



## FACILITATING THE REFORM OF ECONOMIC INSTRUMENTS FOR WATER MANAGEMENT IN ARMENIA

Development and Assessment of the Proposed Options for Reform – Preliminary Results

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# 1. Why this project?



## The OECD project:

- Support to further reform in the implementation of economic instruments for water management in Armenia and Kyrgyzstan

## The context:

National Policy Dialogues on integrated water management currently on-going in each country

## Project objectives

- Clarification of **key water management objectives**;
- Development of a **set of options** for the reform of economic instruments;
- Assessment of the **environmental and socio-economic impacts** of the proposed options;
- Identify the **requisites for reform** (in terms of regulatory and institutional frameworks, governance...).

# 1. Why this project?



## *The reform of economic instrument for water management in Armenia:*

- Reform of the level and structure of water abstraction and environmental fees
- Establishment of a water component in the land and property tax/ renting system in the vicinity of Lake Sevan

# 1. Why this project?



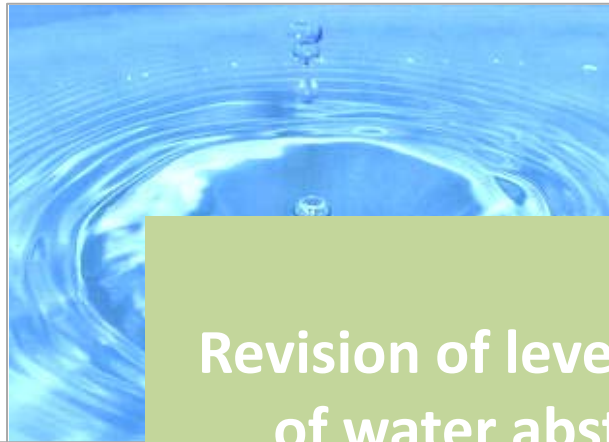
*This presentation summarizes the preliminary results of the project, including:*

- *The scenarios for reform*
- *The expected impacts of the proposed scenarios*

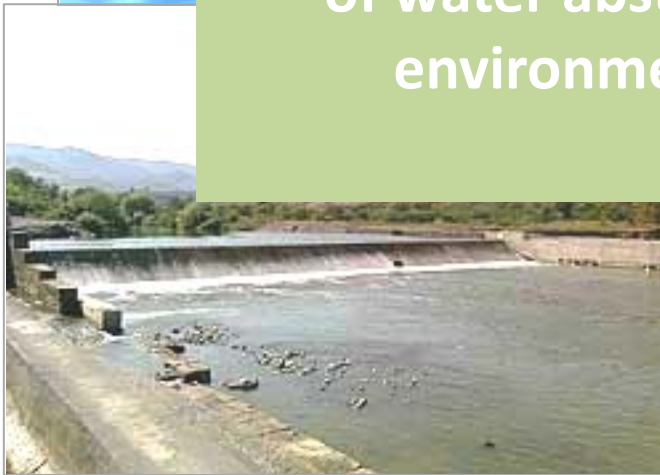
*...and it introduces some open questions to stimulate discussion*

With some additional notes:

- The original data used for building the scenarios and assessing the impacts are not shared at this stage - only the most relevant figures are presented
- The original data will be included in the final report, which is currently being developed
- The impacts of the reform on some sectors (e.g. agriculture), will be further investigated later on in the project

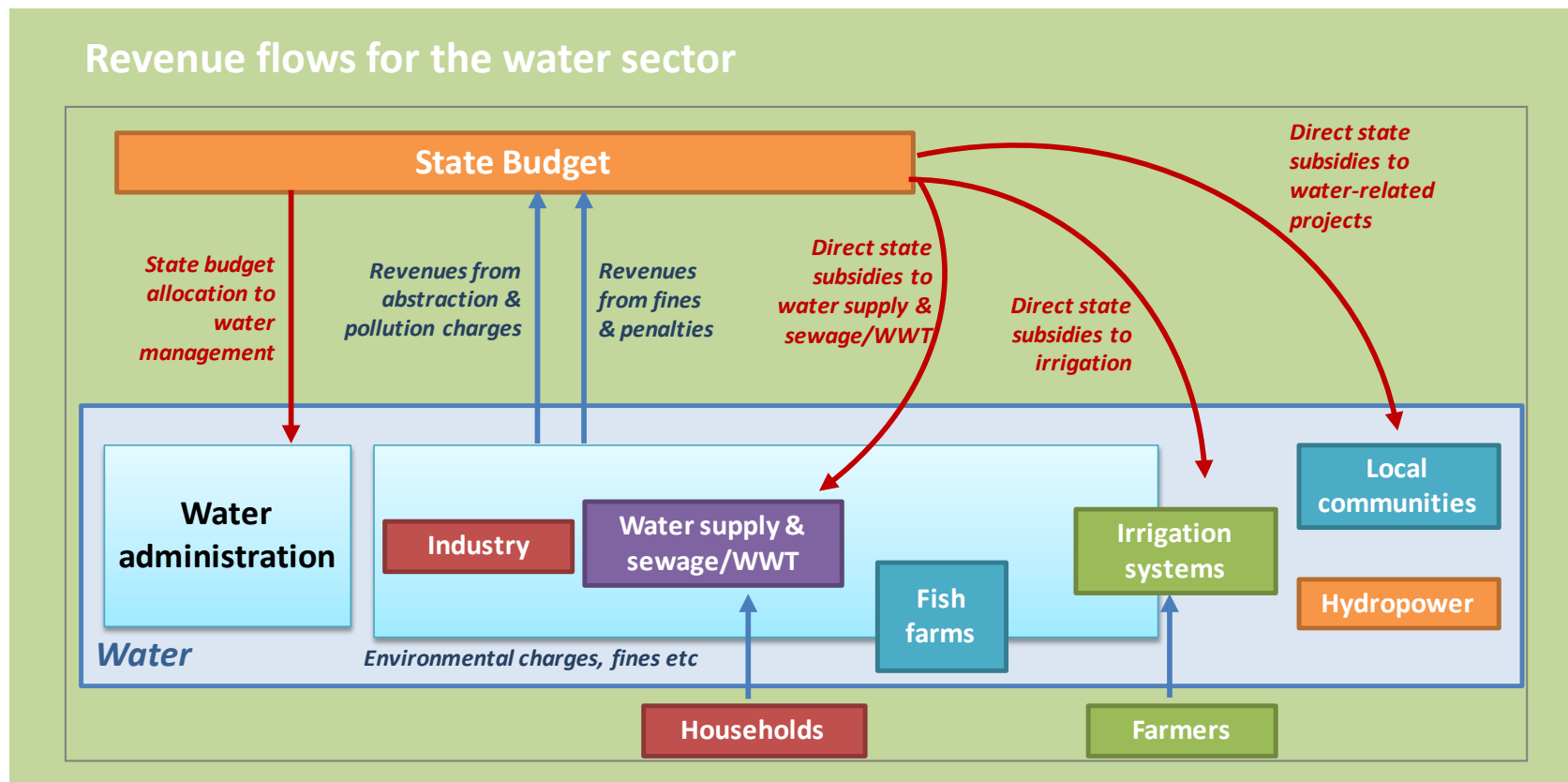


**Revision of level and structure  
of water abstraction and  
environmental fees**



# The existing system

- Abstraction and pollution charges are both regulated by one general permit including conditions for both activities.
- 90% of the revenues from abstraction and pollution charges, as well as from water related fines and penalties, are re-directed to water resources management and monitoring agencies



# The need for reform: reported issues with the current system



- **Low charge levels** → Low yearly revenues for the water management sector
- Some user sector are **exempted** or partly exempted: Hydropower producers, fishery farms, public water supply companies
- Pollution fees: complexity of reporting and calculations
- Very low charge levels, unfair distribution of charges among user groups → Poor application of the **polluter-pays principle**
- Charges are based on actual water use and pollution discharged instead of on **permitted quantity and pollution permits** → high administrative capacity required, transaction costs involved → “lost” revenues (over 970 million AMD)



## The reform is already happening

- Until recently, **fishery farms** used to pay abstraction fees only on 5% of volumes extracted.
- Originally, one of the scenarios for reform proposed and assessed by this project included an increase of these fees to fishery farms –from 5% to 50% of overall abstracted volumes in the Ararat valley, in line with Government’s intentions.

→ In September 2013, **this modification was officially approved through Resolution of the Government of Armenia**. The Resolution is now with the Parliament to be adopted in October and entering into force from January 1, 2014.

*Nevertheless, the budgetary implications and the economic, social and environmental impact of this reform will still be assessed, to gain a better understanding of its implications.*

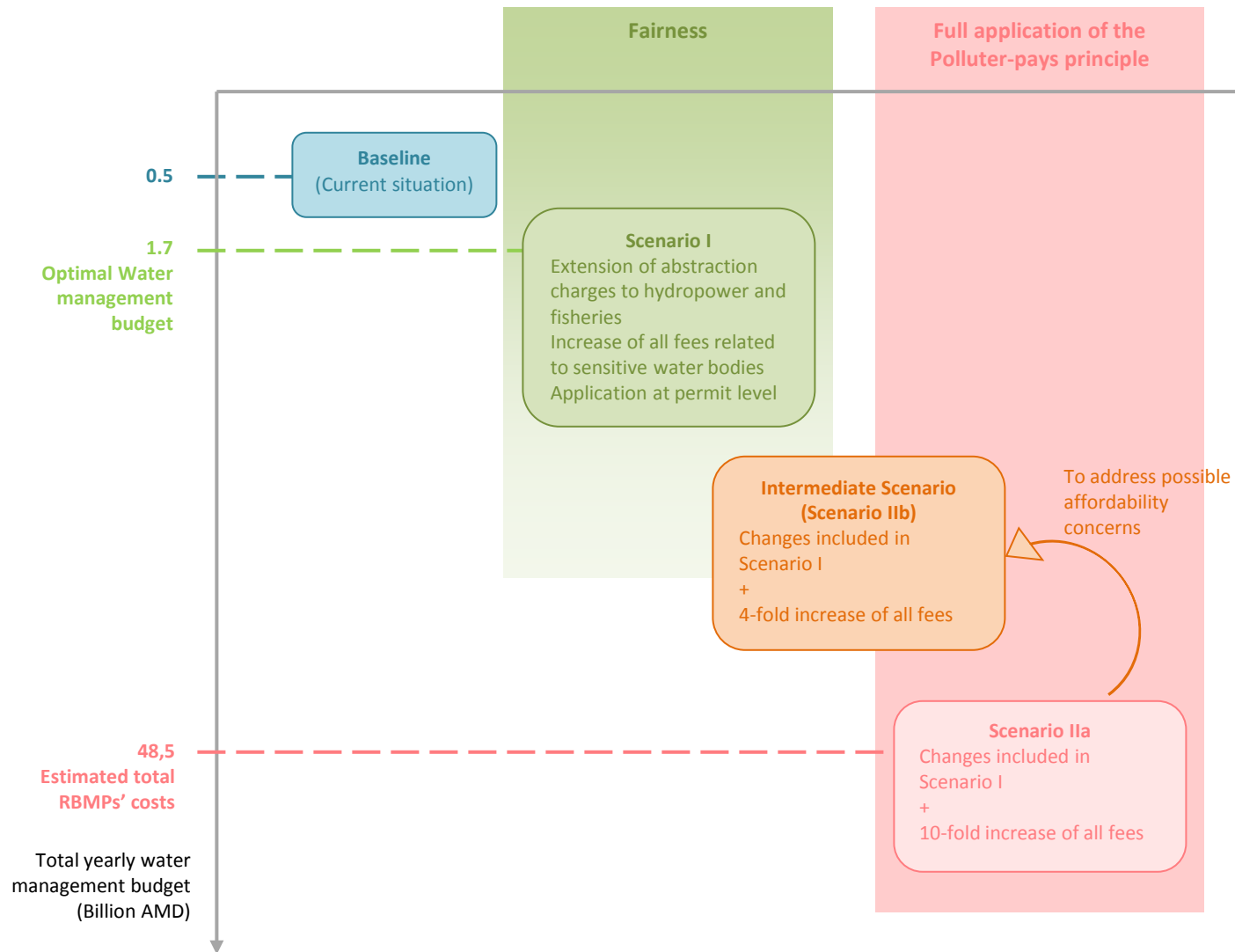
## The objectives of the reform

- **Short-term:** revenues from environmental fees must be enough to cover all expenses involved in proper water management activities
- **Medium and long term:** rates should fully cover environmental and resource costs of water abstraction and pollution, as well as provide an incentive for a more efficient (reduced) abstraction and reduced pollution.

## The priorities for the reform

- **Fairness:** all user groups must be charged in a fair and balanced way (charge rates closer to actual environmental and resource cost of abstracting water and discharging pollutants). Charge levels and structures will be set so that total annual revenues → “optimal” water management budget;
- The full application of the **polluter-pays principle**. In operational terms, it was considered that the polluter-pays principle is fully applied when total revenues → expected costs of the forthcoming River Basin Management Plans.

# The proposed scenarios in a nutshell



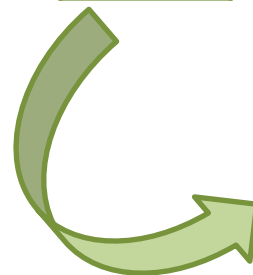
- ✓ Abstraction fees are extended to the **hydropower sector**. The rate is set at 10% of the rate for other types of water uses.
- ✓ Abstraction fees extended to **fishery farms** (fees applied to 50% of overall abstracted water, instead of 5%). This reform was already approved by the Government of Armenia.
- ✓ **Environmental fees**: all rates are multiplied by 2.5 (discharges into Lake Sevan Basin, as well as Hrazdan and Getar River) and 5 (discharges into Debed, Aghstev, Voghji, Norashenik and Metsamor rivers), as these are water bodies at qualitative risk.
- ✓ Application of all fees at **permit level**.

# Scenario I – Expected revenue flows

“Optimal” water management budget (in mln.AMD)		
Function	Budget in 2011	Optimal budget
Overall management, incl. permits	91.6	732
SW quality monitoring	218	371
Groundwater monitoring	18.1	79
Compliance assurance	61.5	200
SW quantity monitoring	108.9	273
<b>Total</b>	<b>498.1</b>	<b>1655</b>



Expected additional revenues (in mln. AMD)		
Source	Revenues in 2011	Expected revenues
Abstraction fees	168	<b>733.9</b>
Environmental fees	284.2	<b>741</b>
Fines and penalties	103	103
<b>Total</b>	<b>555.2</b>	<b>1577.9</b>
<i>+ additional revenues from application at permit level (highest potential estimate)</i>		4800



# Scenario IIa

- ✓ This scenario includes all modifications to abstraction and pollution fees introduced in Scenario I
- ✓ The objective of this scenario is to cover all projected expenditures forecasted for the full implementation of the **River Basin Management Plans**
- ✓ To reach this total budget, all rates (as from Scenario I) are **multiplied by 10**

<b>Projected total costs of RBMPs' implementation</b>	<b>48.500 million AMD</b>
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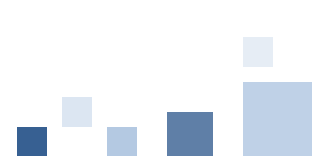
<b>Expected additional revenues (in mln. AMD)</b>		
Source	Revenue s in 2011	Expected revenues
Abstraction fees	168	<b>7339</b>
Environmental fees	284.2	<b>7410</b>
Fines and penalties	103	<b>1030</b>
Additional revenues from application at permit level (highest potential estimate)	--	<b>48000</b>
<b>Total</b>	<b>555.2</b>	<b>63779</b>

# Scenario IIb - Description

- ✓ This scenario includes all modifications to abstraction and pollution fees introduced in Scenario I
- ✓ The scenario was to cover part of the projected expenditures forecasted for the full implementation of the River Basin Management Plans, while accounting for potential affordability and acceptability issues which might
- ✓ To reach this total budget, all rates (as from Scenario I) are multiplied by 4

<b>Projected total costs of RBMPs' implementation</b>	<b>48.500 million AMD</b>
---	---------------------------

Expected additional revenues (in mln. AMD)		
Source	Revenue s in 2011	Expected revenues
Abstraction fees	168	<b>2935</b>
Environmental fees	284.2	<b>2964</b>
Fines and penalties	103	<b>412</b>
Additional revenues from application at permit level (highest potential estimate)	--	<b>19200</b>
<b>Total</b>	<b>555.2</b>	<b>25512</b>



Scenario I	Scenario IIa	Scenario IIb
+	0/+	0/+
<p>✓ Application of fees at permit level: (i) Reduction of average <b>reporting costs</b> for businesses and transaction costs for public administration; and (ii) Increased overall <b>water efficiency</b>.</p>		
<ul style="list-style-type: none"> <li>✓ Generation of additional revenues to be re-allocated to <b>research and innovation</b> in the field of water efficiency.</li> <li>✓ No economic impact on <b>household</b> and, consequently, on vulnerable social groups.</li> <li>✓ Some slight <b>economic impact</b> can be expected on hydropower production and the mining sector (linked to pollution fees)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Promotion of <b>innovation</b> and increase of overall water efficiency levels.</li> <li>✓ Average increase of <b>households' water bills: 0.22%</b> (negligible economic impact)</li> <li>✓ Some <b>slight negative economic impact</b> on hydropower production, fisheries and some industrial sectors</li> </ul>	<ul style="list-style-type: none"> <li>✓ Promotion of <b>innovation</b> and increase of overall <b>water efficiency</b> levels.</li> <li>✓ Average increase of <b>households' water bills: 0.07%</b> → no economic impact on households is expected.</li> <li>✓ Some <b>slight negative economic impact</b> on hydropower production, fisheries and some industrial sectors</li> </ul>

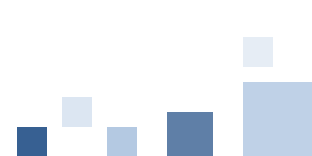


Scenario I	Scenario IIa	Scenario IIb
++	+	+
<ul style="list-style-type: none"> <li>✓ No economic impact on household → no impact on average affordability levels and on vulnerable social groups.</li> <li>✓ Promotion of informed decision-making with involvement of the public</li> <li>✓ Reduction of health risks linked to the discharge of harmful substances</li> </ul>	<ul style="list-style-type: none"> <li>✓ Average increase of households' water bills: 0.22% → Current affordability levels of water supply services are not expected to change significantly</li> <li>✓ Increased awareness and public participation</li> <li>✓ Reduction of health risks linked to the discharge of harmful substances</li> </ul>	<ul style="list-style-type: none"> <li>✓ Average increase of households' water bills: 0.07% → Current affordability levels of water supply services are not expected to change</li> <li>✓ Increased awareness and public participation</li> <li>✓ Reduction of health risks linked to the discharge of harmful substances</li> </ul>

# Affordability concerns

	Monthly water expenditure (AMD)	Expected increase rate after reform	Monthly household income, 2011 (AMD)	Affordability index - average household	Income of the lowest quintile (AMD)	Affordability index - Low-income households	
<b>Current tariffs</b>	1695						
<b>Scenario IIa</b>	1698,729						
<b>Scenario IIb</b>	1696,1865						
<b>Armenia</b>	<b>Country</b>	<b>Average tariff</b>	<b>Abstraction charge</b>	<b>% of AC on total tariff</b>	<b>% of average bill on average disposable income</b>		
		€/m3	€/m3				
	England and Wales	1,69	0,0052	0,31%	1,09%		
	Scotland	3,02	0,0033	0,11%	0,96%		
	The Netherlands	1,43	0,014	0,98%	0,60%		
	France	1,55	0,07	4,52%	0,42%		
	Germany	2,31	0,051	2,21%	0,55%		
	Slovenia	0,84	0,0555	6,61%	1,40%		
<b>Spain</b>	0,85	0,005	0,59%	0,60%			
<b>International benchmarking</b>		€/m3	AMD/m3	€/m3	AMD/m3		
	<b>Armenia - Baseline</b>	0,287	155,87	0,00005	0,025	0,02%	<b>1,376%</b>
	<b>Armenia - Scenario IIa</b>	0,288	156,21	0,0007	0,38	0,24%	<b>1,379%</b>
	<b>Armenia - Scenario IIb</b>	0,287	156,02	0,0003	0,15	0,10%	<b>1,377%</b>

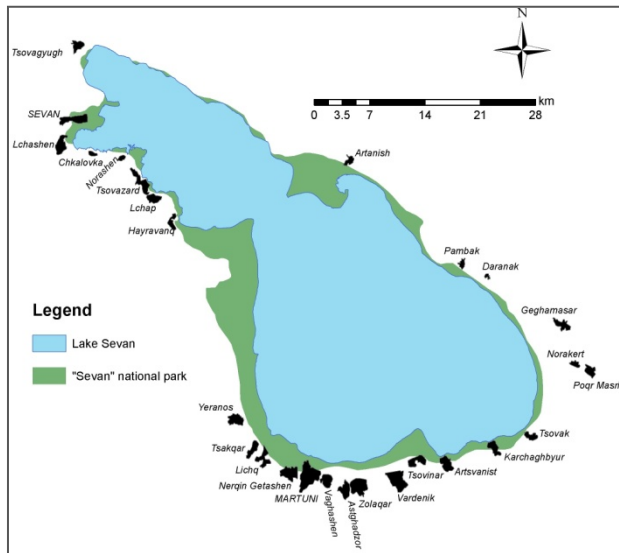
# Environmental impacts



Scenario I	Scenario IIa	Scenario IIb
+	++	+
<p>✓ At the level of the single consumer, water use is expected to decrease. However, the application at permit level is likely to entail a re-allocation of water use, and the total abstracted quantity is expected to increase</p>		
<p>✓ The reform is likely to provide a strong incentive for the <b>reduction of pollutant emissions</b> into water bodies.</p>	<p>✓ <b>Strong positive environmental impact:</b> (i) the ability to cope with climate change will be enhanced; and (ii) measures will contribute to achieve good status in Armenian water bodies.</p>	<p>✓ This scenario will contribute to <b>the implementation of RBMPs</b>, and thus it will contribute to: (i) the ability to cope with climate change will be enhanced; and (ii) achieving good status in Armenian water bodies.</p>

## Questions and issues to be addressed for each scenario

- ✓ *Is there consensus on the need for reform?*
- ✓ *Could some opposition be foreseen?*
- ✓ *Political acceptability*
- ✓ *Practical steps which could be made towards implementation*
- ✓ *The way forward: what needs to be done in the short/ longer term?*



Establishment of a water component in the land and property tax/ renting system in the vicinity of Lake Sevan

- ✓ Land and property taxes are calculated on the cadastral prices of properties established by law.
- ✓ Community revenues in Armenia include collected land and property taxes and State budget subsidies.
- ✓ In the Lake Sevan area, in particular, State budget subsidies also include a share (30%) of leasing revenues collected by the Sevan National Park

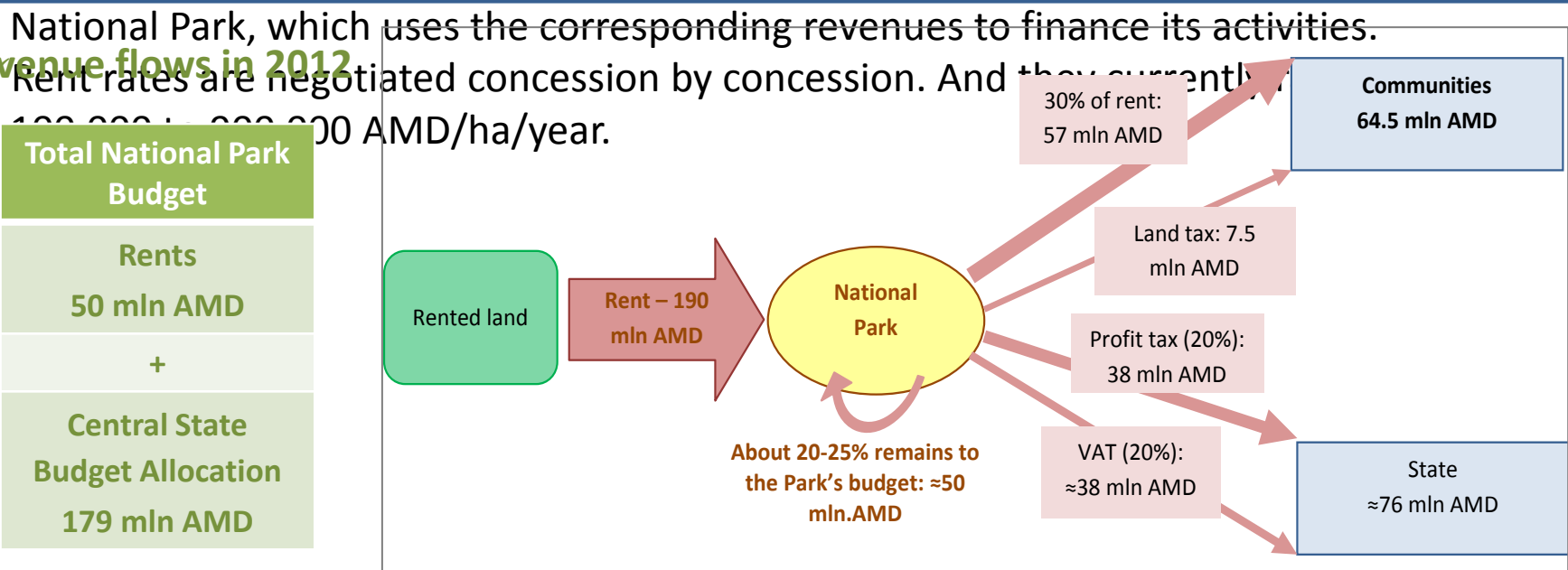
## Community revenues in the Sevan area

Type of revenue	Millions AMD
Collected property taxes	161.2
Collected land taxes	138.6
State budget subsidy	1 357.9
<b>Total</b>	<b>1 657.7</b>

# The current system: land leasing

- ✓ Land within the Park borders is a State property, and the National Park has the use of it for unlimited time free of charge.
- ✓ But the National Park can **lease the areas falling outside of the Park's strict nature protection zones through concessions**. Land users pay an annual rent to the Sevan National Park, which uses the corresponding revenues to finance its activities.

## Revenue flows in 2012



# The need for reform: reported issues with the current system



## Land and property taxes

- ✓ Cadastral prices for land and properties in the communities surrounding the lake Sevan are among the lowest in Armenia → very low levels of property and land taxes
- ✓ The existing systems and cadastral prices (values) of the properties, located nearby Lake Sevan do not take into consideration **the environmental and recreational values** of the territories and forests adjacent to Lake Sevan.
- ✓ But an increase of land and property taxes might raise affordability concerns

## Land leasing systems

- ✓ The Park Administration is constantly facing budget constraints that limit the Park's protection activities.
- ✓ To carry out proper protection activities and effectively controlling illegal fishing, hunting and soil stealing, a budget 1.8 times higher than the nominal budget forecasted for 2013
- ✓ Most renters are touristic operators, but little benefits of tourism stay within the community or the National Park



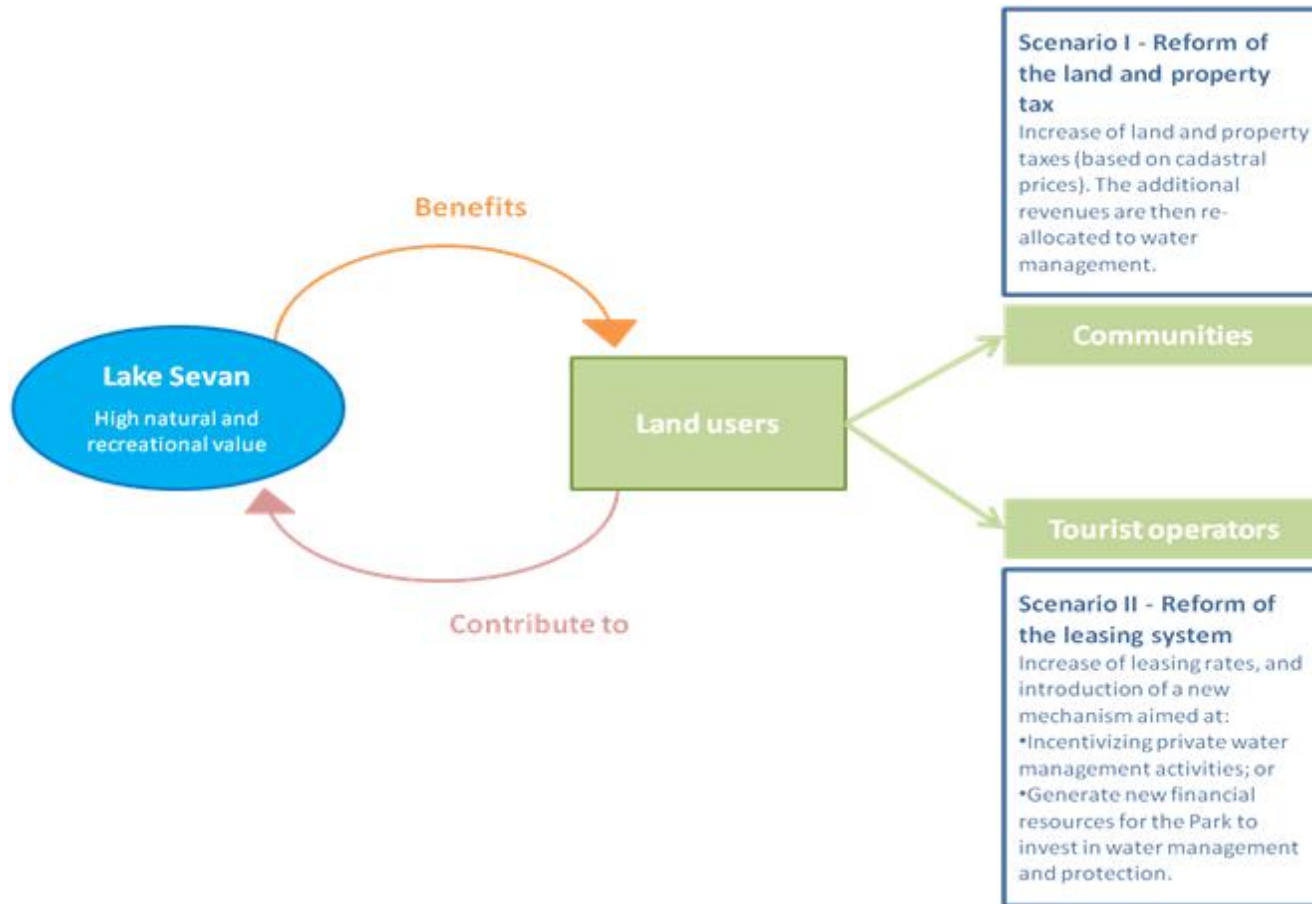
## Objectives of the reform

→ to **stimulate and promote proper water management and the protection of aquatic ecosystems in the Sevan area**, by:

- creating additional, earmarked financial resources for local communities; or
- incentivizing private initiative in this field.

The propose reform aims at addressing the current financial constraints experienced by local communities and the National Park.

# The proposed reform in a nutshell



→ In principle, the two scenarios could be implemented at the same time

- ✓ Current rates, but based on an **increased cadastral price** to account for the high value of Lake Sevan’s surroundings.
- ✓ **Corresponding increase** in the land and property tax → 30%
- ✓ As in the current situation, **revenues** will be allocated to local communities, but they will be differentiated:
  - The community general budget will still receive the same amount of revenues that it received today with current tax levels,
  - The extra revenues generated by the reform will be earmarked and used by the communities for **water management and for the protection of aquatic ecosystems**

### Expected additional revenues to be used for water management and protection (in mln AMD)

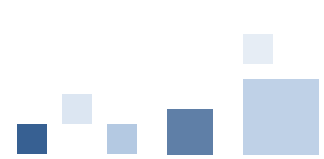
	Property tax	Land tax	Total
<b>Total revenues - 2012</b>	161.2	138.6	299.7
<b>Total revenues after reform</b>	209.5	180.1	389.7
<b>Total revenues for water</b>	<b>48.4</b>	<b>41.6</b>	<b>89.9</b>

# Scenario II

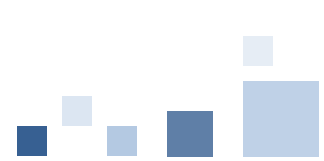
- ✓ Increased rent rates by 20%
- ✓ Reform of current renting rules:
  - If the land tenants engage in water protection activities and/or environmental projects → the rent is reduced (up to 20%)
  - If the land tenants do not engage in any environmental activities → the full rent is applied
- ✓ The **rent rebates** (up to 20%) → calculated based on the extent and impact of water protection activities/ environmental projects.
- ✓ No change in the current revenues allocation flows is envisaged for the moment.

## Potential flows of revenues before and after the reform (in mln AMD)

		Total revenues	Park's share (25%)	Communities' share (30%)	Private investment in water
<b>Current revenues</b>		190	47.5	57	0
<b>Potential revenues after reform</b>	No rebates	228	57	68.4	0
	Rebates on 20% of total revenues	218.9	54.7	65.7	9.1
	Rebates on 50% of total revenues	205.5	51.3	61.6	22.8
	Rebates on 80% of total revenues	191.52	47.88	57.5	36.5
	Rebates on 100% of total revenues	182.4	45.6	54.7	45.6



Scenario I	Scenario II
-/0	0
<ul style="list-style-type: none"><li>✓ Only a <b>small additional burden</b> is expected on SMEs.</li><li>✓ Some minor <b>administration costs</b> can be expected (linked to earmarking). But such costs can be covered by the additional revenues generated by the reform.</li><li>✓ Some minor impacts on the <b>touristic sector</b> might occur.</li></ul>	<ul style="list-style-type: none"><li>✓ Some additional <b>administrative costs</b> can be expected for businesses (application for rent rebates).</li><li>✓ No additional costs are envisaged for <b>communities and the NP administration</b>. In contrast, <b>rent revenues</b> are likely to increase, benefiting both communities and NP.</li><li>✓ Rent prices compose up to 2% of the <b>operating costs</b> for most of the businesses. Thus, increase of the rent by 20% will not have significant impact.</li></ul>



Scenario I	Scenario II
+	++
<ul style="list-style-type: none"><li>✓ The expected tax increase should be affordable for <b>average households</b>. However, <b>low-income households</b> might face affordability issues.</li><li>✓ Increased <b>public awareness</b> on sustainable water use and ecosystem protection</li><li>✓ Better water quality → decrease of <b>health risks</b></li></ul>	<ul style="list-style-type: none"><li>✓ The reform aims at promoting <b>private initiative in water management</b>, enhancing public participation.</li><li>✓ Better water quality → decrease of <b>health risks</b></li></ul>

Scenario I	Scenario IIa
++	+
<ul style="list-style-type: none"><li>✓ The reform is expected to have a positive impact on water quality and, in some cases, on water quantity. Drinking water quality is likely to improve in the medium run.</li><li>✓ In general, the availability of financial resources for water management and for the protection of aquatic ecosystems is expected to contribute to an overall better environmental quality (including healthier ecosystems).</li></ul>	<ul style="list-style-type: none"><li>✓ Positive impact on environmental quality and thus on health conditions in the area can be expected.</li><li>✓ An overall positive impact on water resources can be expected (private water management projects).</li><li>✓ With additional revenues, the NP will be able to carry out better protection activities, with a positive impact on Sevan ecosystems.</li></ul>

## Questions and issues to be addressed for each scenario

- ✓ *Is there consensus on the need for reform?*
- ✓ *Could some opposition be foreseen?*
- ✓ *Political acceptability*
- ✓ *Practical steps which could be made towards implementation*
- ✓ *The way forward: what needs to be done in the short/ longer term?*



*...the way forward*

# Conclusions from the impact assessment

→ the reform of both instruments can deliver positive (or even very positive) environmental and social outcomes, with negligible (or potentially slightly positive) economic impacts.

## Reform of level and structure of water abstraction and environmental fees

→ A progressive implementation could be envisaged

### Scenario I

to ensure fairness of the charging system and to raise sufficient revenues for optimal water management

### Scenario IIb

To raise part of the revenues for RBMPs implementation and to gradually raise fees

### Scenario IIa

the full implementation of RBMPs is made possible

Short term

Medium term

Long term

## Establishment of a water component in the land and property tax/ renting system in the vicinity of Lake Sevan

- Both proposed scenarios are expected to deliver positive environmental and social impact at no (or very little) economic cost.
  - The two proposed scenarios concern mechanisms with different target groups.
- The two scenarios could thus be **implemented at the same time**, as this would maximize the expected positive social and environmental impacts.

# Summary of discussions



- The results of the impact assessment will be refined
- The feasibility of the proposed scenarios for reform will be further investigated
- Based on the project outcomes a short policy document will be prepared to support future implementation of the reform
- .....



**Thank you for the  
attention!**