

# Cost Recovery in Waste and Water Sectors

TAIEX ECRAN  
National Roundtable Workshop Belgrade,  
Serbia, 17 November 2015.

•

• 1

## Topics to be presented:

Cost recovery  
and tariffs setting –  
CROATIAN approach

1. Cost recovery system elements,
2. Tariffs setting procedures and methodology,
3. Institutional system for cost recovery,
4. Regionalisation ,
5. Regulator,
6. Lessons learned.

•

• 2

# WFD - Articles:

Starting points

- Art. 1 Purpose,
- Art. 2 Definitions,
- Art. 3 Administrative arrangement,
- Art. 4 Objectives and exemptions,
- Art. 5 Environmental and economic analyses,**
- Art. 6 Protected areas,
- Art. 7 Abstraction of drinking water,
- Art. 8 Monitoring programme,
- Art. 9 Water pricing,**
- Art. 10 Combined approach,
- Art. 11 Programme of measures,
- Art. 12 International cooperation,
- Art. 13 River basin management plan,
- Art. 14 Public participation,
- Art. 15 Reporting,
- .
- Art. 23 Penalties,
- Art. 24 Transposition

● 3

Starting points

## Article 5

Environmental and economic analyses

- ☐ Each Member State shall ensure that for each river basin district:
  - an analysis of its characteristics,
  - a review of the impact of human activity on the status of surface waters and on groundwater, and
  - **an economic analysis of water use** is undertaken.
- ☐ Reviewed every 6 years.

## Article 9

Recovery of costs for water services

- ☐ Account shall be taken of **the principle of recovery of the costs of water services**, incl. environmental and resource costs, and in accordance in particular with the polluter pays principle.
- ☐ MS shall ensure:
  - that **water-pricing policies provide adequate incentives** for users to use water resources efficiently,
  - **an adequate contribution of the different water uses**, disaggregated into at least industry, households and agriculture, to the recovery of the costs of water services, based on the economic analysis..., taking account of the polluter pays principle.

● 4

## STARTING POINTS

- ❑ The WFD introduces the principle of adequate recovery of the costs of water services in accordance with the polluter pays principle, promoting in addition the process of adopting standards related to environmental and resource costs caused by the existing users of water resources and aquatic ecosystems.
- ❑ The price of water shall ensure adequate recovery of water services, including environmental and resource costs.
- ❑ Establishing the price that reflects the real value of water and contributes to long-term sustainable management of water resources is not an easy task.

•

• 5

## Transposition

- ❑ The transposition of principles into the actual pricing policy is somewhat ambiguous.
- ❑ The approaches and methods of calculation, related in particular to ERC, are the subject of discussion between the EU MSs or the EU MSs and the EC.
- ❑ There is also the question of how much do the economic instruments used in the water pricing policy, and do they at all, contribute to the achievement of the environmental objectives under the WFD.
- ❑ Discussion on the recovery of costs of water services and on identifying the efficiency of the price of water in the present economic and financial crisis is essential (affordability).
- ❑ The EC has initiated the improvement of standards/rules, with the period of its implementation coinciding with the 2<sup>nd</sup> planning cycle. Consequently, additional guidelines shall be applied..

•

• 6

Starting points

# Two key categories

## "Water services"

Defined by the WFD as all services which provide, for households, public institutions or any economic activity:

- ✓ abstraction, impoundment, storage, treatment and distribution of surface water or groundwater;
- ✓ wastewater collection and treatment facilities which subsequently discharge into surface water.

## "Water use"

Water services together with any other activity (all "anthropogenic" pressures, point and disperse) having a significant impact on the status of water.

List of "water uses" is not specify (assumed: navigation, hydropower generation, agriculture, industry, households.

•

•7

Starting points

# Conflicts

## Definition of water services

- ❑ The biggest barrier to the harmonization of the pricing policies (in MSs) is the definition of the term "water services" (services other than water supply and wastewater services caused by anthropogenically induced changes, e.g. hydropower plants as a water service provided to the producers of electric energy, agriculture...).

## Method of definition of "environmental costs" and "resource costs" (ERC)

- ❑ Important in the establishment of the PoM and in.
- ❑ Cost Effectiveness analysis (identification of the most cost-effective measures).
- ❑ What is implied by ERC (subject of discussion).

•

•8

Starting points

## ERC – Important Issue

- ❑ Environmental costs (direct assessment – change in the aquatic environment, costs of preventive or mitigation measures).
- ❑ Internalised environmental costs (Internalised how much of the cost?).
- ❑ Level of recovery of environmental costs, rate?
- ❑ The problem (or the consequence) is the fact that the water and wastewater sectors, together with the industrial sector, frequently bear the heaviest burden of the principle of the recovery of costs of water services.

•

• 9

Starting points

## Tasks

- ❑ Analyse all water services (and water users) and associated costs (construction, operation, maintenance, depreciation, ERC).
- ❑ Which of the existing (or planned) economic instruments can be considered ERC (need not be called like that):
  - ✓ Environmental costs (calculation of costs of environmental recovery),
  - ✓ Resource cost (calculation of cost of foregone opportunities),
- ❑ Analyse economic instruments (and innovative) for all the loads, in particular for diffuse pollution, agriculture, use of water resources, etc.
- ❑ Analyse which uses of water and aquatic ecosystems (when actually all of them) should be taken into account when calculating the ERC and whether these should be clearly specified (unit cost).

•

• 10

Starting points

Eg.

Water „service“	Cost type covered
Water abstraction	ERC
Water supply/consumption	C&I, O&M, ERC
Sewage	C&I, O&M
Wastewater treatment	C&I, O&M
Water pollution	ERC

- ❑ ERC – Environmental and resource costs
- ❑ C&I – Capital and investment costs (incl. the costs of capital and depreciation)
- ❑ O&M – Operation and maintenance costs

• 11

Starting points

# Steps – considerations (1)

- ❑ Water services
  - ❑ Water users
  - ❑ Cost recovery
  - ❑ ERC

Topic
<b>ECONOMIC ANALYSIS</b>
<i>for strategic documents?</i>
<i>at the planning level?</i>
<i>at the project level?</i>
<b>WATER SERVICES DEFINITION</b>
<i>transposition of the principles?</i>
<i>list defined by law?</i>
<i>list water services</i>
<b>PRINCIPLE OF THE COST RECOVERY FOR WATER SERVICES</b>
<i>transposition of the principles?</i>
<i>defined by law?</i>
<i>implementation ongoing?</i>
<i>level of the application?</i>
<b>ERC CONSIDERED</b>
<i>completely?</i>
<i>partially?</i>
<i>implemented?</i>
<i>defined by law?</i>

• 12

Starting points

# Steps – considerations (2)

- ☐ Water services
- ☐ Water users
- ☐ Cost recovery
- ☐ ERC

Topic
ERC INCLUDED IN COST RECOVERY CALCULATION
transposition?
principle defined by law?
implementation ongoing?
level of the implementation?
ECONOMIC INSTRUMENTS FOR DIFFUSE POLLUTION
costs internalised?
internalisation planned?
COST RECOVERY CALCULATED
not so far
only for part of the „services“
calcul. includes all relevant costs
FULLY IMPLEMENTATION OF THE COST RECOVERY PRINCIPLES REQUIRE LAW AMENDMENTS?
ANY OTHER TOPICS AGREED DURING THE WORKSHOP
...

● 13

# Croatian Approach

...

● 14

# Consideration

• • •

Cost recovery system elements

• 15

## Economic analysis in three chapters:

Cost recovery system elements

### Cost recovery and Environmental and resource cost (CR & ERC)

- Includes calculation of cost recovery (financially and economically, including external environment and resource costs) for water services and evaluation of contribution of environment and resource costs for other significant uses (completed)!

### Cost-effectiveness analysis (CEA):

- Includes analysis of costs of different/alternative programme of measures, out of which all lead towards fulfilment of objectives.
- CEA does not include alternative measures for basic/obligatory measures which in the case of the Croatia makes the biggest part of measures (cost and scope related).  
CEA is amended/harmonized during strategic evaluation with stakeholders.....

### Cost benefit analysis (CBA):

- CBA follows up on CEA and includes:
  - (i) evaluation of costs/benefits of programme of measures,
  - (ii) defining less stringent objectives if the costs are disproportionate to benefits,
  - (iii) justification of time derogation,
  - (iv) justification of proposed levels of cost recovery and incentive prices.
- So far parts/elements have been prepared, however the complete CBA is planned for the Plan's III Cycle (after 2023, i.e. after implementation of basic measures, in accordance with agreed transitional periods).

• 16



# Defining water services

- ❑ Water Act defines water services as public water supply and public wastewater collection and treatment.
- ❑ Through coordination action between the Republic of Croatia and the European Commission (2014.) related to River Basin Management Plans, it was agreed that Croatia will include in the 2<sup>nd</sup> River Basin Management Plan the **calculation of cost recovery** (financially and economically, including external environment and resource costs) **for all acknowledged water services**, and estimate the **contribution of environment and resource costs for other significant uses**.
- ❑ With regard to this Croatia so far has no plans to expand the definition of water services.

•

● 17

# Cost recovery from water services is assessed through 3 separate analyses

Cost type	Included in the cost	Cost coverage	Analyses include	Cost distribution
Current financial cost of providing water services  (financial cost including current internal ERC)	Operation and maintenance costs, capital costs, incl. costs of mitigating environmental deterioration (internalized internal ERCs associated with the users and non-users of services)	The costs are covered from the price of water services or from subsidies	Estimate of the current recovery rate for financial costs of water services  (reference situation 2013)  CR1	Population Industry Agriculture
Financial costs of mitigating environmental deterioration internalized through the Programme of Measures 2016-2021  (internal ERC cost)	WSP's costs for mitigating deterioration of the aquatic environment incurred by: (i) the provision of water services, (ii) activities of the non-users of water services	The costs are covered from internalized or planned mechanisms	Estimate of the recovery rate for internal financial ERCs from the Programme of Measures (2016-2021)  CR2	Population Industry Agriculture
Unmitigated damage to the aquatic environment (external ERC residual cost)	Assessment of damage to the aquatic environment done from: (i) the provision of water services and not mitigated by WSP's mitigation measures, (ii) activities of the non-users of water services and not mitigated by WSP's mitigation measures	The costs are covered from internalized or planned mechanisms	Estimate of the recovery rate for external ERCs  (After 2021)  CR3	Population Industry Agriculture

•

● 18



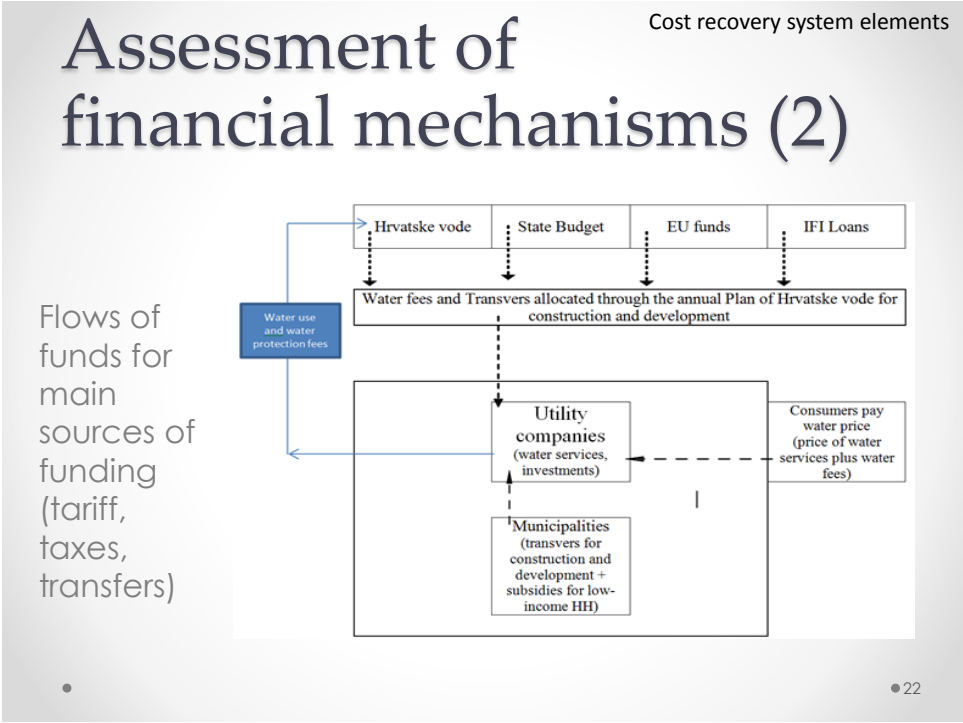
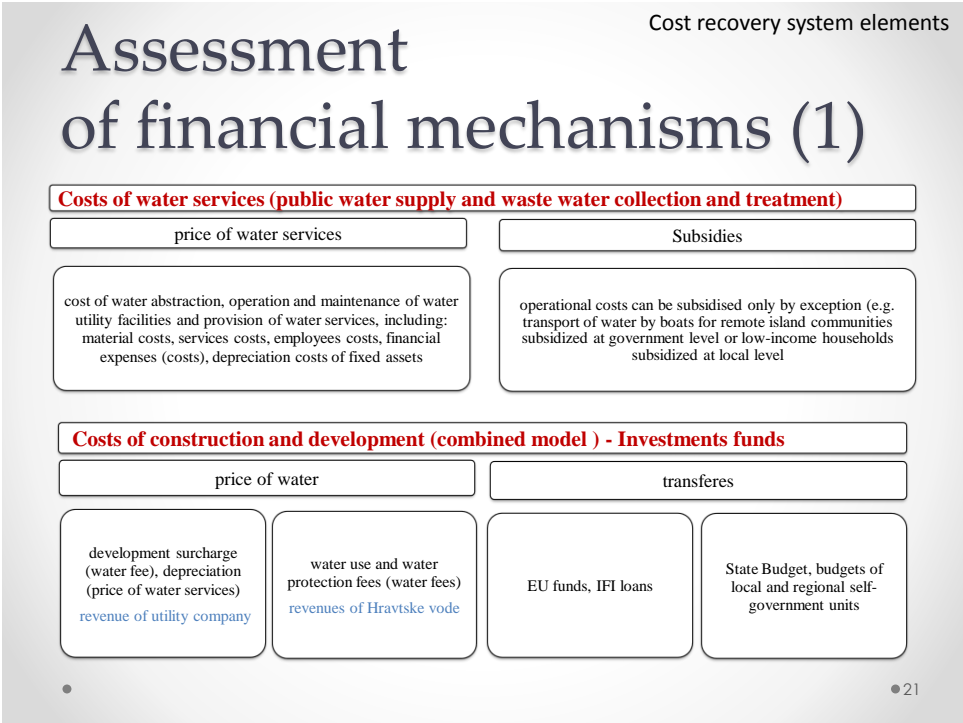
Cost recovery system elements

# CR

Methodology for calculating cost recovery rate is defined in WFD and associated documents, implementation guidelines:

$$\text{Recovery rate} = \frac{\text{total income} - \text{subsidies}}{\text{total cost}} \times 100$$

● 20

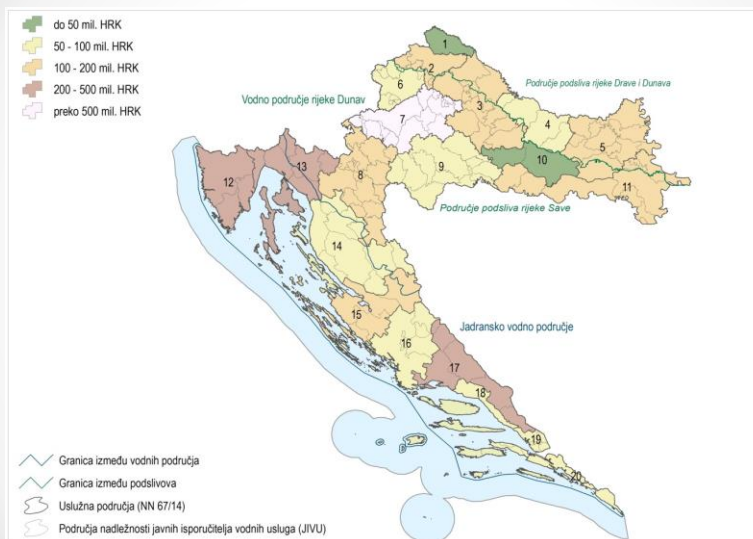


# Calculation of financial costs from water services

- ❑ Water service providers make income for a provided water service on the basis of basic service price paid by users.
- ❑ Apart from costs by water service providers, water price also includes associated VAT, as well as
- ❑ Obligatory and voluntary water fees foreseen by law. These are elements of water price which are based on recovery of costs for construction and development of water utility infrastructure (capital costs) and water management costs (administrative costs), i.e. internalization of environment costs and water resource costs (water protection fee, water use fee and development fee).

● 23

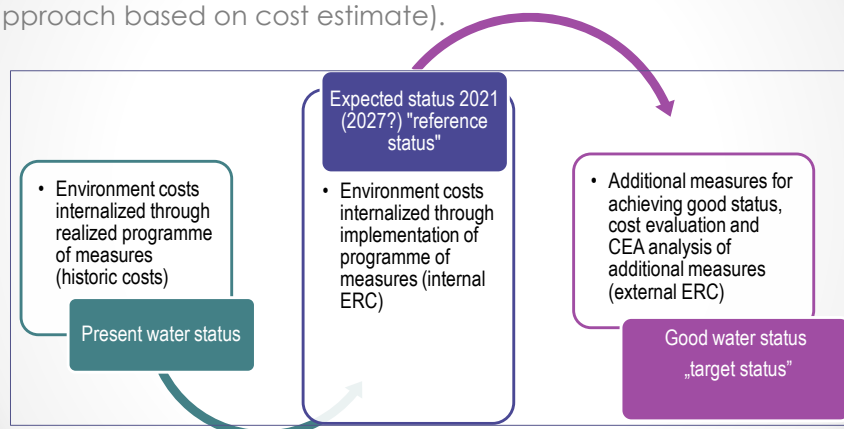
## Annual costs of water service provision



● 24

# ERC

Internal and external environment costs in WFD implementation (approach based on cost estimate).



● 25

## Internalization of ERC

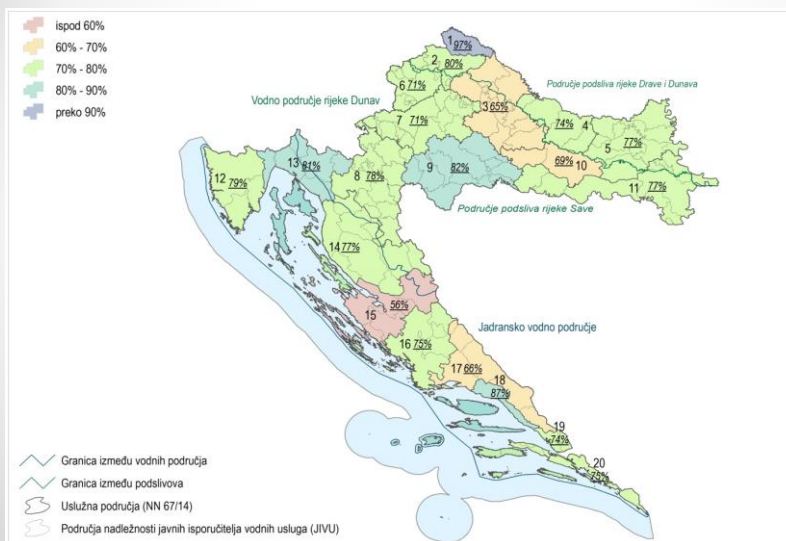
□ Internalization of ERC is achieved through regulations that introduce standards/limits for loads, as well as through financial payments, and is analysed through the following :

- ✓ Price of water services paid by water service users,
- ✓ Costs of self-services paid by users of self-services,
- ✓ Water fee paid by water service users and other water users.

● 26

## Current recovery rate (CR1)

The costs are covered from the price of water services or from subsidies.



The current rate of water service cost recovery (CR1) or financial cost recovery from water services, achieved through the water policy measures, gives an insight into how much and in what way have certain services or users come close to full cost recovery.

● 27

## ERC estimation for CR2 and CR3 calculation

### □ CR2 analysed through (internal ERC cost 2016-2021):

- ✓ Costs of measures to reduce impacts on the aquatic environment or costs for the construction of network (reduction of diffuse pressures) and WWTPs (reduction of point pressures);
- ✓ O&M costs of the new systems.

(Estimate of internal ERCs associated with construction covers the overall costs of the basic measures under the UWWTD, which is to be implemented by the end of 2023, respecting the transitional periods until 2018 and 2020.

Internal ERCs are reduced to the net present value in order to be able to compare/add them to the existing water service provision costs. ERCs were estimated using the following assumptions:

(i) a 30-year life of water structures/projects, including a 3-year construction period in accordance with the agreed dynamics; (ii) 3% depreciation; (iii) 5% discount rate; (iv) operation & maintenance (O&M) costs, estimated through a unit cost, HRK/m<sup>3</sup>, depending on the system size and treatment level.)

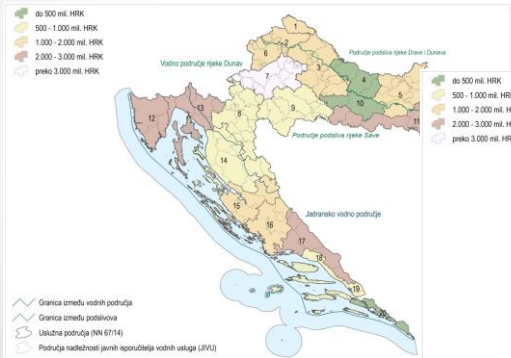
### □ CR3 analysed through (external ERC cost 2022.-\_\_\_\_):

Unmitigated damage to the aquatic environment (external ERC residual cost)

● 28

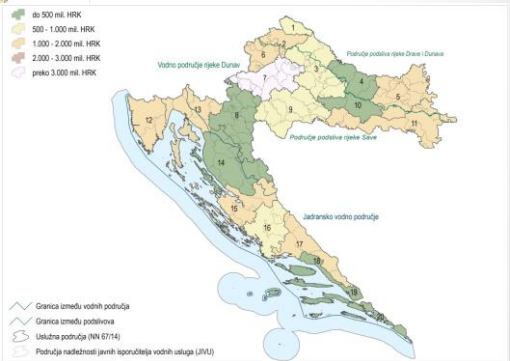
# Internal ERC costs

Total internal ERCs or costs to implement the basic measures (construction, O&M, depreciation of the public WW collection and treatment system) at expense of reducing impacts on the aquatic environment from the provision of water services in the service areas, NPV



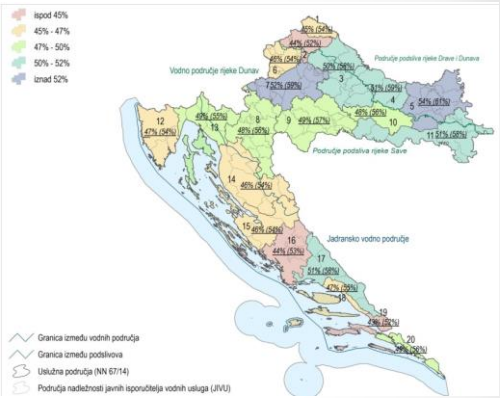
# Cost recovery system elements

Total internal ERCs or costs to implement the basic measures until 2021 (construction, O&M, depreciation of the public WW collection and treatment system) at expense of reducing impacts on the aquatic environment from the provision of water services in the service areas, NPV



# Current ERC recovery rate (CR2)

Estimate of the recovery rate for internal financial ERCs from the Programme of Measures (2016-2021) - The costs are covered from internalized or planned mechanisms.

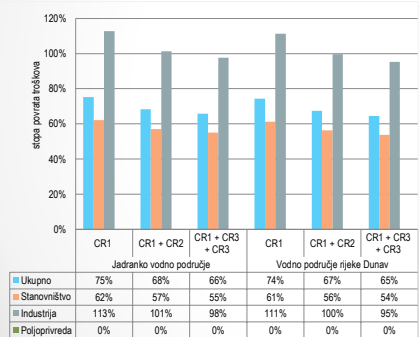


The calculated CR2 (and CR3) serves for decision-making about the efficiency of proposed measures in implementing the water management policy, which means that the said analysis has to be continuously implemented in the process of RBD management, both on the level of WSP's service area and on the level of the entire system.

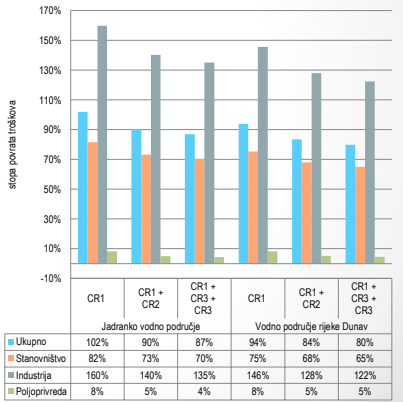


# Distribution of costs to users and polluters

Rates of cost recovery from water services distributed according to users

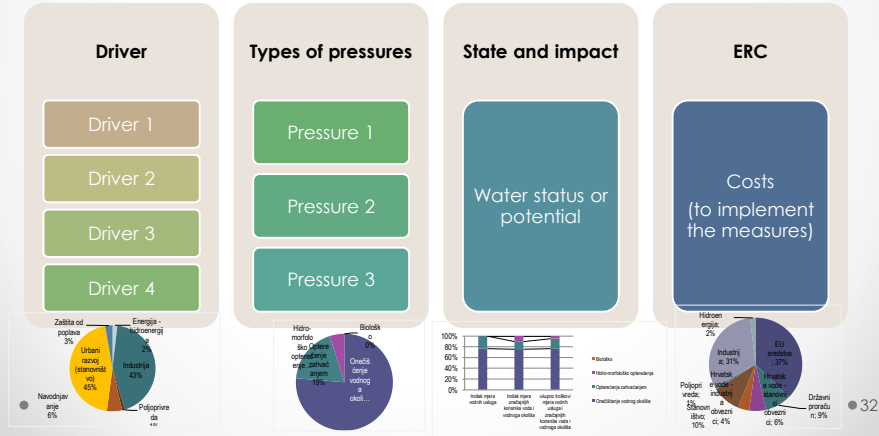


Rates of cost recovery from water services, increased by the revenues earned from mandatory water fees, distributed according to users



# Participation/contribution of significant water uses in recovery of ERCs (estimate under way - planned to be attached to RBMP2)

Link between estimating the recovery of ERCs and DPSIR analysis (driver-pressure-state-impact-response).





# Considerations

• • •

- Tariffs setting procedures and methodology
- Institutional system for cost recovery
- Regionalisation

•

• 33

## Tariffs setting procedures and methodology

### TOTAL WATER PRICE PAID BY USERS

Price for provided water services

VAT

Water fees

FIXED AND VARIJABLE PART  
(Water service providers income)

For variable water part  
(State budget income)

Voluntary fees  
(Water service providers income)

Mandatory fees  
(Hrvatske vode income)

Price for provided water service proscribed by Regulation on the lowest basic price of water services and the costs covered by the price of water services (Uredba o najnižoj osnovnoj cijeni vodnih usluga i vrsti troškova koje cijena vodnih usluga pokriva). Tariffs set by Water utilities.

Development fee

Water use fee and Water protection fee

Set according to the Water Management Financing Act (such a fee is introduced based on decision by local self-government).

Water protection fee and water use fee, proscribed by Water Management Financing Act, (mandatory fees), tariffs are set by Government

## TOTAL WATER PRICE PAID BY USERS

Price for provided  
water services

Water fees

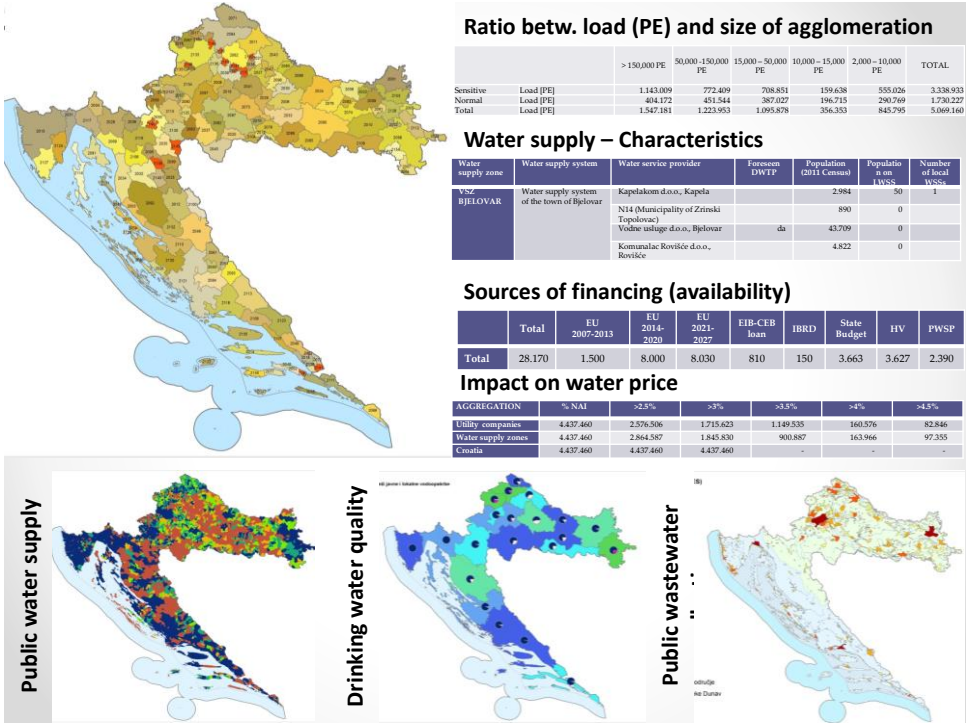
The price of water services must ensure cost recovery of water abstraction, operation and maintenance of water utility facilities and provision of water services, including: material costs, services costs, employees costs, financial expenses (costs), depreciation costs of fixed assets

Recovery of costs of development (construction of water utility facilities) and administrative costs (management of the water resources) is achieved partially through obligatory (national) and voluntary (local, regional) water fees.

● 35

## Impacts on the water price

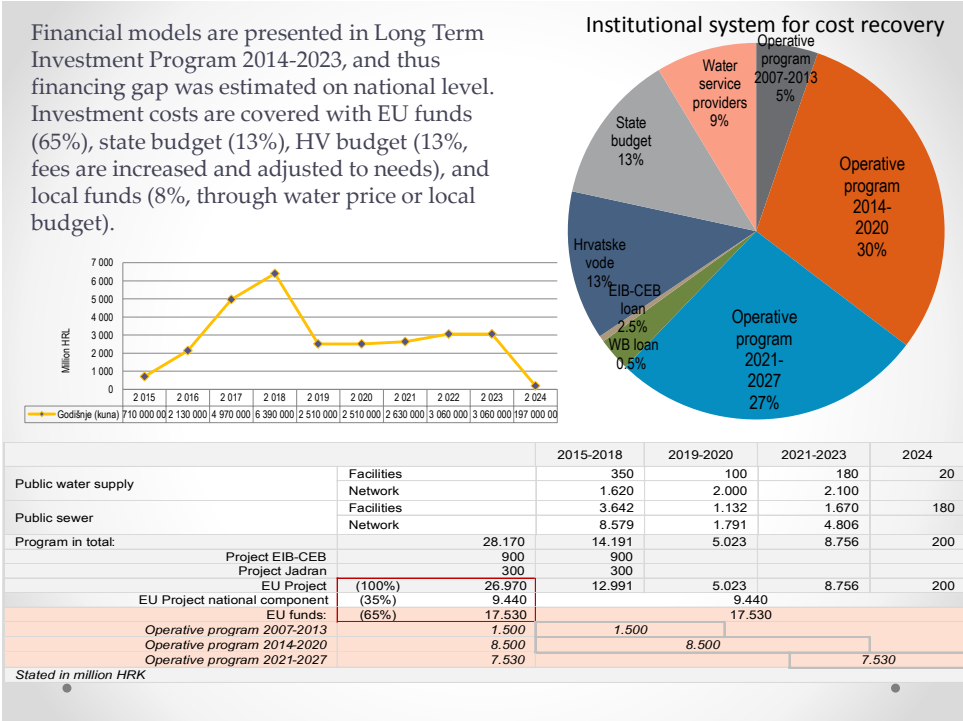
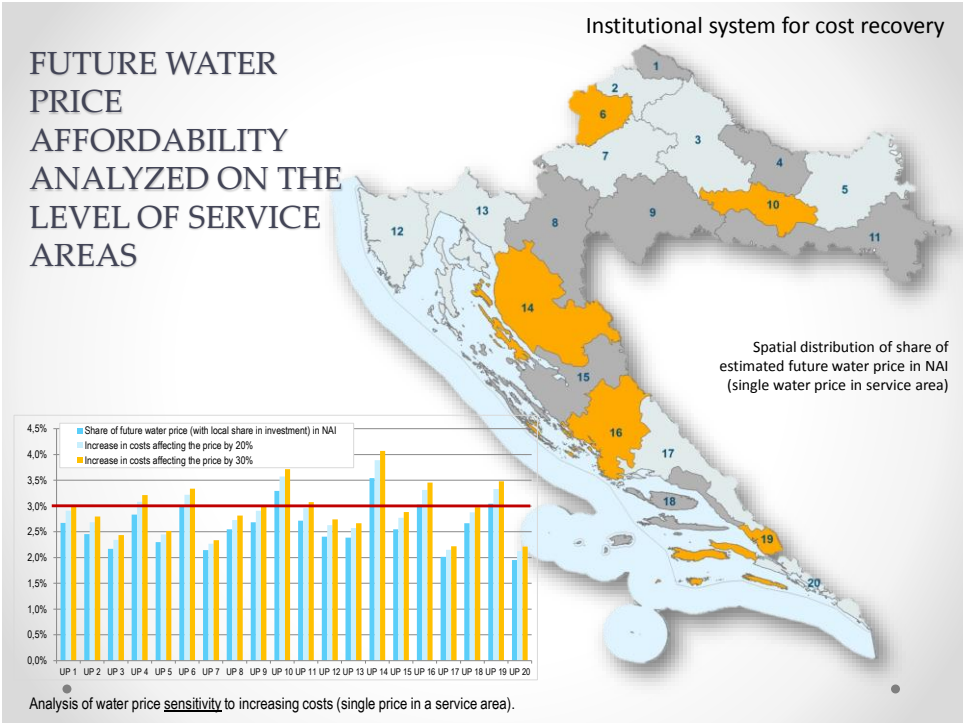
- ❑ Implementation of the EU water utility directives (UWWTD&DWD) is significantly affected by the WFD (article 9.), which requires a water pricing policy to follow the principle of recovery of costs of water services, incl. ERC costs.
- ❑ Due to estimated high investment costs and the need to introduce water pricing under the cost recovery principle (incl. investments, O&M, depreciation costs etc.), an affordability analysis is the most demanding and at the same time the most important part of organizing implementation of the investment program.



✓ **Obligation to implement water utility directives „VS” financial capacity).**

- ❑ Organizing implementation is very complex due to fragmented water utility companies and limited affordability of future water price. The plan is to overcome this problem by reforming water utility sector or by aggregating water service providers (156 to 20).
- ❑ Technological – technical, organizational and financial consolidation of public water service providers (for the purpose of securing cost recovery and socially affordable water service prices) is solid base for the implementation of Accession Treaty obligations, as well as gaining business self-sustainability and efficiency.
- ❑ The affordability of the future price of water and the capacity of water service providers to implement the projects and subsequently adequately manage the built systems are the key reasons for the aggregation of WSPs. This approach optimizes the financial burden to the population with new costs, with desirable maximum possible absorption of EU grants.

**Institutional system for cost recovery**



# Considerations

• • •

Regulator  
Lessons learned

• 41

Regulator(s)

## Regulator(s)

### □ Water fees:

- ✓ Government/Ministry responsible for water management. Water use and water protection fees are revenues of Hrvatske Vode. Purpose is to collect resources for securing the availability and protection of water resource and for capital investment into development of water services (Cross-subsidies on national level - recovery of investments and administrative expenses to ensure the availability of water resources).

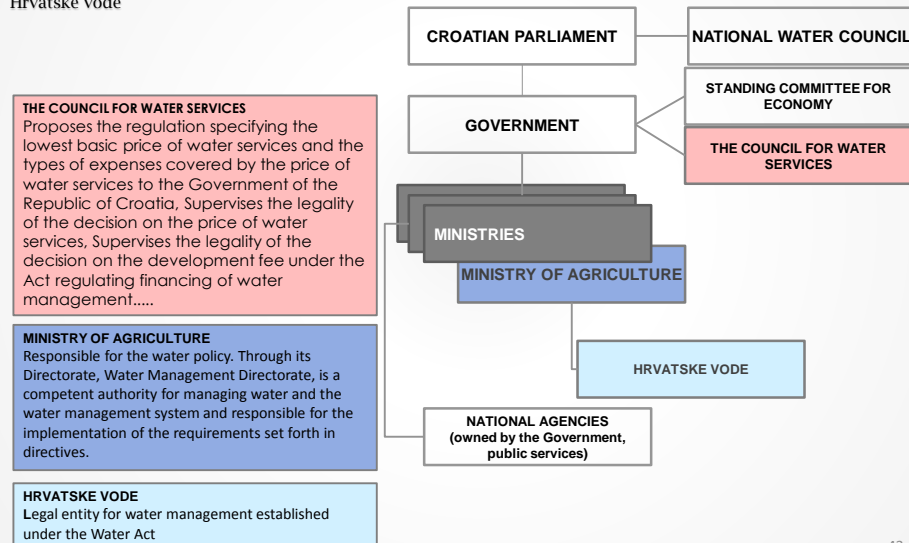
### □ Water tariffs regulator:

- ✓ The Council for Water Services was established in 2010 as an independent body of the Republic of Croatia to ensure lawfulness in the field of water services pricing. By adopting the acquis of the European Union, the Republic of Croatia also adopted the regulations which influence the definition of the future policy of water management as well as the tariff policy of water services prices.

• 42

# Water sector responsibilities are shared among:

Croatian Parliament with the National Water Council  
Government of Croatia - Ministry of Agriculture and  
Hrvatske vode



43



## IMPLEMENTATION POLICIES – lessons learned

- ❑ On the European Union level there are numerous examples of implementation policies analyses as well as research into the interaction between national administration traditions and European implementation policy.
- ❑ General conclusion of such research (including the Croatian experience) is that the efficiency of EU Directives implementation depends less on costs (or lack thereof) and more on how this implementation is incorporated into existing management structures.
- ❑ Such a situation additionally complicates the already sensitive issue of financing and future water price affordability. It is beyond any doubt that EU Directives are „transposed“ into national legislations, but are inadequately „incorporated“ into institutional framework that would enable successful implementation.

## Lessons learned

## Activities to improve information & knowledge

- ❑ Expressing costs/revenues by user categories (industry/population).
- ❑ Expressing costs/revenues by service types (WS/WW collection/WW treatment).
- ❑ Expressing costs of water treatment, with a reference to costs according to the type of pollution eliminated (in order to correlate with the costs associated with different water users).
- ❑ Expressing costs of water treatment, with a reference to costs according to the type of pollution eliminated, e.g. pollution not originating from urban WW and reaching the system through infiltration from urban surfaces or through storm drainage (in order to correlate with the costs associated with different water users).
- ❑ Expressing revenues from water fees by users and types of use.
- ❑ Establishment of a system as the baseline to conduct economic analysis for the purpose of developing water policy (basis for analysis and projections of user "tariffs" for different government decisions concerning water policy).

● 45

## Lessons learned

## CONCLUSIONS

- ❑ Systematic initial mapping, as a first overview, is appreciated, although all the elements have not been identified yet (Such assessment will provide the information about the extent to which administrative traditions affect implementation effectiveness. Appropriate institutional arrangements are crucial for effective implementation. Administrative traditions affect implementation effectiveness).
- ❑ Public and stakeholder involvement.
- ❑ Affordability (Discussion on techniques and tools for screening).
- ❑ Apart from the fact that national water management policy is implemented through planning documents, the investments plan has to follow thematic objectives and priorities in investment on the level of the European Union thus ensuring financial support for its implementation.
- ❑ Reorganisation is crucial/necessary (for the securing cost recovery and socially affordable water service prices).
- ❑ Implementation of WFD (incl. water utility directives ) is an institutional obligation, but also encouragement, not only for institutional adaptation, but also for technological and technical, organizational, personnel and financial reorganization of (Croatian) water utility management.

● 46

• • •

Vesna Grizelj Šimić, Hrvatske vode, Croatia

[Vesna.GrizeljSimic@voda.hr](mailto:Vesna.GrizeljSimic@voda.hr)

• 47