malta	2,4	15,8	17,9	63,9
Czech Republic	13,2	6,4	18,0	62,4
Greece	18,2	5,9	15,2	60,7
Italy	13,3	12,6	16,1	58,0
Cyprus	11,5	15,3	17,7	55,6
Spain	12,7	8,3	31,8	47,2
Portugal	10,9	14,5	33,8	40,7
France	19,5	16,8	29,9	33,8
Finland	10,5	15,6	42,2	31,7
Austria	26,1	16,4	26,4	31,1
Belgium	18,5	9,2	43,1	29,2
United Kingdom	15,9	17,5	38,3	28,4
Luxembourg	24,6	4,6	42,6	28,2
Germany	38,6	8,1	28,0	25,2
Denmark	35,4	0,3	51,8	12,5
Netherlands	32,1	0,4	59,9	7,6
Sweden	29,7	0,2	70,1	0,0
Norway	9,1	6,1	64,9	19,9
Iceland	13,0	9,7	62,7	14,6
Switzerland	51,6	4,5	39,5	4,4

(<sup>1</sup>) Ireland not available.

(<sup>2</sup>) Estimate.

Source: Eurostat (online data code: ilc\_lvho02)

**Figure 2: Population by tenure status, 2012 (<sup>1</sup>)**  
(% of population)



[http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc\\_lvho02&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_lvho02&lang=en)

## Property tax

The first due tax is the one on buildings (a property tax), which is, in principle, covered by the owner. The tax is levied – and the exact rate is established – by the local councils. The rate is usually 0.1% when the owner is a physical person. It is applied on a fixed taxable value (depending on the type of the building) and adjusted with several coefficients depending on the location. On the other hand, when the owner of the building is a legal person, the tax is located somewhere between 0.25% and 1.5% of the value of the building, or between 30% and 40% if the building has not been re-evaluated in the last 5 years. A simple calculation shows that the physical person will pay a tax which is at least 15 times less than the one paid by a juridical person, for the same building, located in the very same place. In exceptional situations, even the tenant may have to pay the property tax. So, for the buildings that are public or private property of the state or of the administrative units which are rented, the property tax is covered by the tenant. First, it is an incentive for the State to lease the buildings which are in its property. Secondly, for equity reasons, the State cannot support the property tax if the building is rented (social housing etc.).

Source: *TENLAW: Tenancy Law and Housing Policy in Multi-level Europe, National Report for*

Final report

Project PwW 12016

Romania [http://www.tenlaw.uni-bremen.de/reports/RomaniaReport\\_09052014.pdf](http://www.tenlaw.uni-bremen.de/reports/RomaniaReport_09052014.pdf)

Responsible institutions: Local and County Councils

Beneficiary budget: Local budget

Source: Romanian Ministry of Finance

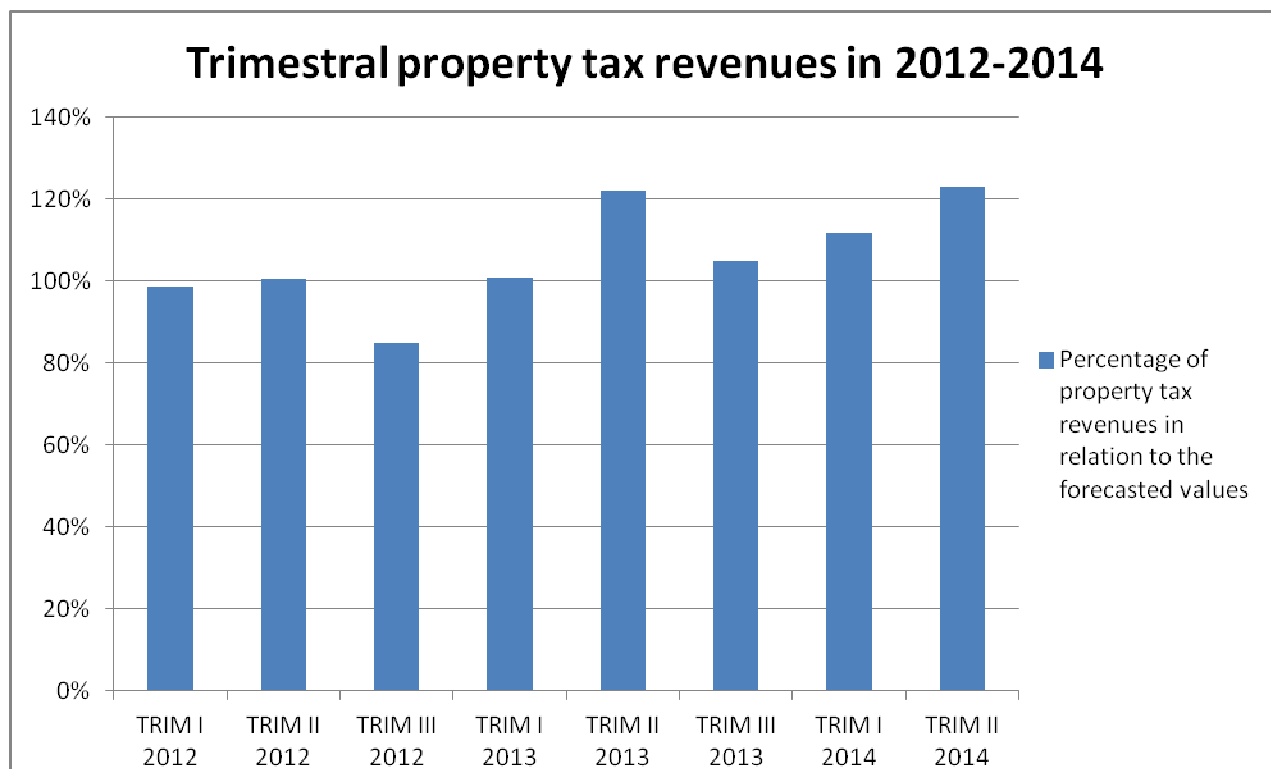
<http://www.mfinante.ro/detalii.html?method=searchAnaf&pagina=taxe&den=IMPOZITE%20SI%20TAXE%20LOCALE>

According to the Reports on the budget implementation (Report on the budget implementation for trimester II 2014, Report on the budget implementation for trimester I 2014, Report on the budget implementation for trimester III 2013, Report on the budget implementation for trimester II 2013, Report on the budget implementation for trimester I 2013, Report on the budget implementation for trimester III 2012, Report on the budget implementation for trimester II 2012, Report on the budget implementation for trimester I 2012) published by the Ministry of Finance on their website (<http://www.mfinante.ro/execbug.html?pagina=buletin>), the property tax revenues are most of the times exceeding the forecasted values for the last two years (Table 3 and Figure 3).

**Table 3: Percentage of property tax revenues in relation to the forecasted values in the period 2012-2014**

TRIMESTER YEAR	TRIM I 2012	TRIM II 2012	TRIM III 2012	TRIM I 2013	TRIM II 2013	TRIM III 2013	TRIM I 2014	TRIM II 2014
Percentage of property tax revenues in relation to the forecasted values	98,5%	100,5%	84,8%	100,9%	122,0%	105,0%	111,9%	123,1%

**Figure 3: Percentage of property tax revenues in relation to the forecasted values in 2012-2014**



As it can be seen in the figure below, in the last 2 years the trimestral tax revenues have always exceeded the forecasted values.

**Figure 4: Percentage of property tax revenues in relation to the forecasted values in 2013-2014**

