OECD Studies on Water

Enhancing the Economic Regulatory System for Moldova's Water Supply and Sanitation

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Foreword

This report aims to support the development of a sound economic regulatory system (ERS) for the water supply and sanitation (WSS) sector in the Republic of Moldova (hereafter – "Moldova"). It was prepared to inform and facilitate the National Policy Dialogue (NPD) on water policy in Moldova. The NPD was conducted in co-operation with the European Union Water Initiative plus for Eastern Partnership (EAP) countries (EUWI+) and facilitated by the OECD GREEN Action Programme Task Force (former EAP Task Force) and the United Nations Economic Commission for Europe (UNECE). The report was made possible through the financial support of the European Union, which is gratefully acknowledged.

Structure of, and contributors to, the report

Chapter 1 provides the context within which the ERS for Moldova has to operate and formulates nine demands on ERS for WSS in Moldova. Chapter 2 analyses the performance of the ERS in Moldova and outlines three scenarios based on which policy makers can further develop it. These scenarios were discussed at an Expert Meeting held on 16 November 2016 in Chisinau as part of the project. Chapter 3 analyses good practices and experience from selected countries that is potentially applicable in Moldova. Chapter 4 provides recommendations, considering proceedings from the Expert Meeting and the NPD Co-ordination Council (CC) meeting in November 2016. An indicative implementation plan is also provided.

The principal author of the report is Giel Verbeeck, with inputs from Alexander Poghossian, Eugenia Veverita, Dumitru Budianschi and Oleg Utica. All of them worked together under the project implemented by the Consortium of Alpha Plus Consulting (Armenia), TreeVelop (Netherlands) and Business Research Company (Moldova).

The authors are grateful for contributions and useful ideas from Mr. Alexander Martusevich (OECD/GREEN Action Task Force), who supervised the study, and extend their thanks to Ms Maria Dubois (OECD) and Mr Mark Foss (copy-editor) for preparing this publication.

The authors are also thankful to all who have contributed to this report through discussion. Ideas and information have been provided by the Moldovan Ministries of Environment; Finance; Regional Development and Construction; Labour, Social Protection and Family; by the independent economic regulator for water supply and sanitation (ANRE), by the Congress (association) of Local Public Authorities and the Association of Public Water Utilities; and by several individual WSS operators in Moldova and the non-governmental organisation SEAM.

Many other individuals and also shared information on global best practice in economic regulation, including on the reference countries of Chile, Kazakhstan, the Netherlands and the Flanders region of Belgium.

The analysis, statements and any eventual errors and material omissions are, however, solely the responsibility of the consortium.

The views presented in this report are those of the authors and can in no way be taken to reflect the official opinion of the government of Moldova, the European Union (EU) and OECD or of the governments of the European Union and OECD member countries.

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Abbreviations and acronyms

Abbreviation	Full name or term
3Ts	Tariffs, taxes and transfers
AA	Association Agreement (with the EU)
ANRE	National Energy Regulatory Agency of the Republic of Moldova
APC	Alpha Plus Consulting
bln	billion
BOOST	Ministry of Finance of Moldova database of public expenditures
BOT	Build-operate-transfer
BRC	Business Research Company
CDP	Corporate Development Programme (or Plan)
conn	Connection (access point)
d	day
DFSM	Domestic Financial Support Mechanism
EBITDA	Earnings before Interest, Tax, Depreciation and Amortisation
EBRD	European Bank for Reconstruction and Development
ERS	Economic Regulatory System
EU	European Union
EUR	Euro (currency of the European Monetary Union)
FOPIP	Financial and Operational Performance Improvement Programme
FYROM	Former Yugoslavia's Republic of Macedonia
GDP	Gross Domestic Product
GoM	Government of Moldova
HDI	Human Development Index
IBNET	International Benchmarking Network for Water and Sanitation Utilities
IBT	Increasing Block Tariff
IDA	Inter-community Development Agency
IFI	International Financial Institution
IFRS	International Financial Reporting Standards
IWRM	Integrated Water Resource Management
km	kilometre
KPI	Key Performance Indicator
KREMZK	Committee on Regulation of Natural Monopolies and Protection of Competition

Abbreviation	Full name or term
	under the Ministry of National Economy of the Republic of Kazakhstan
kWh	kilowatt hour (unit of electricity consumption)
LPA	Local Public Authority
lcd	litres per capita per day
m^3	Cubic metre
MDL	Moldovan Lei (national currency)
M	million
MBREF	Market-Based Repayable External Finance
MoF	Ministry of Finance
MoLSPF	Ministry of Labour, Social Protection and Family
Moldova	Republic of Moldova
MoRDC	Ministry of Regional Development and Construction
MS	Microsoft Corporation
NBS	National Bureau of Statistics of Moldova
NEF	National Ecological Fund
NFRD	National Fund for Regional Development
NGO	Non-governmental organisation
NIS	Newly Independent States (the Republics of the former Soviet Union)
NPD	National Policy Dialogue (on water policy)
NRW	Non-revenue water
OECD	Organisation for Economic Co-operation and Development
PE	Person equivalent
PIU	Project Implementation Unit
PPP	Purchasing Power Parity
RAB	Regulatory Asset Base
RBD	River Basin District
RCR	Revenue Collection Rate
RIA	Regulatory Impact Assessment
ROC	Regional Operating Company
SDGs	Sustainable Development Goals
SECO	State Secretariat for Economic Affairs (of the Swiss Confederation)
SEE	South East Europe
SPBA	Special Purpose Bank Account
Staff/k conn	Staff per 1 000 connections
TA	Technical Assistance

Abbreviation	Full name or term
TreeVelop	TreeVelop Projects and Processes
UN CESR	United Nations Committee on Economic, Social and Cultural Rights
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
USD	United States Dollar
UWWTD	Urban Waste Water Treatment Directive
W	water
WACC	Weighted Average Cost of Capital
WFD	Water Framework Directive
WSS	Water Supply and Sanitation
WTP	Water Treatment Plant
WUC	Water Users Committee
WW	Wastewater
WWT	Wastewater Treatment
WWTP	Wastewater Treatment Plant
W&WW	Water and Wastewater

Executive Summary

The economic regulatory system (ERS) for the water supply and sanitation (WSS) sector in the Republic of Moldova (hereafter "Moldova") is going through a period of change. The policy framework calls for drastic development in WSS, based on both domestic and international commitments. Foremost among these are the Association Agreement with the European Union, the Sustainable Development Goals (SDGs), the Paris Agreement on Climate and the national WSS strategy.

The firm commitments contrast with the capacity of government to provide sound economic regulation and with WSS operators' capacity to live up to much higher standards. Meanwhile, the affordability of WSS services is a genuine concern in Moldova. Apart from perhaps a small number of local initiatives, there are no WSS-related social protection measures in Moldova. At existing tariffs, the national WSS strategy has an annual funding gap of EUR 21 million. To close this gap, tariff rates must rise by 30% on average. Operators need to take drastic measures to modernise and optimise WSS systems, reduce non-revenue water, and improve staff-output ratios and other indicators of operational efficiency.

Such a transition cannot happen overnight. It requires a conducive ERS that considers affordability, the need for cost recovery and debt servicing, and a realistic performance improvement path for water utilities. This is a challenge that requires a concerted effort from all actors that make up the ERS in Moldova. To achieve the transition, the actors need to consider best practice in economic regulation and learn from specific country experiences.

International good practice explains more about the optimal "how" of economic regulation than the "what". The "how" considers issues such as the right incentives, transparency, dialogue and stakeholder consultation, clarification of roles and performance evaluation. Experience from the selected reference countries provides lessons on the "what". This includes development of the regulatory framework and social measures in Chile; Dutch experience with regionalisation and sharing the disproportionate investment burden on smaller agglomerations; social benefits and costs of the Flemish dual block tariffs; and the rationale behind regulatory reform in Kazakhstan. This experience is potentially applicable in Moldova, but differences in capacity and income must be considered.

Three scenarios of reform options outline how the development of the ERS can progress in Moldova:

1. "De-bottlenecking"
2. "Back to the drawing board"
3. "Completing and reorganising the system".

The scenarios and associated actions were discussed with local stakeholders through the on-going National policy dialogue on water in Moldova, and consensus was built that though the second option shall remain open, policy makers shall be encouraged to pursue the third option. Based on the discussion, 20 recommendations were formulated. The

first two recommendations are to: 1. Re-establish the national WSS Commission to lead and steer the reform; and 2. Perceive the economic regulator of WSS as a broker in relations between customers and operators. While the others are grouped under the following seven policy objectives: (I) Introduce the right incentives, including a tariff that encourages operators to perform better and end users to save water; (II) More decisively regionalise WSS services; (III) Facilitate nurturing of sustainable business models; (IV) Use an optimal mix of tariffs, taxes and transfers ("3Ts"), based on an up-to-date sector strategy; (V) Improve the use of economic instruments to achieve set WSS policy objectives; (VI) Use external finance to bridge the projected funding gap; and (VII) Apply well-targeted WSS-related social protection measures.

The recommendations are related to one another, making it difficult to pick and choose. Yet there is considerable room in the way these recommendations may be implemented and, wherever possible, for local customisation. The indicative implementation plan proposed in this report is therefore meant, foremost, to show a conceivable implementation framework. It has been drawn up in the understanding that many activities, responsibilities, outputs and milestones will require further elaboration and blueprinting during the process. Policy makers and stakeholders shall make a start and assess the following along the way: (i) the need for, and the content of, required legal or regulatory amendments; (ii) the more exact needs for Technical Assistance; and (iii) a plan for implementation of specific activities (e.g. a mid-term action and investment plan).

Chapter 1. The context of Moldova's economic regulatory system for water supply and sanitation

This chapter presents the context within which the economic regulatory system (ERS) for water supply and sanitation (WSS) in the Republic of Moldova (hereafter "Moldova") has to operate. It confronts ambitious sector policy objectives driven by the Association Agreement with the European Union (the EU water acquis), the Paris Agreement on Climate and WSS-related Sustainable Development Goals, and set out in the National Development Strategy (Moldova 2020) and the WSS strategy for 2014-28. It compares performance of the Moldova's WSS sector with its Danube Region peers highlighting several challenges such as non-revenue water, customer satisfaction and operating cost coverage. Finally, it formulates nine demands on the economic regulatory system (ERS).

Background

Economic regulation can be defined as all rules, procedures, practices, institutions, standards and norms, that set, monitor, enforce the economic aspects (tariffs, service standards) of water supply and sanitation (WSS) under given policy objectives (Castalia, 2005). As a natural monopoly sector, WSS requires economic regulation, either by contract (e.g. like in public-private partnership arrangements not yet in use in Moldova's WSS), or by competent regulatory authority (i.e. a professional regulator).

The Republic of Moldova (hereafter "Moldova") took important steps forward in the development of its economic regulatory system (ERS) for WSS with the adoption of Law 303 on Water Supply and Sanitation in 2013. This led to the nomination of the National Energy Regulatory Agency of the Republic of Moldova (ANRE) as the competent regulatory authority for WSS in 2014.

A sound ERS, however, includes much more than the establishment of a regulator. The 2000 Almaty Ministerial conference provided an idea of what one may expect from a sound ERS (OECD EAP Task Force, 2000[1]):

- economic efficiency i.e. ensuring the best possible use of resources for the most productive outcomes
- cost recovery i.e. providing revenues to meet the costs of operations, maintenance and administration
- fairness i.e. treating all customers equally and excluding any abuse of market power by the natural monopoly
- financial stability i.e. minimising revenue fluctuation
- resource conservation and resource use efficiency by providing environmental and economic incentives, respectively
- social orientation of water services, without making the water utility a social agency.

In the context of transition countries, it is possible to add (OECD EAP Task Force, 2000[1]):

- ruling out of unfunded mandates in the environmental, social and public obligation sphere
- simplicity and "*understandability*".

To ensure the above outcomes, it is required to:

- provide the right governance of the regulatory agency
- ensure the proper integration, co-ordination and communication with the other constituents of the ERS.

Moldova's ERS has to perform within two important contexts:

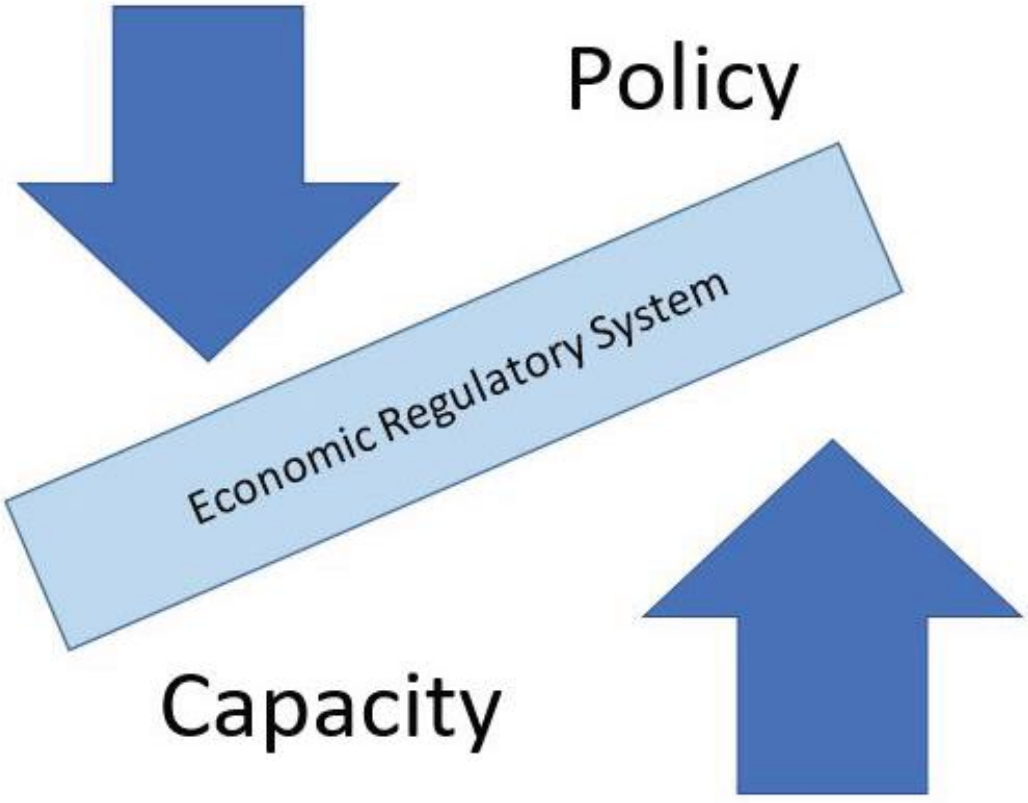
- "Policy": the internal and external policy objectives of Moldova.
- "Capacity": the characteristics of the WSS providers and their stakeholders, including in terms of number, production capacity, operations, physical condition and financial situation.

"Policy" sets the ambition. It provides direction on what must be achieved or accommodated by the ERS. Internationally, Moldova has committed to WSS-related objectives in the Association Agreement with the EU and the Sustainable Development Goals (SDGs), as well as the Paris Agreement on Climate. National strategy and policy documents also reflect commitments to WSS-related goals. Both international and domestic commitments are further described in section 1.2.

"Capacity" constrains the policy ambition. The WSS sector in Moldova faces challenges that will make it hard to absorb funds, regionalise, increase tariffs, co-finance, plan and manage projects required for compliance with the policy objectives.

As suggested in Figure 1.1, balance is needed between policy ambition and financial and human resources, planning, management and absorption capacity. A sound ERS would aim to achieve the balance and maintain it

Figure 1.1. Context within which Economic Regulatory System must perform



Source: Author's own elaboraion

Policy objectives

The policy framework for WSS in Moldova is explicit. Its targets are defined in:

- Moldova's Association Agreement with the EU
- SDGs and Paris Agreement
- National policies and strategies (incl. WSS and adaptation to climate change) (UNDP, 2009[2])

Association Agreement

The 2014 Association Agreement (AA) with the EU became effective as of 1 July 2016. The AA foresees in particular compliance with the relevant EU water directives. These include:

- Water Framework Directive (WFD)

For Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy as amended by Decision No 2455/2001/EC, the AA provides for the following:

  - adoption of national legislation and designation of competent authorities within three years of the AA becoming effective
  - analysis of River Basin Districts (RBDs) and establishing programmes for monitoring of water quantity and quality within six years
  - preparation, consultation and publication of RBD management plans within eight years.
- Urban Waste Water Treatment Directive (UWWTD)

For Council Directive 91/271/EEC of 21 May 1991 concerning urban wastewater treatment as amended by Directive 98/15/EC and Regulation (EC) No 1882/2003, the following timetable has been agreed:

  - adoption of national legislation and designation of competent authority/authorities within three years
  - assessment of the status of urban wastewater collection and treatment within five years
  - identification of sensitive areas and agglomerations within six years
  - preparation of technical and investment programmes for the implementation of the urban wastewater treatment requirements within eight years.
- Flood Risk Directive

For Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks, the AA provides the following implementation deadlines:

  - adoption of national legislation and designation of competent authority(ties) within three years
  - preliminary flood assessment within four years
  - preparation of flood hazards maps and flood risks maps within six years
  - establishment of flood risk management plans within eight years.
- Drinking Water Quality Directive

For Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption as amended by Regulation (EC) No 1882/2003, the AA provides for the following implementation deadlines:

  - adoption of national legislation and designation of competent authority (ties) within three years
  - establishment of standards for drinking water within four years
  - establishment of a monitoring system and a mechanism to provide information to consumers within six years.
- Nitrates Directive

Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources as amended by Regulation (EC) No 1882/2003 is to be implemented with the following deadlines:

  - adoption of national legislation and designation of competent authority/authorities within three years

- identification of polluted waters or waters at risk and designation of nitrate vulnerable zones and establishment of action plans and codes of good agricultural practices for nitrate vulnerable zones within five years.

Implementation of the above directives is costly. WSS customers will pay the bulk of compliance costs. Only the cost of compliance with the pollution directive may be borne by agriculture and industry. Climate adaptation measures covered by the AA will be an additional cost for WSS, although not that significant (OECD EAP Task Force, 2013[3]). Section 2.4 provides estimates for the associated costs.

Article 9 of the WFD provides for two principles that have far-reaching consequences for the ERS:

1. **Full cost recovery** i.e. the costs of WSS shall include not only operation and capital costs, but also the environmental and resource costs associated with the consumption of the service.
2. **Polluter pays principle** i.e. the cost of environmental degradation is borne by the person that causes it. This may also be regarded as an application of the first principle.

The two principles imply that WSS consumers will eventually pay for the full costs of service provision. In most cities, including Chisinau, the present tariffs represent only a part of the full costs. Annex A provides a table on the tariff rates charged in all 40 main service areas.

Sustainable development goals

The second series of high-level policy objectives is the WSS-related Sustainable Development Goals (SDGs). SDG6 is to ensure availability and sustainable management of water and sanitation for all. The SDG6 objectives are an elaboration of the human right to water that entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses (UN CESCR – General Comment 15, para 2). The main commitments made under Goal 6 Water and Sanitation are (to be achieved by 2030, unless indicated differently below):

- Achieve universal and equitable access to safe and affordable drinking water for all (100% of population).
- Reduce water pollution.
- Increase water-use efficiency.
- Introduce integrated water resource management (IWRM) at all levels, including transboundary.
- Protect and restore water-related ecosystems (by 2020).

For each of the SDG6 objectives, indicators have been formulated. Table 1.1 provides all SDG6 goals and indicators.

Table 1.1. SDGs commitments applicable for Moldova

TARGETS		INDICATORS	
6.1	By 2030, achieve universal and equitable access to safe and affordable drinking water for all	6.1.1	Proportion of population using safely managed drinking water services
6.2	By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	6.2.1	Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water
6.3	By 2030, improve water quality by reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	6.3.1 6.3.2	Proportion of wastewater safely treated Proportion of bodies of water with good ambient water quality
6.4	By 2030, substantially increase of water-use efficiency across all sectors and ensure sustainable withdrawals and supply of fresh water to address water scarcity and substantially reduce the number of people suffering from water scarcity	6.4.1 6.4.2	Change in water-use efficiency over time Level of water stress: freshwater withdrawal as a proportion of available freshwater resources
6.5	By 2030, implement integrated water resources management at all levels, including through transboundary co-operation as appropriate	6.5.1 6.5.2	Degree of integral water resources management implementation (0-100) Proportion of transboundary basin area with an operational arrangement for water co-operation
6.6	By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	6.6.1	Change in the extent of water-related ecosystems over time
6.A	By 2030, expand international co-operation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies	6.A.1	Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan
6.B	Support and strengthen the participation of local communities in improving water and sanitation management	6.B.1	Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management

Source: (UN, 2015[4]), The 2030 Agenda for Sustainable Development, https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf.

Some of the remaining 16 SDGs also relate to WSS, such as SDG11 (sustainable cities and communities) and SDG13 (climate action). Progress on indicators is to be monitored at country level. With support of the United Nations Development Programme (UNDP), Moldova has completed identification of data sources and owners. There is still a lot of work ahead to monitor progress in Moldova adequately. Data were available for only three of ten SDG6 indicators when this report was finalised.

Furthermore, the global SDGs must be translated into domestic priorities and integrated into policy and budgetary frameworks. Preliminary UNDP analysis shows most SDG6 objectives

are only partially aligned with national policy due, for instance, to ambiguity or inconsistency in national policies. There is work ahead here as well towards establishing national targets and indicators to monitor progress. Fortunately, the water-related articles of the EU Association Agreement are well aligned with SDG6 objectives.

Preliminary analysis on adaptation of the SDGs to domestic priorities also shows that Moldova intends to deliver on some SDG objectives well before 2030 – those covered already under specific targets of national policy and strategy.

The Paris Agreement on Climate underlines the ambitions with respect to the SDGs for Moldova. Its impact on the demands on the ERS is therefore not further analysed here.

National policy and strategy

In addition to external commitments, the following domestic policy documents determine expectations from the ERS in the years to come. These are:

- National Development Strategy (Moldova 2020)

From the three domestic WSS-related documents, the National Development Strategy (NDS) is the highest in ranking. This is because it has been developed as an over-arching socio-economic strategy by a number of collaborating ministries.

According tovarious studies, access to clean water and sanitation is one of the most cost-effective development interventions and is critical for reducing poverty. It is therefore remarkable that the NDS only mentions water sporadically compared to, for instance, education and transport. In fact, access to water is often a condition for education and increased mobility. It is not possible to derive concrete WSS-related policy objectives from the NDS.

- Water Supply and Sanitation Strategy (2014 – 2028)

The national Water Supply and Sanitation Strategy is concerned with the plan to comply with the EU acquis, including its financing. It schedules investment priorities as follows:

  - 1 400 km network extension for water supply
  - 511 km for network extension for wastewater sewerage
  - 42 new or rehabilitated water treatment plants (WTPs)
  - 49 new or rehabilitated wastewater treatment plants (WWTPs).

The strategy speaks out in favour of regionalisation of services to improve absorption capacity and management and to reduce operating costs.

- National Environmental Strategy (2014 – 2023)

Water scarcity in Moldova is already foreseen by the 2020s or, at latest, by the early 2030s (UNDP, 2009). In the absence of climate change adaptation measures, this will create a barrier for further economic development. The National Environmental Strategy includes adaptation to climate change, targets on access to WSS, wastewater treatment and sludge management.

An important objective is to ensure access to safe piped water supply for 80% of the population and to sanitation systems and services for 65% of the population by 2023 (see Table 1.2). This degree of coverage has been achieved for the urban population. However, 55% of the population in Moldova lives in rural areas, making achievement of the target a formidable challenge.

The WSS strategy was developed in 2011/12 and officially approved in March, 2014, whereas the National Environmental Strategy was developed in the years thereafter. The two strategies

are government-endorsed documents with the same status; one does not follow from the other. The government of Moldova is committed to implementation of both documents (as well as to the implementation of the NDS).

Table 1.2. WSS specific objectives extracted from the National Environmental Strategy (2014 – 2023)

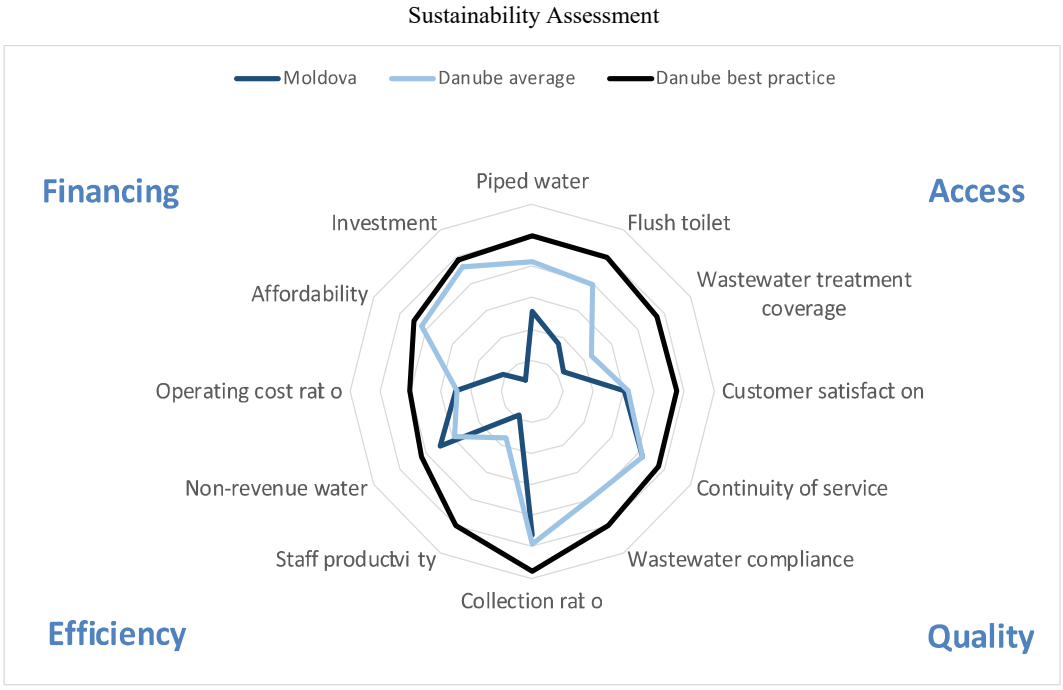
№	Action title	Time frame	Responsible institution	Monitoring indicators	Estimated costs, MDL	Sources of financing
65	Development of the water supply and sanitation infrastructure, as well as ensuring access, by the year 2023, of some 80% of the population to safe water supply and sanitation systems and services, and development of regional water supply and sanitation systems Soroca – Balti, Vadul lui Voda – Chisinau – Straseni – Calarasi, Prut – Leova – Basarabeasca – Cimislia and Ceadir – Lunga	2023	Ministry of Environment; Ministry of Regional Development and Construction	Aqueducts, sewerage networks – built; wastewater treatment stations, population – connected	3 910 415 850	State budget; foreign investment and assistance; National Ecological Fund; Regional Development Fund
66	Promoting the principles of market economy and promoting public-private partnership in the field of water supply and sanitation	2015	Ministry of Environment; Ministry of Economy	Economic instruments – applied, public-private partnerships– established	105 600	State budget
67	Assessment of the situation regarding urban wastewater collection and treatment and identification of sensitive and less sensitive areas	2020	Ministry of Environment; Ministry of Health	Assessment study – realised; sensitive areas – identified	Within the approved state budget limits	State budget; foreign assistance
68	Elaboration of technical and investment programmes to implement requirements for urban wastewater treatment in accordance with the provisions of *Council Directive 91/271/EEC of 21 May 1991 concerning urban wastewater treatment*	2022	Ministry of Environment	Directive provisions – transposed and implemented	2 825 068 800	State budget; foreign assistance

Source: (UNEP, 2014[5]) "Environmental Strategy for the years 2014-2023", https://www.unenvironment.org/resources/report/environmental-strategy-years-2014-2023.

Water supply and sanitation sector performance

Moldova's ambitious policy agenda is to be realised in a developing institutional and regulatory environment and also in severe economic hardship. At purchasing power parity (PPP), gross domestic product (GDP) per capita in Moldova is just 55% of the average for countries in South Eastern Europe (SEE) that are non-EU members. This ranks Moldova as by far Europe's poorest country. Figure 1.2 provides a snapshot of the capacity of the WSS sector in Moldova. Annex 1.A compares indicators of Moldova's WSS sector with those of non-EU and Danube Region average values.

Figure 1.2. Moldova's WSS performance in comparative perspective



Source: author's own elaboration based on data from the *Water and Wastewater Services in the Danube Region* project's web-site: www.danube-water-program.org (accessed 13 June 2017).

The WSS sector in Moldova is well behind its Central and South East European peers with respect to:

- Access to WSS, which is around 65% for water and still significantly lower for sanitation.
- Wastewater treatment, at 24% of the population connected.
- Staff levels are two-three times above benchmark levels of three-five staff per thousand connections: water plus wastewater.
- Affordability of service, which for most of the population is above 5% of household expenditures, as illustrated by the recent affordability assessment (see Figure 2.5). Investment from utilities' own resources in WSS per capita is on average 30% below other non-EU countries in SEE. It is 90% below the Danube average (i.e. including also new EU member states in the Danube basin).

While at least in line with the Central and South East European average, significant challenges remain in several other fields (Pienaru et al., 2014):

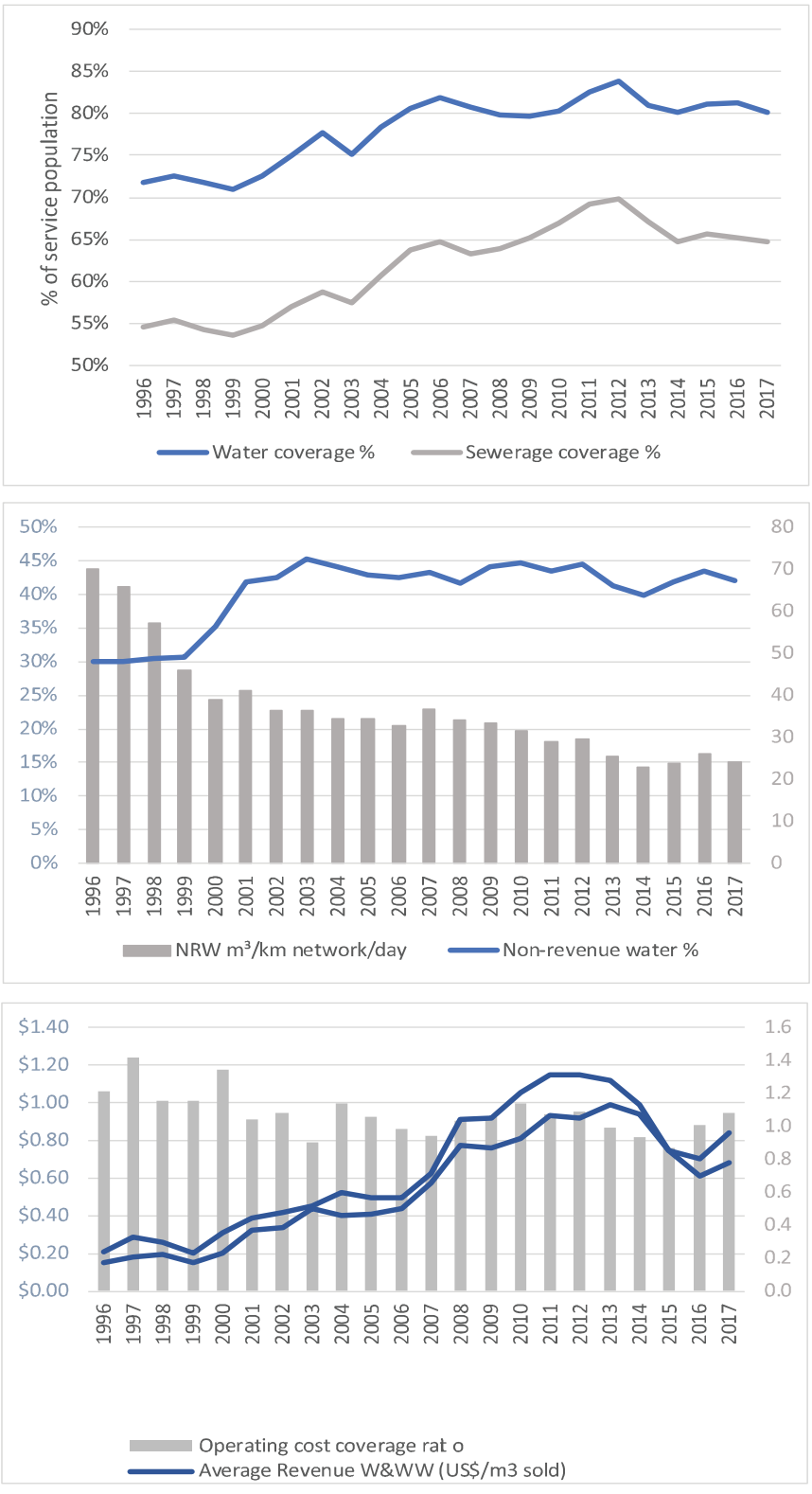
- non-revenue water (presently at 41%)
- customer satisfaction
- operating cost coverage (presently at 0.99 compared to a benchmark of 1.5) (see Table 1.3 and Figure 1.3 for more details).

Table 1.3. IBNET data for WSS in Moldova (2012-16), based on 43 largest, urban utilities

	2012	2013	2014	2015	2016
1.1 Water coverage (percentage)	84	81	80	81	81
2.1 Sewerage coverage (percentage)	70	67	65	66	65
4.1 Total water consumption (lcd)	133	129	125	127	126
4.7 Residential water consumption (lcd)	103	100	98	100	98
6.1 Non-revenue water (percentage)	44	41	40	42	44
6.2 Non-revenue water (m^3/km/d)	30	26	23	24	26
8.1 Water sold that is metered (percentage)	90	88	88	87	74
11.1 Operational costs W&WW (USD/m^3 sold)	1.05	1.13	1.07	0.86	0.70
12.2 Staff (W&WW/per 000 W&WW Conn)	15.0	13.0	12.0	12.0	11.0
12.4 Staff (W&WW/per 000 W&WW pop served)	2.0	1.8	1.8	1.8	1.7
18.1 Average revenue W&WW (USD/m^3 sold)	1.14	1.12	0.99	0.74	0.70
23.1 Collection period (days)	282	274	190	174	127
24.1 Operating cost coverage ratio (before depreciation)	1.09	0.99	0.94	0.87	1.01

Note: The challenges for WSS in Moldova have been documented extensively.
Source: Pienaru et al. (2014); IBNET database[1] www.IB-NET.org (accessed on 5 April 2017).

Figure 1.3. IBNET country snapshot Moldova, based on 43 largest utilities



Source: Author's own elaboration based on data from the IBNET database, www.IB-NET.org (accessed on 5 April 2017)

Demands on ERS for WSS in Moldova

Given the disparity between the limited capacity (human resources, financial, absorption) of the sector and the ambitious policy commitments, the demand on the ERS in Moldova is intense. There are nine demands on ERS that can be derived from the policy objectives:

1. Monitor and steer towards improved performance in WSS and on incentives for efficiency.

Rather than applying fixed standards, the ERS shall trigger developments leading to improved performance. Two key factors are increased transparency and negotiations with utilities on performance improvement trajectories, including for staff, non-revenue water, specific energy consumption, etc. This shall be done on the basis of business plans (or corporate development plan).

2. Focus regulatory efforts on large, regionalised entities.

Romania and Kosovo are seen as successful examples of regionalisation. Following their practice, the ERS in Moldova may consider leaving the economic regulation of small, non-regionalised entities completely to municipalities.

3. Facilitate the emergence of sustainable business models in WSS.

The traditional municipal water utility (Apacanal*)* model is not the standard solution or panacea for the sector's challenges. Regionalisation of WSS services has been foreseen on paper, but is hardly functioning in practice. Apart from horizontal integration, a number of alternative solutions may be suitable in particular service areas. These include reconsidering and facilitating:

- the right degree of vertical integration
- the optimal combination of water production, distribution, sewerage and wastewater treatment may differ across regions and between rural and urban areas
- the use of private sector participation, including outsourcing services.

4. Allow for tariff increases to fund operation of WWTPs.

When WWTPs become operational, tariffs must be increased to cover the jump in operating costs. If tariffs do not rise, WWTPs won't have enough cash flow to start operations.

5. Offer well-targeted mechanisms for protection of poor and vulnerable citizens.

Considering the necessary increases in tariffs and the human right to WSS, social safety nets are needed to ensure access for poor and vulnerable citizens.

6. Set the overall affordability constraint for the population within which tariffs may rise.

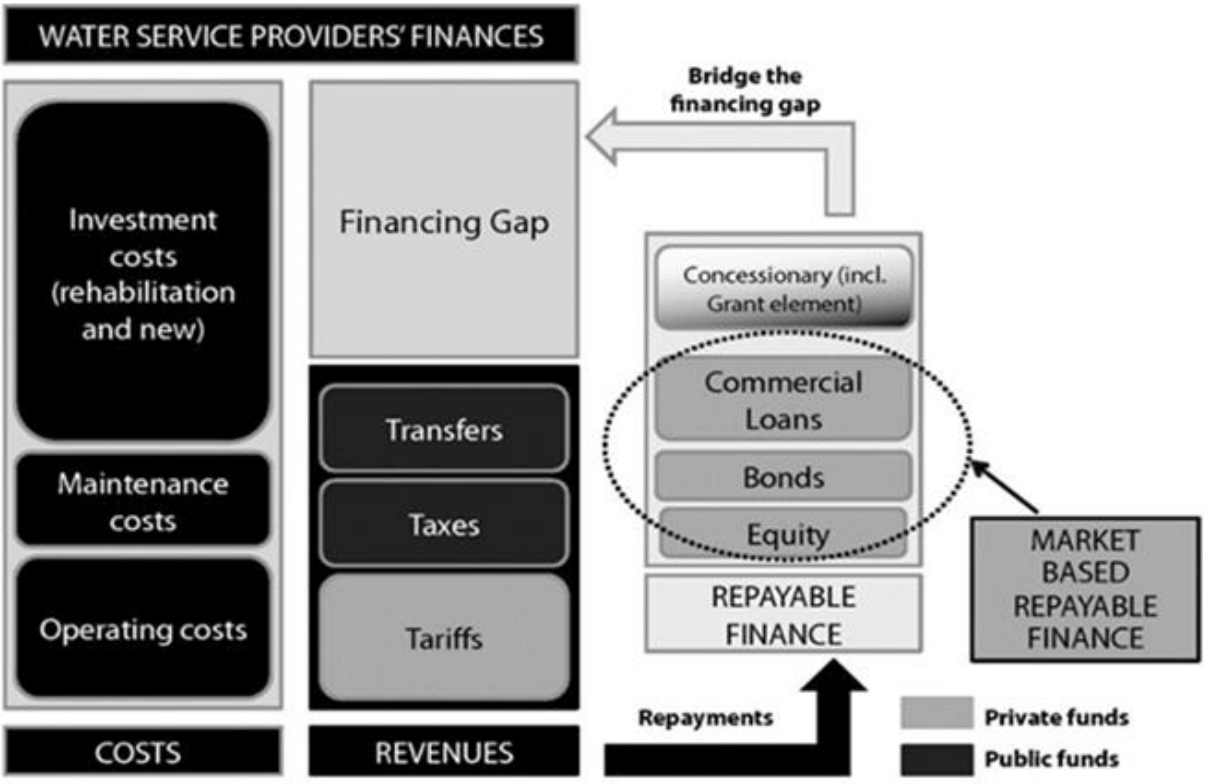
Unlike most SEE countries, the overall affordability constraint in Moldova is real. For some service areas, average expenditure on WSS is already above the commonly used threshold of 4% of household expenditure. A clearly defined affordability ceiling is needed. To meet affordability criteria, rural service areas may have to merge with richer, urban areas. A uniform tariff would be applied through the service area with the richer areas cross-subsidising the poorer ones.

7. Recognise the need to bridge the funding gap through (affordable) loans and other forms of market-based (repayable) external finance.

The foreseen peak in capital expenditure cannot be covered by tariffs, transfers and taxes (3Ts) alone. Such peaks require external, repayable finance, mostly through loans from international

financial institutions (IFIs). This can bridge, but not close, the funding gap; only the 3Ts can close it, as illustrated in Figure 1.4. This requires an ERS that recognises the cash flow consequences of external financing. That ERS should allow tariffs to accommodate debt service obligations, if taxes and transfers have not been committed to do so.

Figure 1.4. Repayable external finance to bridge the funding gap



Source: (OECD, 2010[6]), Innovative Financing Mechanisms for the Water Sector

8. Allow for adequate and cost-effective ways to achieve SDG6 through revised design and construction norms for WSS and service quality standards, among others.

Given the challenge of meeting the SDGs, more flexible, appropriate approaches to WSS are needed, particularly in sanitation and in rural areas. This should be possible without breaking any construction or service norms or standards.

9. Apply dedicated economic instruments to co-finance investment, particularly in wastewater treatment (OECD, 2010[6]).

The WFD calls for *water pricing* in accordance with the full cost recovery and polluter pays principle. Full cost recovery implies charging not only the operating and capital costs of service, but also the environmental and resource costs. In Moldova, however, full cost recovery in WSS cannot be achieved through tariffs alone in the years up to 2030. The ERS will have to provide for other complementary economic instruments such as charges, taxes and market-based instruments. At the same time, these instruments can generate funds needed for co-financing WSS capital expenditure, particularly for wastewater treatment.

The demands are summarised in Annex 1.B. They were discussed among stakeholders and in an Expert Meeting on 16 November 2016. Furthermore, Annex 1.A.2 provides an overview of

the relations, the necessary balance and the possible conflicts between these demands. From the overview, one can see that the demands on the system are compatible or can be reconciled.

Notes

[1] The International Benchmarking Network for Water and Sanitation Utilities (IBNET) provides online access to the world largest database for water and sanitation utilities performance data through www.ib-net-org.

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Annex 1.A. Indicators of Moldova's WSS sector in comparison with Non-EU and Danube Region average figures (sector data from Danube programme)

Indicator	Year	Source	Value	Non-EU average	Danube average	Danube best
Context for services						
Socio-economic situation						
Population (M. Inhabitants)	2013	World Bank 2015	3.559	24.524	8.451	n.a.
Population growth (compound growth rate 1990 – 2013) (percentage)	1990-2013	World Bank 2015	-0.16	-0.54	-0.37	n.a.
Share of urban population (percentage)	2013	World Bank 2015	45	67	63	n.a.
GDP per capita, PPP (current international USD)	2013	World Bank 2015	4 669	8 489	16 902	n.a.
Poverty headcount ratio (USD 2.50 a day); PPP (percentage of pop)	2011	World Bank 2015	7.07	0.64	1.65	n.a.
Administrative organisation						
No. of local government units (municipalities)	2011	IMF 2012	981	6 303	1 987	n.a.
Av. size of local government units (inhabitants)	2013	Author's elab	3 628	3 891	4 253	n.a.
Water resources						
Total renewable water availability (m^3/cap/year)	2008-12	FAO Aquastat 2015	3 315	9 156	7 070	n.a.
Annual freshwater withdrawals, domestic (percentage of total withdrawal)	2013	World Bank 2015	14	20	26	n.a.
Share of surface water as drinking water source (percentage)	2014	ICPDR 2015	33	27	31	n.a.
Organisation of services						
Number of formal water service providers	2012	AMAC 2015	52	824	661	n.a.
Average population served (inhabitants)	2013	Author's elab.	29 430	18 882	9 496	n.a.
Dominant service provider type	Joint stock water and sanitation companies					
Service scope	Water and/or sanitation					
Ownership	State-owned					
Geographic scope	Municipal					
Water services law?	Yes					
Single line ministry?	No					
Regulatory agency?	Yes (ANRE)					
Utility performance indicators publicly available?	Yes (www.amac.md)					

National utility association?	Yes (AMAC for water and wastewater with limited coverage)					
Private sector participation	No					
Indicator	**Year**	**Source**	**Value**	**Non-EU average**	**Danube average**	**Danube best**
Access to services						
Water supply						
Piped supply – average (percentage)	2010	Author's elab.	51	71	83	100
Piped supply – bottom 40% (percentage)	2010	Author's elab.	27	61	76	100
Piped supply – below $2.5/day (PPP) (percentage)	2010	Author's elab.	10	39	61	100
Including from public supply-average (percentage)	2010	BNS 2010	43	63	74	99
Sanitation and sewerage						
Flush toilet – average (percentage)	2010	Author's elab.	35	69	79	99
Flush toilet – bottom 40%	2010	Author's elab.	15	60	70	98
Flush toilet – below $2.50 (PPP) (percentage)	2010	Author's elab.	5	38	54	100
Including with sewer – average (percentage)	2012	IBNET 2015	38	70	66	94
Wastewater treatment						
Connected to wastewater treatment plant (percentage)	2013	IBNET 2015	24	36	45	95
Performance of services						
Service quality						
Residential water consumption (litres/capita/day)	2012	AMAC 2015	126	116	122	n.a.
Water supply continuity (hours/day)	2012	IBNET 2015	21	17	20	24
Drinking water quality (percentage of samples in full compliance)	2014	Mediu 2014	86	86	93	99.9
Wastewater treatment quality (percentage of samples in full BOD5 compliance)	-	-	-	n.a.	79	100
Sewer blockages (number/km/year)	2013	IBNET 2015	12.1	12.1	5.0	0.2
Customer satisfaction (percentage of population satisfied with services)	c	Gallup 2013	61	44	63	95
Efficiency						
Non-revenue water (percentage)	2013	IBNET 2015	41	31	35	16
Non-revenue water (m^3/km/day)	2013	IBNET 2015	25.5	59	35	5
Staff productivity (water and wastewater) (number of employees/per 000 connections)	2012	AMAC 2015	13.3	13.3	9.6	2.0
Staff productivity (water and wastewater) (number of employees/per 000 inh. served)	2013	IBNET 2015	2.2	2.0	1.7	0.4
Billing collection rate (cash income/billed revenue) (percentage)	2012	AMAC 2015	92	98	98	116

Metering level (metered connections/connections) (percentage)	2012	IBNET 2015	80	70	84	100
Water Utility Performance Index (WUPI)	n.a.	Author's elab.	58	59	69	94

Indicator	Year	Source	Value	Non-EU average	Danube average	Danube best
Financing of services						
Sources of financing						
Overall sector financing (€/capita/year)		Author's elab	17	21	62	n.a.
Overall sector financing (share of GDP) (percentage)		Author's elab.	0.5	0.35	0.45	n.a.
Percentage of service cost financed from tariffs		Author's elab.	86	65	67	n.a.
Percentage of service cost financed from taxes		Author's elab.	5	30	13	n.a.
Percentage of service cost financed from transfers		Author's elab.	9	5	20	n.a.
Service expenditure						
Average annual investment (share of overall sector financing) (percentage)		Author's elab.	13	14	38	n.a.
Average annual investment (€/capita/year)		Author's elab.	2	3	23	n.a.
Estimated investment needed to achieve targets (€/capita/year)	2013-2017	Eptisa 2012	11	15	43	n.a.
Of which, share of wastewater management (percentage)		Author's elab.	67	42	61	n.a.
Cost recovery						
Average residential tariff (incl. water and wastewater) (€/m³)	2012	AMAC 2015	0.85	0.51	1.32	n.a.
Operation and maintenance unit cost (€/m³)		Author's elab.	0.76	0.69	1.20	n.a.
Operating cost coverage (billed revenue/operating expenses, ratio)	2012	IBNET 2015	0.99	0.75	0.96	1.49
Affordability						
Share of potential WSS expenditures over average income (percentage)	2010	Author's elab.	4.5	2.1	2.6	n.a.
Share of potential WSS expenditures over bottom 40% income (percentage)	2010	Author's elab.	6.8	2.9	3.8	n.a.
Share of households with potential WSS expenditures above 5% of average income (percentage)	2010	Author's elab.	32.2	2.7	14.1	n.a.
Sustainability of services						
Sector sustainability assessment	n.a.	Author's elab.	50	54	64	96

Source: *Water and Wastewater Services in the Danube Region* project's web-site: www.danube-water-program.org (accessed 13 June 2017) and author's own elaboration

Annex 1.B. Relationship needed for balance and possible conflicts between the demands on ERS

	Incentives (1)	Regionalisation (2)	Business models (3)	Tariffs (4)	Social measures (5)	Affordability (6)	External finance (7)	Cost-effective capex (8)	Dedicated economic instruments for WSS (9)
Incentives (1)	Equals	May stimulate regionalisation	Shall be neutral to the business model applied*	May be included in tariffs*	May offset social measures*	Influences cost/benefits and (indirectly) affordability*	Shall be neutral towards the use of external finance*	May influence cost/benefits of (specific) capex*	Are the active ingredient of economic instruments
Regionalisation (2)	Is in need for more incentives towards it	Equals	Is one of the alternative business models	Regionalisation can lead to tariff harmonisation*	May be seen itself as a (long-term) social measure	Improves affordability (over longer term)	Eases access to external finance	Allows for more cost-effective capex	Allows for more efficient application of economic instruments
Business models (3)	Introducing more business models incentivises efficient service provision	Have increased potential in a context of regionalisation	Equals	May require a differentiated tariff for differentiated services*	Shall not affect eligibility for social measures*	May ease the affordability of services	May be designed (also) to facilitate external finance	May improve the adoption of cost-effective capex	Shall allow for equal application of economic instruments*
Tariffs (4)	Provide operators and consumers with incentives	Are generally harmonised over regions	Tariff system shall cover all business models*	Equals	Tariffs structure can distort social measures*	Affect affordability*	(Future) tariffs help attract external finance	Shall induce operators into using cost-effective capex*	Are a major class of economic instruments
Social measures (5)	Can smoothen the application of incentives	Shall mitigate any (transitory) adverse social effects of regionalisation	May in principle ease the adoption of alternative business models	May mitigate the effect of tariff increases	Equals	Directly improve affordability for parts of the population	Improve affordability and thus take away possible obstacles to	Should not be applied to justify unaffordable capex***	Can smoothen the application of economic instruments*

							external finance		
Affordability (6)	May limit the application of incentives*	May be a reason to enter into regionalisation, but may also be an obstacle**	May be a reason to opt for alternative business models	May put a ceiling on tariffs	Is the main reason to apply social measures	Equals	May prevent external financiers from stepping in*	Shall be a main argument for cost-effective capex	May be an obstacle to the application of economic instruments*
External finance (7)	Provides incentives towards improved performance	May directly result of regionalisation	May be accessed through allowing for sustainable business models	May put upward pressure on tariffs	May underline the need for social measures	May conflict with affordability*	Equals	May be a stimulus towards cost-effective capex	Shall be compatible with economic instruments*
Cost-effective capex (8)	May neutralise/change the effect of incentives	Has more possible applications in a context of regionalisation	May be realised through the application of sustainable business models	Cost-effective tends to keep tariffs low	Reduces the need for extensive social measures	Keeps tariffs affordable	Eases access to external finance	Equals	May neutralise/change the effect of Eis
Dedicated economic instruments for WSS (9)	Are designed to provide incentives	Are easier on regionalised entities	Shall be neutral to the business model applied*	Can be applied as part or on top of tariffs	May offset social measures*	Affect affordability of services*	Shall be neutral towards the use of external finance*	After what is cost-effective capex*	Equals

Notes: *Need for a balance.
** May be a risk as well as an opportunity.
*** Bears a possible conflict.
**** The numbers in brackets relate to the nine demands on the ERS formulated on the preceding pages.
Source: Author's own elaboration.

Chapter 2. Moldova's economic regulatory system for water supply and sanitation

This chapter describes the economic regulatory system (ERS) for water supply and sanitation (WSS) in the Republic of Moldova (hereafter "Moldova"). This includes its legal and institutional frameworks, main actors and their competences, activity and capacity. It analyses the performance of the ERS, contrasting it with the demands on the system formulated in Chapter 1.

The chapter concludes with three scenarios that can help policy makers further develop Moldova's ERS varying from addressing the shortcomings of the ER present system to taking step back to rethink the objectives of WSS policy, regulation and the roles of various stakeholders and eventually redesign the whole ERS. These scenarios were discussed at an Expert Meeting and at the National Policy Dialogue meeting held in November 2016 in Chisinau as part of the project.

Recent developments in the legal and institutional framework for WSS

During the past four years, the legal and institutional framework for water supply and sanitation (WSS) in the Republic of Moldova (hereafter "Moldova") has improved. The country took important steps towards development of its economic regulatory system (ERS) for WSS. In 2013, Moldova adopted Law 303 on Water Supply and Sanitation. In September 2014, it nominated the National Energy Regulatory Agency of the Republic of Moldova (ANRE) as the competent regulatory authority for WSS. The new tariff methodology based on which all WSS utilities must prepare the tariff application was only published in February 2015 (Official Monitor no. 33-38 Article No: 258).

Local government remains the competent authority to approve the tariffs unless:

- local councils have delegated the right of approval to ANRE
- utilities operate under conditions defined in loan agreements with international financial institutions (IFIs).

However, ANRE shall consider and endorse all tariff applications. If local councils approve tariff rates at a lower level than ones endorsed by ANRE, the municipality shall compensate the operator for the difference.

Apart from the tariff regulation, several additional regulations have subsequently been issued. These so-called normative documents are required for completing the tariff applications. The final normati+ve document determines the eligible amount of non-revenue water (NRW) for tariff setting. This document was completed in mid-2016, almost two years after ANRE took responsibility as economic regulator. During this period, the sector was without an effective mechanism for setting new tariffs. Approval of 2015 tariffs was expected for several utilities towards the end of 2016, but as of March 2017 this had not yet happened. That could mean these utilities must wait another year or two for approval of the tariff adjustment. Once the tariff is approved for the initial year, operators can immediately file for adjusting tariffs for subsequent years, according to formulas in the tariff methodology.

Other ERS developments include implementation of the regionalisation process as recommended in the national WSS strategy. In practice, however, little progress has been made in the process, which depends on the voluntary co-operation of many stakeholders. Also, the legal framework requires more development. "Soft" loans and cohesion fund financing were recognised as a key factor for the process in Romania, but the latter is not present in Moldova.

There is considerable progress in the development of a means-tested social support system. Social payments made in this context are deemed also to cover WSS expenses. It will not be extended by special provisions for WSS-related social support, because it is deemed to be *all inclusive*. This system will not cover specific transitional WSS social measures.

Finally, implementation of the Protocol on Water Health has progressed. Parties to the Protocol are required to establish national and local targets for the quality of drinking water and the quality of discharges, as well as for the performance of water supply and wastewater treatment. Moldova has established national targets under the Protocol and adopted the National Programme on implementing the targets. As the Protocol also covers social aspects, it will therefore also lead to changes in the ERS.

In May 2017, Moldova started adopting changes in design and construction standards as laid out in the Building Code. The original standards, known as SNiPs, were from the Soviet era resulting in over-dimensioning and higher investment and operating costs, making many WSS projects unaffordable. The new standards resolve over-dimensioning and permit

implementation of international best practice with respect to urban and particularly rural water supply.

Main actors in the ERS, competences, activity and capacity

In the context of Moldova, the key actors and constituents of the ERS, apart from ANRE, include:

- Ministry of Environment and the Water Agency (*Apele Moldovei*)
- Ministry of Regional Development and Construction (MoRDC)
- Ministry of Labour, Social Protection and Family (MoLS)
- Ministry of Finance (MoF)
- Local public administrations, WSS operators and associations thereof.

The project team interviewed most ERS stakeholders during the second quarter of 2016, and handed out questionnaires. Based on these interviews, and on prior research, the team identified the main ERS actors and their respective roles as of 1 May 2017. These actors and their roles are described below.

National Agency for Energy Regulation (ANRE)

As of September 2014, ANRE has been designated as the competent economic regulator of WSS in Moldova. In interviews to discuss the ERS framework, ANRE took a formal, almost legalistic position. Leading scholars on economic regulation such as Berg et al. (2013) and Rouse (2007) have called for the regulator to take a more dialogue-oriented approach to develop and fine-tune the ERS.

ANRE has been reported to work with utilities in an unrealistic manner, without consideration for their actual capacities and situation. To a large extent, ANRE's self-adopted tariff methodology leaves the organisation no other choice. ANRE indicated it feels constrained by the Water and Sanitation Law 303 that left it no room for an alternative methodology.

The review and approval process could be better co-ordinated so that everyone is clear on roles and responsibilities. Some utilities will, in practice, be unable to fully comply with the demand for information from the regulator and may have the impression that ANRE may forever demand new or more in-depth information. The tariff methodology does not hold the regulatory agency to account in providing good governance in this respect.

The mandate of the independent economic regulator is itself a product of water sector reform. Law # 303, which arranges for this mandate, was under review when this report was finalised. Until the amendments have been published, the regulator appears not to consider the actual performance and improvement potential of the utilities. It appears to have no view on the dynamics of water sector reform.. ANRE comes across as isolated from the policy debate (dialogue), whereas best practice suggests the regulator should be a major participant in that ongoing discussion.

Moreover, some stakeholders have indicated the independent economic regulator is, in fact, not entirely independent from political interference. This perception is already a threat to ANRE; its independence goes to the very heart of its existence. Such allegations about regulators are common in other countries, too. However, it is difficult to judge whether there is such political interference. Possible explanations include:

- The tariff methodology is applied too rigidly.
- The tariff methodology has been formulated too rigidly.

- Law 303 needs adjustment before any of the problems observed can be addressed.

A positive development is ANRE's recent association with its Romanian counterpart ANSRC. However, it would have been better to have arranged for such an association or for Technical Assistance before drafting the tariff methodology (see Kazakhstan example).

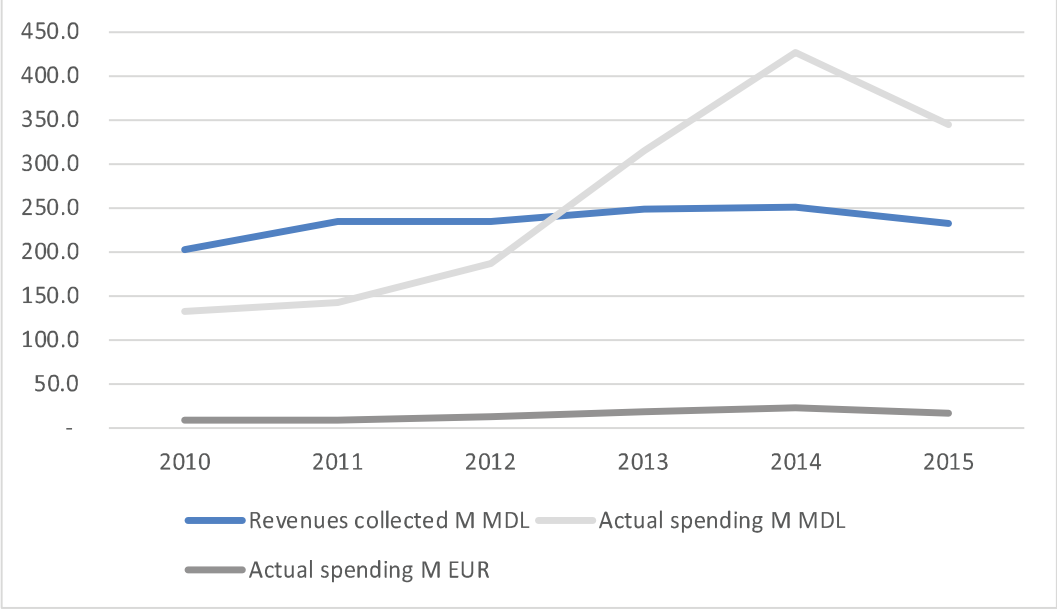
Ministry of Environment (MoE)

MoE oversees policy, planning and monitoring of various aspects of the environment, including WSS. It retains responsibility for compliance with WSS-related aspects of the Association Agreement. This is a challenge, given its limited number of staff capable of implementing complex policy reforms. It is also hard to keep water policies on the agenda; the National Development Strategy, for example, gives water only limited attention.

Underneath the ministry, the water agency *Apele Moldovei* is responsible for water infrastructure, environmental inspectorates and the National Ecological Fund (NEF). Despite the name, the NEF is really an environmental fund and not constrained to just the narrower environmental subject of ecology. For example, the NEF has dedicated income from taxes on packaging material. It invests in irrigation, sanitation and other environmental projects. Figure 2.1 presents data on revenues of, and allocations from, the fund, while Figure 2.2 presents data on allocations for WSS.

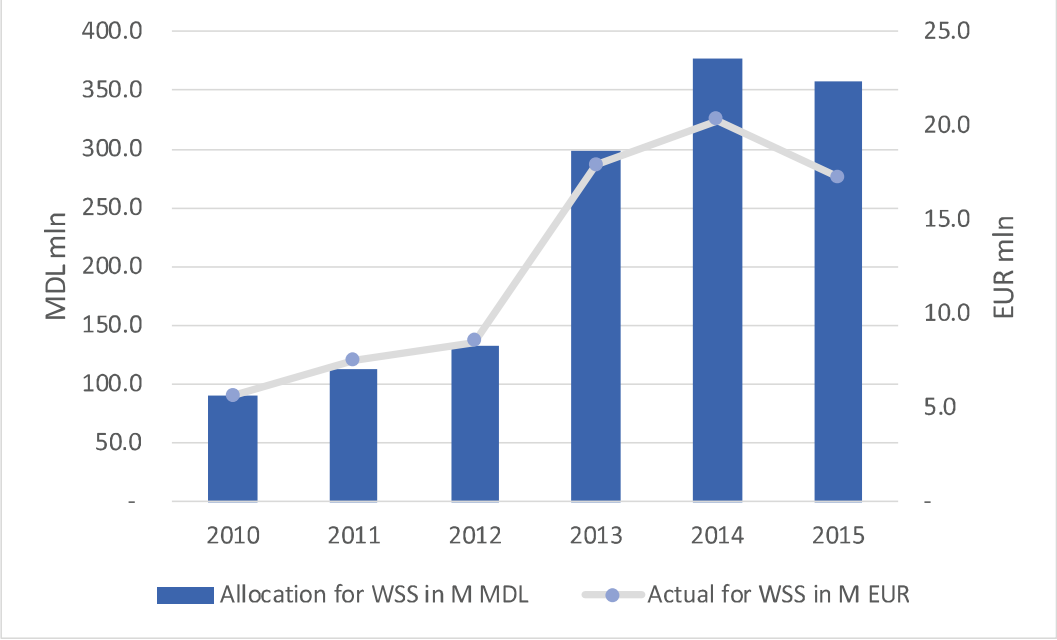
The International Monetary Fund (IMF) has criticised the NEF for lack of coherence and transparency in decision making. Recently, the NEF has become administered based on the general rules of the central budget (Law 181 on Public Finance and Budgetary-Fiscal Accountability of 25 July 2014 published in Official Monitor nr.223-230/519 of 08 August 2014). This should improve enforcement of management and procurement rules.

Figure 2.1. The National Ecological Fund of Moldova: Revenues and Allocations



Source: Data on NEF performance in 2010-2015 was collected through interviews with officials of the MoE.

Figure 2.2. National Ecological Fund Spending on WSS



Source: Data on NEF performance in 2010-2015 was collected through interviews with officials of the MoE.

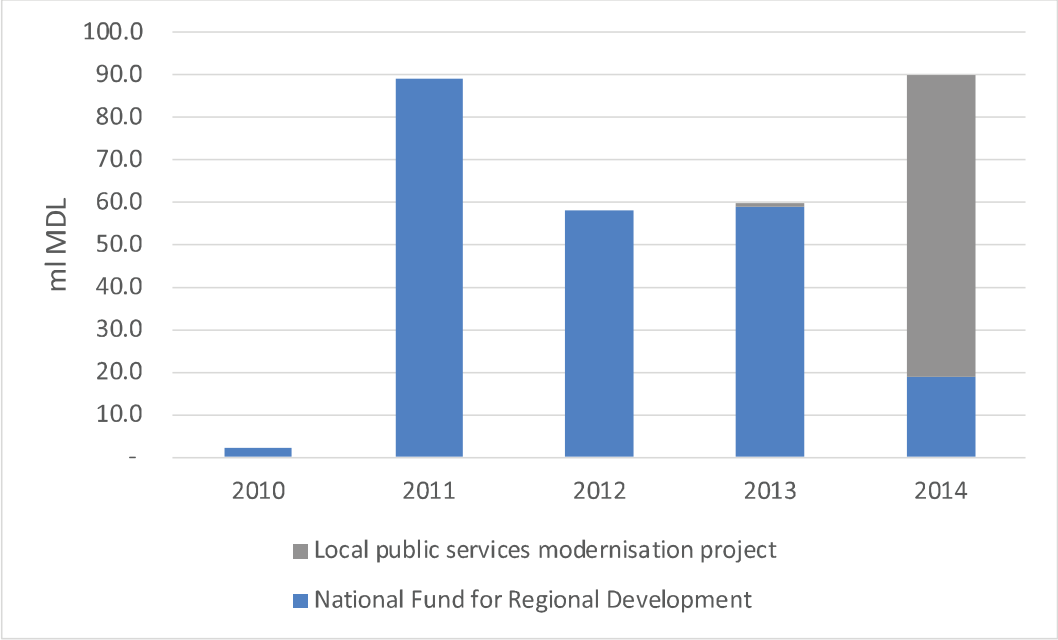
Figure 2.1 and Figure 2.2 indicate that NEF allocations have been mostly for WSS projects.

Two design institutes operate under the water agency "*Apele Moldovei*". In addition, a dozen bulk water supply providers are responsible for irrigation and operation of a regional drinking water supply pipeline. Therefore, both the government of Moldova and the EU expect *Apele Moldovei* to play an important role in integrated water resource management (IWRM).

Ministry of Regional Development and Construction (MoRDC)

MoRDC provides policy, planning and monitoring on various aspects of regional development. It is therefore involved in the regionalisation process of service provision. Furthermore, it backs up operations of the National Fund for Regional Development (NFRD). The NFRD also invests in the water sector, namely in regional projects. NFRD investments in WSS (see Figure 2.3 and Figure 2.4) are smaller than ones the NEF makes. There was found to be limited or no co-ordination of investment policy between the NEF and NFRD.

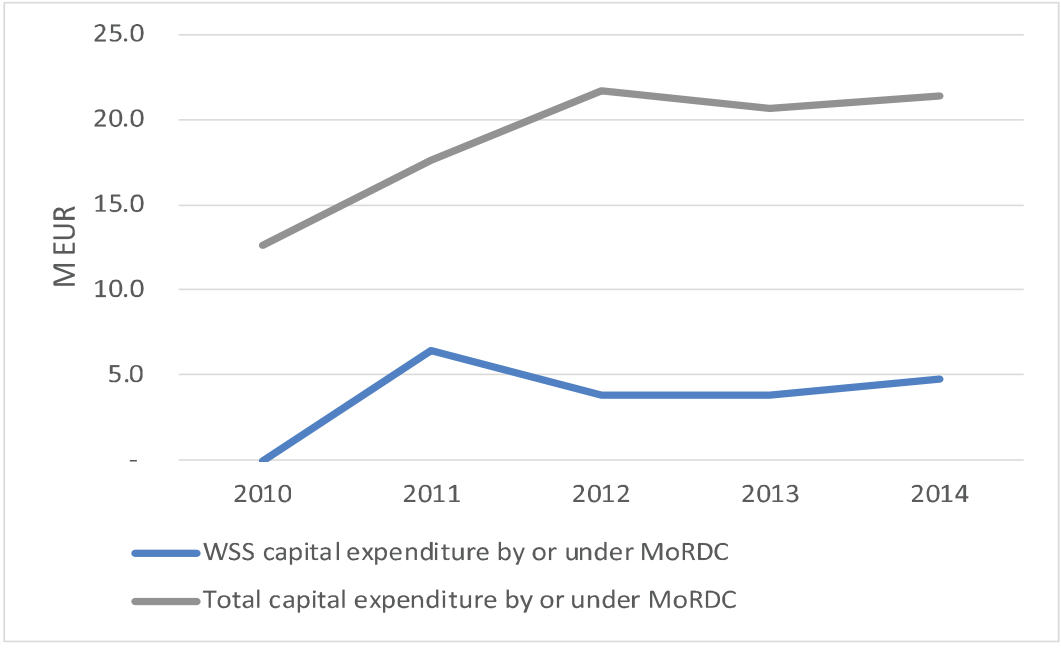
Figure 2.3. Total capital expenditure under MoRDC, in million MDL



Source: World Bank BOOST database: http://boost.worldbank.org/country/moldova (accessed in June 2017).

The local public services modernisation project also spends on WSS, among a handful of other public services.

Figure 2.4. Capital Expenditure under MoRDC, in million EUR



Note: Converted at year end MDL/EUR exchange rate.
Source: World Bank BOOST database: http://boost.worldbank.org/country/moldova (accessed in June 2017).

Through its sub-agencies and inspectorates, MoRDC is also responsible for construction standards for WSS: they are quite outdated and cause unnecessarily higher investment and operational costs for WSS infrastructure (see Box 2.1).

Ministry of Labour, Social Protection and Family (MoLSPF)

The Ministry of Labour, Social Protection and Family (MoLSPF) mission aims eventually to ensure a decent standard of living for the population, social peace and security. It acts in the field of social insurance, providing social assistance for the elderly and people with special needs, as well as social protection of family and children's rights. As such, it has a natural interest in securing access to, and affordability of, WSS. The ministry seeks to fulfil this mission through general income support rather than through specific WSS-related assistance. (OECD EAP Task Force, 2003[1]) actually calls for such specific assistance when tariffs increase sharply. The ministry is not against WSS-related social measures *per se*, provided they are financed from other sources such as local budgets. It points out that tariffs differ from locality to locality. Decisions on specific social assistance in the field of WSS must therefore be made at the local level. The ministry has indicated it would not free up resources for specific WSS-related social measures. Nevertheless, MoLSPF can be a vital resource for designing targeted social measures in WSS. It is an important partner in decision making on WSS-related social measures.

Box 2.1. Outdated design and construction standards for WSS

In Moldova, design and construction of WSS infrastructure is based on SNiP and GOST standards elaborated during the Soviet era and uniformly applied in the entire Soviet Union. They were last reviewed about 30 years ago.

The following design standards are considered the main guidance documents in WSS:

- SNiP 2.04.02-84: Water Supply. External (outdoor) networks and facilities
- SNiP 2.04.01-85: Internal (indoor) water supply and sanitation systems
- SNiP 2.04.03-85: Wastewater. External (outdoor) networks and facilities

WSS design and construction standards are inadequate and cause unnecessarily higher investment and operational costs for WSS infrastructure. The implications of continued application of outdated SNiP and GOST standards are noted below:

1. Continued reliance on water consumption norms envisaged in SNiP leads to engineering, approval and implementation of oversized supply and sanitation infrastructure. SNiP norms define total water demand of up to 600 lcd for urban areas and 150 lcd for rural areas. However, current average consumption in Moldova is only 111 lcd in urban areas. Additionally, the norms require a high level of supply contingency (e.g. duplication of main pipelines and high storage capacity, high requirements for available flow for firefighting). These instructions result in oversized, often poorly performing and overly expensive systems in terms of both capital and operating costs.
2. Internationally accepted best practices and state-of-the-art technologies cannot be implemented in Moldova as permitting institutions refer solely to requirements of SNiP and GOST standards.
3. There are no adequate standards for small-scale rural WSS systems. Existing codes give common provisions for both urban and rural areas. Adherence to these codes results in massive over-sizing of small-scale systems due to high flow and storage demands for firefighting. Moreover, these outdated norms do not cover modern treatment technologies, creating an obstacle for their country-wide implementation (e.g. constructed wetlands, Ecosan toilets, etc.).

Note: Two years after the cited publication, the standards remained to be updated. New design and construction standards for small-scale potable water supply systems were adopted only in April 2018, leaving other standards still unchanged. For comparison, Ukraine has made progress in deregulation, updating and simplifying norms and standards.

Source: (Pienaru, 2014[2]).

Ministry of Finance (MoF)

MoF is responsible for allocation of national budgets and their administration. In the case of WSS, expenditure is spread over several ministries and agencies, requiring co-ordination. MoF, however, sees its role as strictly administrative. Furthermore, in the interest of overall budget balance, it seeks to limit any expenditure.

MoF sees only a limited role for itself in streamlining expenditure or supporting WSS cost recovery from tariffs. It is against any further centralisation of finance, for instance for the purpose of social measures in WSS.

Local Public Authority Level I (LPA I, i.e. lowest – settlement, municipal – level)

The provision of WSS is a responsibility of the lowest level of government (LPA I), which owns most WSS infrastructure. LPA I is the competent authority to approve tariffs based on the methodology of ANRE. It is also responsible for the provision of WSS services in its territory. LPAs I are united in the Congress of Municipalities (CALM). On behalf of its members, CALM speaks out for regionalisation of service, but on the basis of autonomous decisions of LPAs. In other words, it promotes *voluntary regionalisation* of WSS services and operators.

LPAs have to balance the interest of consumers (quality service at low tariffs) with those of long-term sustainable water provision (protecting resources, investment and cost recovery). As owners of the infrastructure, LPAs play a third role – review of proposed new tariffs. Establishment of the independent regulator has reduced room to manoeuvre in the area of tariff setting. LPAs remain the competent authority, but registered operators submit the tariff application to LPA I in accordance with methodology established by ANRE. Furthermore, if LPAs approve tariffs that deviate from the tariff calculation based on the methodology, they have to compensate the operator for the difference. If the LPA rejects approval of the tariff endorsed by ANRE, the operator can get the tariff approved by ANRE. Finally, LPAs can voluntarily delegate the entire competences for tariff approval to ANRE.

Moldova has around 1 000 centralised water supply systems. Just over 40 operators (*apacanals*) – the incorporated urban operators – have registered with ANRE. According to the World Bank, the latter supplies approximately 58% of the population. The remaining operators continue to work outside of ANRE's control. During regionalisation, the role of LPAs in the management of utilities will reduce. For rural water supply now, however, LPA is often regulator, owner and operator of the infrastructure.

Local Public Authority Level II (LPA II, rayon level)

Rayons (LPA II) co-ordinate development of the WSS sector. In the case of Gagauzia, the *rayon* owns the WSS infrastructure in selected localities.

Consumer organisations, NGOs, WUCs

A number of organisations advocate better policies and performance in the water sector, including the following:

- associations of water consumers that operate small water systems
- water users committees (WUCs), such as the one being created in Chisinau
- pro-poor water and environmental advocacy groups.

Their leverage over authorities is limited. They are sometimes positioned against any tariff increases, private sector participation and regionalisation. Experience in Western Europe and North America shows, however, that these groups may develop as a powerful instrument for performance and governance improvement. They can contribute to water governance in the policy development phase and act as a watchdog thereafter.

Policy co-ordination bodies

Platforms, task forces or working groups – which can be a permanent instrument for co-operation, co-ordination and accountability between water authorities – are important for the Moldovan water sector. The NPD is considered to be such a platform, but it does not meet that regularly, only 1-2 times per annum. The inter-ministerial group for implementation of the

WSS strategy gathers only annually. A WSS Commission could convene as often as required but it was formally dismantled in August 2015.

In a report to the NPD, this project noted that the WSS Commission, based on GoM decree #92 dated 23 December 2009, needed revitalisation.

IFIs, donor community and other international organisations

International financial institutions (IFIs) and organisations such as the EU can be perceived as part of a broadly defined set of ERS actors. They have influence because they co-fund capital expenditure and other development in the sector. Although they do not exercise this influence officially, they may do so nonetheless. In Moldova, their role in (shaping) the ERS has so far been limited.

WSS operators

So-called *Apa Canals* (municipal water utilities) manage and operate local or regional WSS facilities. Although they are subject to the ERS, they are responsible for their own development. Case studies from around the world show that strong, visionary and autonomous managing directors of water operators have sparked reform in some countries (Geert Engelsman, 2016[3]).

WSS operators can be organised legally in several different ways and have different legal status: from NGO to corporation. These include water users' associations and co-operatives, municipal enterprises, limited liability or joint stock companies in public or even private property. There are just over 40 incorporated operators in cities. WSS operators are united in the Association of Moldovan Water and Wastewater Service Providers called AMAC.

Tariff methodology and its application

The tariff methodology is a key part of economic regulation and therefore of the ERS. In simple terms, independent economic regulation of WSS in Moldova aims to ensure that customers receive the right water for the right price. More urgently, the process of regulation aims to help utilities pursue sustainable development. Without sustainability, the increase in coverage eventually reverses into decline. Customers without WSS services have no interest in being protected from too high tariffs. The concept of the right price shall therefore embrace the notion of sustainable development and transition paths towards efficiency targets.

The tariff methodology developed by ANRE is based on its mandate under Law 303 on Water Supply and Sanitation. ANRE is a multi-sector regulator, responsible also for gas, electricity, district heating, technological and bulk water. The vast majority of the countries surveyed by OECD also have a multi-sector regulator i.e. 23 out of 34 (OECD, 2015[4]). That should not mean, however, that WSS is to be regulated in the same manner as other utility sectors.

The main remarks on the methodology and its application are presented below. At the time of writing, amendments to the Law 303 on WSS were proposed that would require significant adjustments to the tariff methodology. These proposed amendments could not be fully reviewed before submission of this report.

Regulation should consider specificity of transition country

WSS in Moldova is not a mature industry. However, the tariff regulation lacks any consideration for the performance improvement process that utilities have begun or should begin, and the time needed to accomplish it. The methodology assumes that efficiency can be achieved literally overnight. In practice, however, harmonisation of tariffs for legal entities and

households can be achieved more easily over time. The optimisation of staff levels and reducing NRW to an acceptable level takes at least three years to achieve. This minimum period reflects the typical length of business plans, tariff transition periods and management contracts that rarely are made for shorter periods. The regulation is not adequate for the situation of operators. It is based on utility management as a mechanical clockwork type operation with minimal variation; in fact, the opposite is true. Therefore, as in Albania and Kosovo, the key document for the regulator is/should be the operator's business plan, supplemented by its investment plan. The business plan shall show and justify the performance improvement that can realistically be achieved. The remaining costs are then a necessary and partially transitional cost to be financed by any of the 3Ts (tariffs, taxes or transfers). One cannot expect a utility to perform much better than its approved business plan assumes.

Cash flow constraint

Even if a more gradual performance improvement schedule could be built into the eligible costs calculation, a major problem remains with the methodology (see Box 2.2 for definitions of various terms). Depreciation of non-donated assets over their lifetime is an eligible cost. However, if assets have been financed under a loan, the payback period is typically much shorter than the life of the assets. This leads to a liquidity problem for the utilities. Furthermore, the loan covenant typically requires Earnings before Interest, Tax, Depreciation and Amortisation (EBITDA) to go well beyond the debt service. Such covenants cannot be met as the return on capital allowed on assets does not provide enough revenue.

Box 2.2. Definitions in economic regulations of WSS

Affordability: Affordability is the capacity of a particular household group to cover all WSS-related expenses (including VAT, taxes and any additional charges). It is often expressed as a percentage of household income or expenditure. In Moldova, where both the informal economy and foreign remittances are substantial, affordability is best estimated based on household expenditure. Affordability is widely considered at stake if 5% of the average (median) household expenditure is used to pay WSS bills i.e. over 50% of the population spends more than 5% on WSS. Often, the word affordability is used for the actual percentage spent on WSS.

Eligible costs: Those parts of overall costs incurred by an operator that the regulator deems needed to provide the regulated service.

RAB: The Regulatory Asset Base is set by those assets of the operator deemed necessary for providing the regulated service. A higher amount of RAB assets provides for a higher eligible depreciation expense, higher regulated return on assets and thus higher eligible costs.

RIA: The (*ex ante*) Regulatory Impact Assessment is a systematic process of identification and quantification of important benefits and costs likely to flow from the adoption of a proposed regulation under consideration.

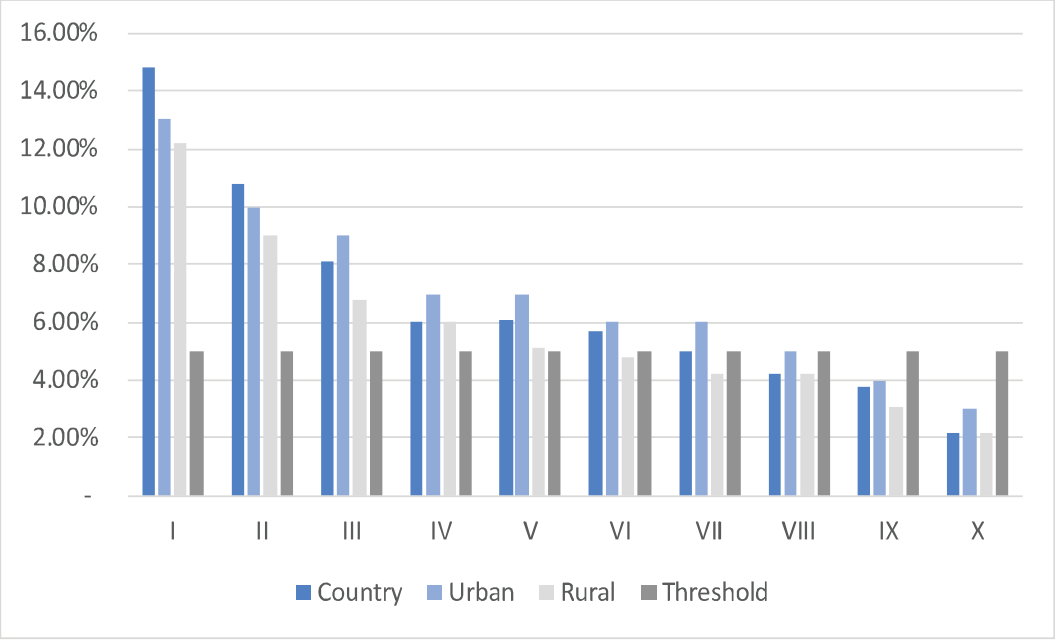
WACC: The Weighted Average Cost of Capital is a calculation of the operator's cost of capital in which each category of capital is proportionately weighted. All long-term capital associated with the regulated service is included. WACC rises with the so-called Beta factor, measuring the risk of equity capital. Estimating Beta in illiquid companies is more difficult than for those listed on the stock exchange. A higher regulated WACC implies a higher cost of capital (of the RAB) and therefore a higher tariff.

Source: (OECD, 2015[4]).

Social aspects

Tariffs need adjustment if the affordability of service for the population is at stake. OECD EAP Task Force (2003) recommends limiting the average total water bill to 4% of average household expenditure. In Moldova, as water is valued high and the willingness-to-pay for quality water is high, the limit could be established at 4-5%. However, Figure 2.5 shows that adhering to this rule would not help increase user charge revenues: most households already pay over and above that limit for WSS. Although the chart overall is informative, the underlying sources of data are not available. Therefore, it is not clear how the country figure can be above both the urban and the rural average in the first two deciles (Eptisa, 2012[5]).

Figure 2.5. Affordability assessment for Moldova's urban, rural and entire population



Source: (Eptisa, 2012[5]), *Republic of Moldova's Water Supply and Sanitation Strategy (Revised Version 2012),* www.serviciilocale.md/public/files/2nd_Draft_WSS_Strategy_October_final_Eng.pdf.

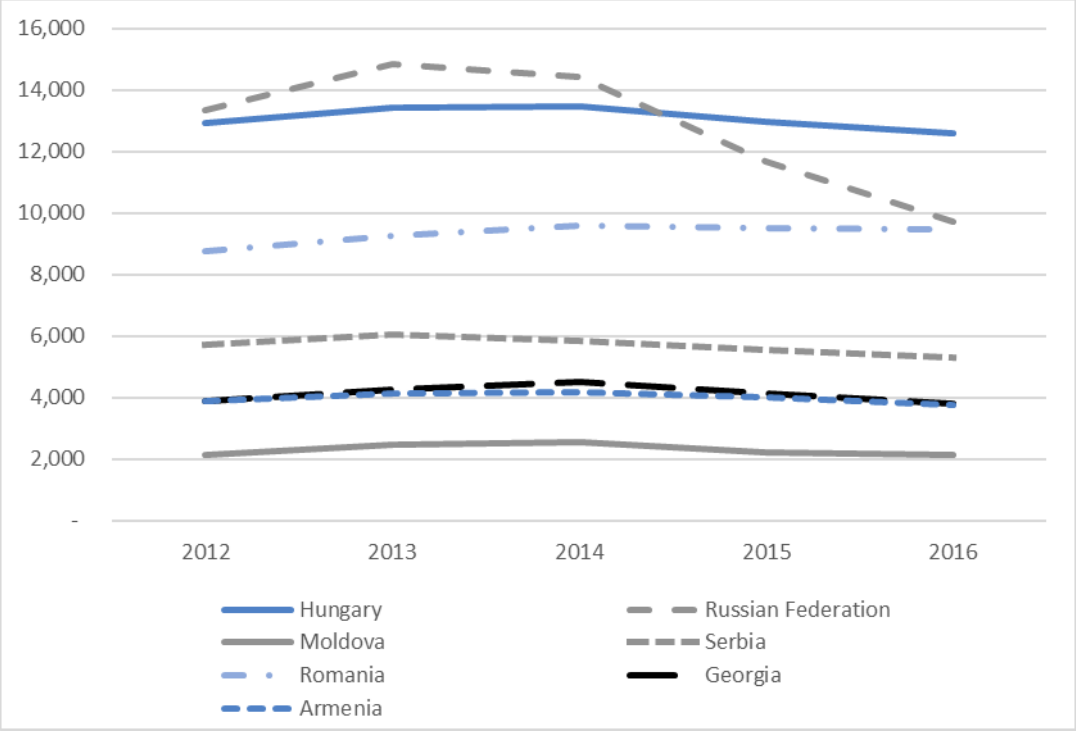
Apart from a general affordability ceiling, social measures targeted at the poor and vulnerable are needed. Unlike other economic regulators, most notably for Flanders, ANRE does not provide any direction for the social dimension of WSS. This is because Law 303 does not permit it. The national WSS strategy states, however, that "the regulator should be responsible to ensure a reasonable balance between the need for renovation and quality of services and affordability constraints of certain tranches of population".

The word *social* or *affordable* does not occur in the tariff methodology. For ANRE, social measures are a matter of social policy at the national or local level. The report on domestic financial support mechanisms in WSS in Moldova argues that solidarity measures are required within the sector, at least temporarily, when tariffs are rising drastically (OECD, 2017[6]). Such measures may be related to supply, demand, income or tariff. When policy makers opt for tariff-related measures, ANRE needs to set affordability ceilings and rule on tariff structures or other measures such as vouchers and rebates.

Non-tariff related measures could be implemented by other parts of the ERS. These might include measures to improve water supply and access for the poor, and to offer income support.

Moldova is by far the poorest country in Europe (see Figure 2.6). The 2015 Human Development Index shows the country in 107th place. Different studies have signalled the need for a genuine affordability constraint at 4% of household expenditure and for the regulator to act in this respect (Pienaru, 2014[2]; OECD, 2016[7]).

Figure 2.6. GDP per capita in Moldova and selected CEE countries



Source: World Bank, *World Development Indicators* (database), www.google.com/publicdata/explore?ds=d5bncppjof8f9_&ctype=l&strail=false&bcs=d&nselm=h&met_y=ny_gnp_pcap_cd&scale_y=lin&ind_y=false&rdim=region&idim=country:HUN:SRB:RUS:MDA:ROU:GEO:ARM&ifdim=region&tstart=1329001200000&tend=1455231600000&ind=false (accessed in August 2017)

Tariffs considering the costs associated with indoor water supply in apartment blocks

Articles 16 and 59 of the tariff methodology make a peculiar stipulation. If an apartment owner in a condominium has an individual contract for WSS, the tariff may consider the costs associated with indoor water supply in that condominium, such as for maintenance and repair of networks and meters. This implies a differentiated tariff between:

- apartment owners without individual contracts and house owners not living in condominium-type apartments
- apartment owners with individual contracts in condominiums.

The methodology implies that WSS operators will carry out an extra service for which they are compensated to the tariff. This is not a desirable solution to problems with condominiums:

- Costs of this service are hard to quantify.
- Maintenance is hard to distinguish from investment.
- Costs are unevenly distributed among the condominiums.

Under this provision, apartment owners have no incentive to solve internal losses either before or after individual contracting. Operators will effectively delay individual contracts. Responsibility for the operator shall be up to the point where it exits the public network and enters the private network.

Ownership and depreciation

The tariff methodology excludes granted assets from the base over which the return on assets and eligible depreciation expenses may be calculated (see Box 2.3). This is a common rule, applied for instance in England and Wales, to avoid excessive profit (grant income plus tariff income based on eligible costs).

For some utilities of lower-middle-income countries, however, newly donated assets may be depreciated well over 75% of the net book value. The remaining assets may be sizeable, but mostly have been written off already.

Imagine two identical utilities, A and B, carrying out an identical investment project. For their capital expenditure, A has received a loan, whereas B has received a grant. B would have to charge a tariff well below cost recovery level, whereas A may charge at this level. After ten years, utility B is back at its starting position. Unless a new donor steps in, B will fall behind and into the same vicious circle it tried to escape. Conversely, A will have paid back its loan and can show a steady cash flow to future financiers.

There is a risk that B's lower tariff is perceived as reflecting better performance. This could lead to the expectation that B's tariffs shall remain artificially low and that A's tariffs should come down.

Indeed, if B had been able to charge the full depreciation expense to customers it would eventually generate free cash flow. B's investment plan would have to show use of the free cash flow. Given the state of the water infrastructure, this free cash flow could easily be invested to good purpose. Tariffs need to be determined by affordability levels and costs, but not by funding method.

One solution to this dilemma may be to allow for infrastructure renewal charges, such as in England and Wales, Scotland and Kosovo. The actual costs to maintain the asset base rather than the depreciation charge should be an eligible expense. Another solution is ring-fencing the depreciation expense, which will be discussed in section 4.7.

Another question revolves around questions of ownership. In principle, since LPAs in Moldova largely own operators, there is no difference if one LPA transfers infrastructure to a regional operator whereas another public-owned operator brings in its own assets into the regional operator. In practice, however, questions of ownership form a big obstacle towards regional co-operation. LPAs fear being blamed for tariff increases. As a consequence, new investments and the introduction of more cost-recovering tariffs are delayed and the value of the asset base deteriorates further.

Box 2.3. "BOT" in Moldova

Customers in Moldova and a number of other SEE countries commonly invest their own funds to develop a network. The utility then effectively operates and maintains the network in perpetuity. The practice is an answer to the scarcity of public investment funds. Rather than waiting for another 10 or 15 years, communities prefer investing their own money. The effective status of an asset determines whether it needs to be capitalised and depreciated. If it is capitalised, the question arises how the counter-value is booked. In principle, both the so-called equity and income methods are allowed under the International Financial Reporting Standards. Under the equity method, the equity of the operator is increased at once against the value of the assets. The income method recognises the increase in assets against a "deferred grant income". This grant income is subsequently recorded in the profit and loss statement in the same amount as the annual depreciation of the assets. The income method increases the income of the operator every year in the amount of the annual extra depreciation charge associated with the granted assets.

For grants to fund new investment, the **income method** is most appropriate. Although this may have fiscal consequences, donors can rule them out in a grant agreement. In this way, for fiscal purposes, the grant income would be ignored. In the context of regionalisation, the **equity method** is more appropriate and may be applied. More likely, however, is the transfer of assets for a definite or indefinite term only, for instance for 30 years. For the operator, this may still impose the obligation to capitalise these assets anyway.

The Constitutional Court of Moldova declared on 1 November 2016 that a transfer free of charge cannot be imposed on an owner of assets. This applies to natural and legal persons that transfer assets to a WSS operator without compensation. Typically, these are networks built or owned by municipalities, or built by small communities of users or associations of private persons. Law 303 on Water and Sanitation Services stipulates that a transfer of such assets shall be free of charge. The Constitutional Court has ruled that this amounts to expropriation. It is not fully clear yet if a voluntary transfer of assets is allowed. However, it is clear it shall not be necessarily for free. Furthermore, it will be difficult to assess the voluntary nature of such a transfer because WSS operators are natural monopolists.

Further jurisprudence will reveal what kind of compensation may be classified as sufficient charge. One can be certain, however, that operators lack funds to compensate for the investment value of the networks that has been transferred. It's conceivable to consider the counter-value of the transferred assets as a **connection fee**. This would, however, not be permittable legally as it would imply discriminatory pricing.

Any chance of compensation to owners of assets would slow down the regionalisation process by creating uncertainty over the terms and legality of the transfer.

Source: Author's own elaboration.

Tariff structure and cross subsidies

The regulation assumes a single volumetric tariff that is the same for households and legal entities alike. Generally, this is positive and in agreement with the polluter pays and beneficiary pays principles. However, as the tariffs for household and legal entities sometimes have a large differential, a transition period is needed to phase out the cross subsidy.

The application of a single volumetric tariff follows the practice in all but two utilities in Moldova and in most Eastern Europe, Caucasus and Central Asia countries. Distributional effects of Increasing Block Tariffs (IBTs) are questionable (OECD, 2017[6]). As a minimum, they require social research into setting the right brackets and relative tariffs. They make revenue planning complicated and expose the utility to disproportional reduction in revenue if demand goes down. Therefore, it is better to focus on other measures than IBTs.

A two-part tariff structure as applied in Germany and the Netherlands is also not advised. It would have a sizeable fixed component plus a single volumetric component. In the absence of further social measures, this approach will have regressive effects compared to the single volumetric tariff. The two-part tariff structure does bring the revenue structure more in line with the cost structure of utilities, which have large fixed costs. Some regulators allow limited fixed elements in the tariff structure, namely those related to customer services such as metering, billing and meter maintenance.

Preparation and application of the methodology

Tariff regulation in Moldova has taken a long time to be completed and still has significant gaps. For example, the regulation does not provide necessary guidance on capitalisation of material costs or the calculation of eligible interest on working capital. Regulation takes time to develop, but this should not stop issuance of provisional or temporary consent for tariff increases. In most utilities, tariffs have stayed frozen for the past two years.

In public hearings preceding the adoption of the methodology, only Apa Canal Chisinau made substantial comments.

ANRE did not pursue possible short-term solutions. Provided they had been worked out consistently, the eligible costs, RAB and WACC concepts underlying the ANRE tariff methodology could have led to an indicative starting point for tariff setting. A softer application of the methodology could still have allowed for an affordability and cash flow check. Using its discretion as an independent economic regulator, ANRE could still have implemented necessary transition paths, allowing for performance to improve, affordability to go up and loans to be repaid.

Regulation may not be enforceable from the first day because utilities need time to comply and regulators need time to work out and test the details. A regulator judges this context and maps out a viable tariff and corporate transition path as part of its role. In the context of a transition country, this regulation necessitates capacity building. Technical Assistance programmes to regulatory agencies in SEE show that training of staff is important. It allows independent regulators to train operators so they can comply to the regulation.

That approach to regulation, however, requires an appropriate sector structure. The WSS sector in Moldova has already over 40 incorporated entities. Without doubt, for ANRE this is too large a number to regulate effectively. The remaining, unincorporated water works did not file for a licence and ANRE is not pursuing them to do so.

A handful of operators is needed to regulate the present and future capacity appropriately. This requires ANRE to support the regionalisation strategy in the interest of proper regulation. Indeed, the national Water Supply and Sanitation Strategy recommends such support to the regulator.

To optimise use of resources, the economic regulator may focus on bigger and regionalised utilities and allow the others to work under a heavily simplified regime. If, as in Romania, only

regionalised operators are eligible for funding capital expenditure projects from public funds, then regionalisation will proceed much more quickly.

Funding gap

Section 1.4 indicated that ERS should facilitate external finance to bridge the funding gap. How big is this funding gap?

Tariffs, taxes and transfers

The ultimate sources of funding for WSS operating and capital expenditure comprises only the "3Ts": tariffs (user charges), taxes (government subsidies) and transfers (donor assistance). As shown in figure 1.4, debt and equity can temporarily bridge any funding gap. However, they need to be repaid from any of the 3Ts (OECD, 2010[8]).What are the sources of funding in Moldova?

1. User charge revenues (tariffs)

User charge revenues, or tariffs, represent an annual revenue stream of about EUR 51 M for incorporated, urban utilities in Moldova (Figure 2.7). Annex 2.A presents data on tariff rates applied by water utilities in 2015.

2. Government subsidies (funded from collected taxes)

Government capital expenditure subsidies amount to approximately EUR 18 M per annum, mainly through the National Fund for Regional Development and the National Ecological Fund.[1]

Government operating subsidies of approximately EUR 6 M are also part of the "taxes" component. Excluded here is donor assistance that is merely channelled through the government budget.[2]

3. Donor assistance (transfers)

Donor assistance is partly carried out through the government budget and partly transferred directly from development organisations. In both cases, the source of funding is "transfers". The Water Supply and Sanitation Strategy counts on about EUR 20 M per year.

In summary, annual sources of funding from the 3Ts are:

Tariffs:		EUR 51 M
Taxes:	Operating subsidies:	EUR 6 M
	Capital expenditure subsidies:	EUR 18 M
Transfers:		EUR 20 M
Sum of 3Ts		EUR 95 M

Indicative operating and capital expenditure

Revenues from the more than 40 incorporated Moldovan utilities from billing and operating subsidies (EUR 57 M altogether) do cover operating expenditure. There may be inefficiencies such as large overhead and staff costs, but maintenance expenditure is likely underspent. Operating subsidies can be phased out. On balance, EUR 51 M per year can be sufficient to cover operations.

The remaining costs are:

- required capital expenditure to comply with the EU acquis
- repercussion of capital expenditure on operating expenditure
- recurrent capital expenditure.

What are the remaining costs? In 2008, OECD estimated compliance costs of EU directives to be at least EUR 1 850 M. That figure is almost the size of the annual budget of the government of Moldova. Using the annual non-EU average of the Danube programme required investment per capita as reference (EUR 15 per capita per year) for 20 years, the figure would be around EUR 1 050 M (3.5 M people * EUR 15 per capita per annum * 20 years).

After correcting for population differences, this figure is consistent with a more detailed study of compliance costs for the Former Yugoslav Republic of Macedonia (FYROM), a relatively comparable country in terms of income per capita and geography.

The OECD estimate from 2008 may therefore have been at the high end. However, the WSS strategy calculates costs at just EUR 705 M, out of which EUR 194 M is to be spent before 2019. This implies an annual expense of (only) EUR 39 M. However, at least EUR 20 M in recurrent capital expenditure/increased operating costs should be added annually.

The annual total expenditure until 2019 would thus be:

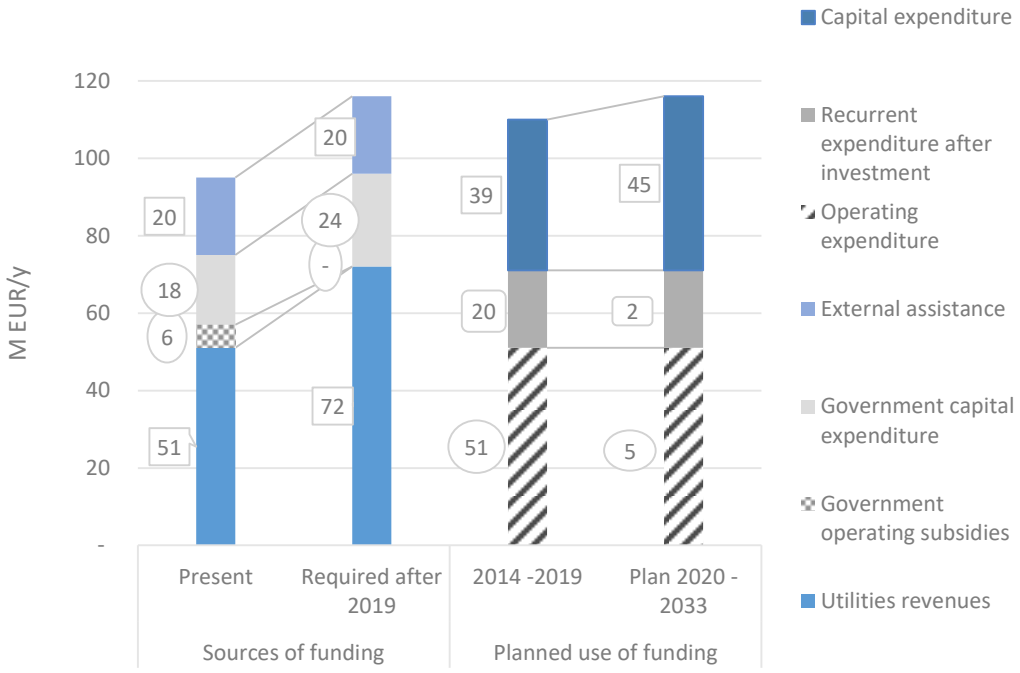
Operating expenditure:	EUR 51 M
Capital expenditure	EUR 59 M (including increased operating costs)
Total expenditure:	EUR 110 M

After 2019, this figure would still increase by EUR 6 M annually because of more capital expenditure foreseen under the WSS strategy and requirements to comply with the EU *water acquis.*

Closing or bridging the gap

The annual difference between the sum available through the 3Ts (EUR 95 M) and the planned use of funds (EUR 116 M) is EUR 21 M. This is illustrated by the difference in size between the first and third column from the left in Figure 2.7. Because of the gap, actual capital expenditure is much smaller than foreseen in the WSS strategy. Is it possible to close the gap through a different funding structure?

Figure 2.7. Assessing the funding gap in WSS in Moldova



Source: Author's own elaboration

The second column from the left in Figure 2.7 elaborates how a different funding structure could close the gap between sources of funding and planned use of funding. External assistance from donors is unlikely to surpass the amount assumed in the WSS strategy. This is due mainly to capacity constraints on the recipient side. It is assumed the central government will spend 1.2% of its total budget on WSS capital expenditure in accordance with the WSS strategy. The GDP of Moldova is around EUR 7 000 M. The consolidated national public budget is around EUR 2 000 M, of which 1.2% amounts to EUR 24 M or 33% above the current level. It is assumed the required increase in capital expenditure will be financed entirely by abolishing operating subsidies. The remaining source of funding is tariffs. Relying on tariff increases alone implies increasing their contribution by 41% (from EUR 51 M to EUR 72 M). An increase in service areas, however, will also increase revenues of the utilities. The associated increase in costs of service area expansion has already been considered in the repercussions of operating costs on investment. Given the lower-income levels in rural areas, one must be cautious with factoring in extra revenues from service expansion; a required tariff increase should still be in the order of 30%.

Since capital expenditure comes in peaks for individual utilities, loans are needed to bridge the funding gap. They can be obtained (only) if a sufficiently large, credible and projectable flow of 3Ts, i.e. the ultimate sources of finance, can be shown to investors. Given its poor credit rating, Moldova will struggle to obtain external, market-based finance to bridge the gap. Fraudulent behaviour in the banking sector of Moldova and a sizeable amount of non-performing loans do not help. Due to delays in the tariff application and approval, the disbursement to Apa Canal Chisinau under the first tranche of the loan from the European Bank for Reconstruction and Development and European Investment Bank has yet to take place. This signals risk to lenders with respect to regulation and absorption capacity. Moldova cannot rely

on repayable external finance to bridge the gap until it takes steps to restructure the 3Ts in order to close the gap.

In the case of Moldova, increased tariffs must provide the bulk of the increase in the sum of the 3Ts. Two challenges arise here:

1. Section 2.3 already mentioned that the tariff methodology fails to consider the cash flow implications of loan financing. Utilities that can obtain external finance would be unable to apply tariffs to meet debt service obligations and loan covenant ratios. Without this adjustment in tariff-setting methodology, external finance to the sector (donations and lending) will dry up.
2. Considering the affordability constraints signalled in the WSS strategy, social measures to mitigate the impact of tariff increases on the poor must be developed without delay. Eventually, the costs of living index and social transfers will reflect increased household expenditure for WSS . Short-term social measures, however, must be developed within, and carried out through, the WSS sector itself.

These two challenges mean that Moldova needs to put social measures and affordability criteria firmly in place before considering such an increase in tariffs (OECD, 2017[6])

The funding gap is not systematically monitored, let alone addressed. The MoF could, for instance, develop a multi-year perspective on phasing out operating subsidies in favour of capital expenditure subsidies.

For the MoE, the funding gap implies a gap in its entire WSS sector strategy. Before strategies can be developed to close or bridge the gap, the ERS shall first monitor it. The above calculations are only a rough approximation.

ERS evaluation

Moldova's internally and externally agreed policy objectives put strong but legitimate demands on its ERS for WSS. The confrontation of these demands with the reality of the ERS is striking.

1. Performance monitoring and incentives for improvement are lacking. The tariff regulation requires an initial monitoring of the base costs, after which, except for electricity, all tariff adjustment is fixed by parameters independent to performance. Incentives are therefore either meaningless or grossly unfair. Among other things, the ERS does not provide incentives for optimising the capacity of WSS systems where they are highly oversized. Water utility performance is not monitored and evaluated against benchmarks with results publicly released.
2. Regionalisation is not moving ahead in the absence of leadership to push through required changes in the legal framework, as well as lack of preparedness of some LPA I and lack of legal enforcement of their agreements.
3. Regulation is designed based on norms that consider only one business model: an efficient, single purpose, non-regionalised water utility (Apacanal) owned by municipality. The ERS does not look for or create incentives for optimised, sustainable business models in terms of vertical integration, outsourcing or regionalisation. Adopting such incentives would scare away private sector participation and outsourcing services.
4. Tariffs may not even cover operation, let alone funding of expanded services such as WWT or a rate stabilisation fund (the United States applies such a fund, for example) to avoid drastic tariff increases.
5. The ERS provides no mechanisms for protection of poor and vulnerable citizens. It is left to local government or the Ministry of Social Affairs to step in if they see any need.

6. There is no established affordability threshold for the population at large below which tariffs may gradually rise.
7. There is no monitoring of a funding gap that may erode execution of the WSS strategy. If the funding gap could be bridged, there is no allowance in the tariff methodology to meet debt service coverage ratios or other loan covenant requirements.
8. Outdated design and construction standards prevent achieving the WSS-related SDGs in an economic, cost-effective manner.
9. There are no plans to expand economic instruments for environmental policy, for instance, to wastewater collection and treatment, including construction of WWTPs.

Independent economic regulation will help address some shortcomings, but building a sound ERS is the responsibility of the government at large. The government shall also provide for quality in the governance of the regulator itself. Frequent dismissals and (re-)appointment that leave a suggestion of political interference will only harm the regulators' credibility.

Figure 2.8 illustrates good regulation as fitting pieces of a puzzle:

Figure 2.8. Necessary elements of better regulatory outcomes

Source: (OECD, 2015[4]), *The Governance f Water Regulators*.

In the case of Moldova, none of the pieces is particularly well developed or fits with other elements. The ERS appears fragmented. Individual components of the system are in place, but the overall result cannot be classified as a system. Individual ministries and agencies operate in isolation within strictly defined "territories" – a clear case of the *silo* approach. No single actor co-ordinates or provides oversight. The body that could play this role, namely the WSS Commission, was abolished in mid-2015.

The economic regulator for WSS appears to draw on legal competences more than on authority and sector experience. No TA programme or strong connection to international water regulatory practice is in place. The regulator itself may not be governed according to best practice (see section 3.1).

Amendments to Law 303 are being discussed at the time of writing. It remains important to evaluate exactly to which extent the amendments will address weaknesses mentioned in this chapter.

The situation does not look bright. However, it remains possible to get the rules, processes, capacities, frameworks and institutions right. Chapter 3 looks at best practice that might be applied in Moldova and is consistent with the Association Agreement.

Scenarios for the ERS of Moldova

The NDP reflected on three options to develop the ERS in Moldova: "de-bottleneck", "back to the drawing board" and "complete and reorganise". These options are discussed in detail below. The NDP adopted the third option, but also kept alive the second option.

Option 1: "De-bottleneck"

Overview

This option addresses the shortcomings of the ERS within the current system. This implies leaving all institutions and regulations intact, focusing on co-operation and informally revising roles of key actors and procedures for interaction. In this way, the focus is on practical, ad-hoc solutions to present problems.

Within this option, any attempt to create WSS-related social measures on the ground must rely on the good will and budget of LPAs. There is no space to address the social dimension of WSS through tariff or supply measures. The tariff structure will remain single volumetric.

Implications

First, there are no obstacles or significant costs, and no legislative changes needed before implementing this option.

Second, as another advantage, it addresses only elements of the ERS perceived as problematic. This may be a disadvantage, too, since it does not identify missed opportunities. The problems identified could be symptoms (e.g. issues related to tariff increases required under loan covenants but not possible under the ERS). Focusing on symptoms will not address underlying structural shortcomings in the ERS.

Third, there is no leadership in the ERS improvement process in Moldova precisely because the framework stays intact. In reality, developing an improved ERS requires years of more structural institutional development as witnessed in Italy, England and Wales, Kosovo and many other countries (Rouse, 2007[9]; Massarutto, 2013[10]). Some case studies provided by an EU-funded collaborative research – the "Economic Policy Instrument" project – provide further examples.

Conclusion

It is unlikely that Option 1 can address demands on the ERS outlined in section 1.4.

Option 2: "Back to the drawing board"

Overview

This option takes a step back to rethink the objectives of WSS policy, regulation and the roles of various stakeholders and eventually redesign the whole ERS. It requires a further in-depth reflection on what Moldova expects from its ERS, in a way similar to what was done in section 1.4 (improved performance; focus on large, regionalised entities; sustainable business models;

tariff increases; social protection; affordability constraints; affordable loans and repayable external finance).

Implications

Further reflection is required on the difference between laws and regulations. In good legal practice, laws establish general principles that are subsequently worked out in detail and explained in regulation. In contrast, the Moldovan law is detailed, leaving little room for adjustment, according to circumstances, in the spirit of the law. Lawmakers have effectively become regulators, leaving the official regulators little room to do their job. Such detailed laws provide more scope to be in conflict with one another, which is frequently the case.

This option would allow for a complete ERS revision in accordance with EU and other international best practice. That goes beyond the process in Kazakhstan described in the previous chapter. It would allow for a higher standard in economic regulation, such as through imposing regulatory impact assessment. It could impose a more active role in performance monitoring on the regulator, providing for transparency and truly incentivising performance improvement. Social measures and affordability check may become an integral part of the regulator's mandate.

The regulator may receive more discretion for its mandate. Whereas some standards shall clearly apply to all, other standards may not have to be enforced for everyone immediately. In this regard, the regulator is best positioned to make an independent judgement, free of interests. This also requires addressing the governance of regulators, building in more independence and protection from politics in combination with more accountability.

Time and capacity are the chief constraints.

Time: Other countries, such as Albania, FYROM, Kosovo and Kazakhstan, allocated two-three years for a comprehensive redesign and re-implementation of the ERS. As a minimum, the ERS shall continue to function and ideally still improve in performance. Usually, during such a period of change, stakeholders take a "wait-and-see" approach. Can Moldova afford to lose time on an uncertain outcome?

Capacity: Delivering such a demanding ERS requires sector and legislative expertise that is in short supply in Moldova. It requires good inter-ministerial and interagency co-operation. It will be challenging to develop a wholly new ERS, especially given the lack of capacity to manage even the existing model. There is a risk the project will not lead to the desired outcome, especially in the absence of a "champion" i.e. an organisation that takes leadership of the process.

Perceptions: Law 303 on WSS services dates from only 2013. As of May 2017, the independent economic regulator has had its mandate for WSS for less than three years. Taking a U-turn after so short a period may be perceived as inconsistent governance and policy. If, however, one could be sure of achieving the desired policy outcomes, this U-turn may be only a minor disadvantage.

Conclusion

Moldova's lack of time and capacity are the main disadvantages with respect to Option 2.

Option 3: "Complete and reorganise"

Overview

The third option seeks progress through dialogue, gradual adjustment and capacity development. It will fill any gaps in the ERS and, if necessary, reorganise. A reinstated WSS Commission would play a key role as a central government body and a platform for permanent stakeholder co-ordination.

Implications

The approach would seek high-level consensus on Moldova's ERS expected achievements, considering strategic sector development targets up to 2030, the Association Agreement, the EU directives, the Paris Agreement on Climate and SDGs.

Where necessary and possible, legislative amendments shall be limited to Law 303 on WSS.

ANRE is well placed to develop a more outspoken profile, engaging in public debate, and seeking to clarify and test the boundaries of its mandate through dialogue. This mandate shall be confirmed by legislative amendments if needed. ANRE should indicate limitations in its mandate for which other parts of the ERS shall take responsibility. Obviously, that includes design and construction standards, but also the development of economic instruments to ensure the sustainability of WSS services. ANRE can act as a vocal advocate for change, therewith reassuring current and potential financiers and donors.

The government of Moldova could look into a specific WSS Technical Assistance package for the economic regulator. It could also support developing stronger links with other WSS regulators in EU and transition countries. EU countries have best practice to offer. However, they have little experience with regulating service providers that are cash- constrained, require drastic performance improvement, operate networks of poor quality and need massive capital expenditures to catch up. Many other non-EU countries did obtain such experience over the last two decades.

The tariff methodology would be updated using domestic and foreign expert assistance based on a clear set of policy objectives that is agreed upon before drafting the methodology.

The WSS Commission would be best placed to lead the reform process. It would co-ordinate regionalisation and facilitate use of sustainable business models, including respective levels of horizontal and vertical integration, outsourcing and private sector participation.

A social measure should provide WSS assistance to mitigate the negative effects of tariff increases on the poor. The measure shall be developed through careful stakeholder consultation. It shall provide for an optimal level of autonomy to LPAs, enabling them to adjust to local needs and degree of solidarity. The financing of the measure shall be transparent.

Conclusion

Implementation of Option 3 can start without delay. One possible difficulty, however, is balancing the competences of the ministries with that of the WSS Commission. Formally, the competences rest with the ministries. The ministries, however, will have to respect and feel committed to results or compromises achieved in the WSS Commission. Kosovo successfully resolved this issue by bringing the chairmanship of the Commission under the Office of the Prime Minister. However, it remains a risk whether the policy outcomes can be achieved and be firm enough for implementation.

Adopting an option

Table 2.1 summarises the advantages, risks and implementation prospects associated with each option.

Table 2.1. Evaluation of options: "Implementability" versus desired policy outcomes

	Option 1	Option 2	Option 3
A. "Implementability"			
Elaboratin and implementation time	++	-	+
Administrative and governance costs (of implementation)	++	=	+
Implementation risk	++	+	= ***
B. Desired policy outcomes	- -	= *	= **

Note: *Risk: after a long process, there will still be no desired policy outcomes. **Risk: achieving the desired policy outcomes depends on stakeholder co-operation. ***Risk: more fundamental legislative and institutional changes are required to ensure that implementation is not obstructed.
++ Good prospects and/or very limited risk (for implementation)
+ Reasonable prospects and/or limited risk
= Significant obstacles and/or significant risk
-Serious obstacles and/or significant risk
- - Almost blocking obstacles and/or almost blocking risk
Source: Author's own elaboration.

Options have been discussed with policy makers, experts and various other stakeholders. The two most important discussions were at the Expert Meeting on 16 November 2016 and the NPD Co-ordination Committee meeting on 17 November 2016. The report on the Expert Meeting can be found in Annex 2.B.

The consensus among experts and other stakeholders tended towards the third option i.e. to "complete and reorganise the ERS". The MoE, however, has stated a firm preference for Option 2 i.e. the "Back to the drawing board" option.

Individual engagement may matter as much as the option chosen. Ultimately, individuals, not systems, engage and co-operate (or not). They align interests, build trust, make compromises, invent solutions, deliver, etc. All of these elements are vital in successful ERS development.

The decision to start on Option 3 without delay, but keep Option 2 open, was welcomed by participants at the Expert Meeting and the NPD Co-ordination Committee meeting as the "best of both worlds."

Recommendations for comprehensive reforms need to be elaborated. Whether these are eventually implemented under Option 2 or 3 is of secondary importance. The next chapter elaborates recommendations for ERS reform, considering the consensus among stakeholders and experts.

Notes

[1] See http://mf.gov.md/actdoc/BOOST

[2] See http://mediu.gov.md/index.php/strategia/79-categorii-in-romana/despre-minister/institutii-subordonate/72-fondul-ecologic-national

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Annex 2.A. Tariffs in Moldova as of May, MLD/m3

№	Name of water supply company (apa canal)	Average tariff	Population	Other	Budget	Other
1	S.A. "Apă-Canal Chisinau"	8.86	8.06	12.7	-	6.69 technical water
2	Î.M. "RCL" Cricova	12.86	10	34.86	-	-
3	Î.M. "RCL" Ciorescu	11.05	7	21	18.02	-
4	Î.M. D.P. "Apă-Canal" Anenii Noi	13.53	13.50 /4.5	37.40	-	7.5 vulnerable households
5	Î.M. "Comunservice" Criuleni	10.7	9.2	30	-	-
6	Î.S. "Apă-Canal" Straseni	14.72	14.60	30	-	-
7	Î.M. "DC" Cojuşna	-	-	-	-	-
8	Î.M.C. "Floreni-Service"	8.88	7	13	-	-
9	I.M. Regia "Apă-Canal" Balti"	15.05	11.08	23.64	-	-
10	Î.M. D.P. "GCL" Făleşti	14.51	10.9	35.20	-	-
11	Î.M. "Servicii Comunale Glodeni"	23.61	13.2	54.83	-	-
12	Î.M. "Gospodăria Comunală Rîşcani"	13.85	12	28	-	25 professional school
13	Î.M. D.P. "Apă-Canal" Sîngerei	10.71	9	40	13	-
14	Î.M. "Apă-Canal" Cahul	11.25	6.0 / 12.0	27.97	21	-
15	Î.M. "Apă-Canal" Cantemir	14.05	9.95	24	-	9.8 public restroom
16	Î.M. "Apă-Canal" Taraclia	13.61	10	37.50	16.67	-
17	Î.M. "Apă-Canal" Edineţ	21.35	12.5	25.05	19.15	-
18	Î.M. "GCL" Briceni	12.82	11	35	-	-
19	Î.M. "Apă-Canal" Donduşeni	17.7	14	33	33	-
20	Î.M. "Apă-Canal" Basarabeasca	9.7	9	36	-	7 single pensioners
21	Î.M. "Apă-Canal" Leova	21.03	16.03	34.82	-	-
22	S.C. "Amen-Ver" S.A. Hînceşti	22.07	18.40	50.40	-	-
23	Î.M. Regia Apă-Canal Orhei	15.7	16.20	26.10	-	2.9 Piatra 16.2 sports complex
24	Î.M. "SCL" Rezina	21.50	12.80	51.8	-	-
25	Î.M. D.P. "Apă-Canal" Teleneşti	12.39	10	35	-	-
26	Î.M. Regia "Apă-Soldăneşti"	6	5.4	12	-	-
27	Î.M. "Apă-Canal" Drochia	17.81	10	39.17	-	-
28	S.A. "Service-Comunale" Floreşti	21.16	19.36	35.09	32.26	-
29	S.A. "Regia Apă-Canal" Soroca	17.85	10.90 /15.26	35.20	40.94	14.5 population s.Egorovka
30	Î.M. "Apă-Canal" Căuşeni	17.38	14.00	38.00	-	-
31	Î.M. D.P. "Apă-Canal" Ştefan Voda	17.60	15	48.74	-	28 heating work
32	Î.M. "Apă-Canal" Ungheni	8.98	5.84	22.04	13.90	-
33	Î.M. "GAAC" Nisporeni	16.92	14	37.23	18.80 /22.34 school	37.23
34	Î.M. "GCL" Calarasi	18.16	16.5	28	-	-
35	Î.M. "Su-Canal" Comrat	19	16	32.92	35.41	11.67 S.A. "Aidîn"
36	S.A. "Apă-Termo" Ceadîr-Lunga	18.76	16.2	40	-	16.20 nursing home
37	Î.M. "Apă-Canal" Vulcăneşti		16	44	50	-
38	Î.S.I. "Acva-Nord"	4.05	-	4.05	-	-
39	Î.M. "Apă-Canal" Ocniţa	19.19	15.1	35.75	-	-
40	Î.M. "Servicii Publice" Cimislia	14.13	12	18	15	-

Note: AMAC has confirmed there have been no changes since 15 May 2015.
Source: AMAC data base acceded in August 2017

Annex 2.B. Report on proceeds of Expert Meeting, 16 November 2016

1. ***Objectives***

The Expert Meeting was organised within the framework of the project on developing recommendations for the enhancement of the economic regulatory system (ERS) for water supply and sanitation (WSS) in Moldova. The objectives were:

- to obtain comments and discuss the content of the Interim Report
- to exchange views, facilitate dialogue from different stakeholders on the subject
- to increase understanding of the present state of the ERS for WSS in Moldova
- to highlight selected international practice with respect to aspects of the ERS for WSS
- to create a consensus among experts on the recommendations to be further elaborated.

2. ***Attendance***

All major stakeholders had been invited and actively approached. The design of the ERS was important for all invitees as there are clear interests at stake for operators, municipalities, consumers, etc. There is also discontent with the present system among several stakeholders. The chosen venue was central and attractive with good facilities.

In this context, actual attendance fell short of expectations. This was mainly due to a parliamentary hearing on amendments in Law 303 on public service on water supply and sewerage. It was announced two days prior to the Expert Meeting, and took place at the same time.

Fortunately, there were still enough experts present to facilitate the planned exchange.

3. ***Issues discussed***

Giel Verbeeck presented a summary of the Interim Report. After the presentation, the group split into two separate tables to facilitate a more informal discussion. Both tables had a lively discussion.

Discussion group 1 spoke about shortcomings in the ERS in the context of urban water supply, among other issues. The ambiguity in the law in the field of condominium buildings provides a difficulty. Operators cannot access or control internal networks of a building, and are not paid or requested to do internal plumbing. Still, operators may only invoice for the metered amounts at the apartment level. It is an institutional challenge to set incentives in a way that apartment owners can co-operate and address major maintenance issues.

Discussion group 2 spoke about two subjects in depth. First, it examined the degree of regulatory discretion required. The law leaves the regulator little room. It is therefore difficult to set a tariff that sets an incentive towards performance improvement, while considering the capacity of the operator to improve efficiency over a reasonable time. Second, the group looked at the role of municipalities and how to provide for legislation and regulation that facilitates regional co-operation.

A plenary discussion before the lunchbreak concerned options for reform. Most participants agreed on Option 3. This is the option aiming to make the new ERS work better, decisively addressing issues, but not starting all over again. The Ministry of Environment, however, prefers Option 1, even though this requires "going back to the drawing board".

After the lunchbreak, Mr Verbeeck presented a synthesis of the discussion. Main conclusions were:

- law shall reflect principles, not be used for micro-management
- economic instruments as a promising policy area
- de-politicisation through implementation of EU acquis as an opportunity
- more work for tariff methodology if the first applications work out
- need of incentives and initiatives for regionalisation
- need for monitoring performance of operators, as well as that of policy
- follow-up for options presented in 2015 for social measures in WSS.

Several recommendations were presented:

1. Increase the transparency of water sector: operators, capital expenditure, budget and updatable projections of 3Ts that cover service, investment and policy.
2. Improve public finance through labelling all budgetary and extra budgetary support to WSS (and sub-labelling for, drinking water/non-drinking water, operating subsidies, capital expenditure, social or governance support).
3. Set up a development fund at operator level.
4. Step up the charges for water abstraction and pollution and manage these proceeds under a budgetary water fund (charges).
5. Maintain WSS commitment as per WSS strategy consolidated budgetary and extra budgetary sources.
6. Pilot a project on a rebate for poorest customers based on MoLSPF data, with potential and intention to scale up nationally if successful.
7. Consider limiting capital expenditure support projects to regionalising entities alone.
8. Consider swapping the preferential VAT treatment for a budgetary commitment to investment in the water sector.

Those recommendations were to be worked out in further detail in the Final Report.

At the end, a number of mechanisms/instruments in an improved ERS for WSS were graphically presented to clarify their workings. These included the rebate mechanism, a budgetary water fund, a development fund (similar to Romania's Maintenance Replacement and Development funds). The graphical presentation proved useful and this will also be part of the Final Report.

4. *Evaluation*

The first four objectives mentioned at the beginning of the document have been met. With respect to the last objective, stakeholders will first await more detailed proposals before committing themselves. This is understandable.

It was a good decision to organise separate tables with smaller discussion groups. This allowed for more participation. Future events could safely make use of methods to increase participation such as by separation in groups, the use of statements to comment on, games, etc.

The content of the Interim Report has been disseminated through a wider group of persons than would have been the case if it had just been sent in for comment to the various stakeholders. The set up underlined the need for more genuine stakeholder collaboration in the water sector. The focus on experts, rather than on stakeholders, allowed for both more informed and more open discussion and less narrow focus on particular interests.

The Expert Meeting may have increased the acceptance and understanding of the need for further reform measures in the water sector as they are going to be formulated in the months ahead through this project, as well as other initiatives.

5. ***Agenda***

9:00	9:30	Welcome and distribution of materials	
9:30	9:40	Opening	Mr. Alexander Martusevich
9:40	10:25	Summary of Interim Report and progress made thereafter	Mr. Giel Verbeeck
10:25	10:45	Summary comments from stakeholder groups and questions for discussion in working group	By stakeholder group
10:45	*11:00*	*Coffee break*	
11:00	12:00	Separate discussion groups working out specific measures	Mr. Levon Barkhudaryan Mr. Giel Verbeeck and others
12:00	12:30	Plenary presentation of the proceeds from the working groups	Discussion group moderators
12:30	*13:30*	*Lunch*	
13:30	14:00	Synthesis: Outline of the recommendations to be elaborated	Mr. Giel Verbeeck
14:00	14:20	Final comments from stakeholders and experts	Mr. Alexander Poghossian
14:20	14:30	Closing address and steps ahead	Mr. Alexander Martusevich
14:30		*Refreshments*	

Chapter 3. Good practice and country experience

This chapter discusses good practice and experience potentially applicable in the Republic of Moldova from selected reference countries. Chile has a highly advanced regulatory system. Kazakhstan, a former country of the Soviet Union, has embarked on comprehensive regulatory reform. The Netherlands, which regionalised water supply in the mid-1970s, is also known for its multistakeholder approaches and special social instruments. The Flanders region of Belgium is known for its advanced system of tariff-related social measures.

Good practice in economic regulatory systems does not provide for practices that may simply be copied. The examples merely illustrate the importance of transparency, dialogue and how instruments should fit with policy objectives and with regulatory capacity.

This chapter looks at what can be learned from other countries in developing economic regulatory systems in Moldova to accommodate water policy objectives.

Good practice

A first principle in good governance of water supply and sanitation (WSS) is the separation of policy, regulation and service provision (Rouse, 2007[1]). This separation is never completely finished or without controversy. Regulators shall be willing to engage in discussion and co-ordinate what belongs to each of the three categories.

Standards in regulation are emerging. Eight principles have been identified for sound economic regulation (see Table 3.1):

Table 3.1. Eight OECD principles of economic regulation

1	Serve clearly identified policy goals, and be effective in achieving those goals.
2	Have a sound legal and empirical basis.
3	Produce benefits that justify costs, considering the distribution of effects across society and taking economic, environmental and social effects into account.
4	Minimise costs and market distortions.
5	Promote innovation through market incentives and goal-based approaches.
6	Be clear, simple and practical for users.
7	Be consistent with other regulations and policies.
8	Be compatible as far as possible with competition, trade and investment-facilitating principles at domestic and international levels.

Source: (OECD, 2015[2]), *The Governance of Water Regulators*.

Similarly, standards for the governance of regulators have been developed, with remarkable resemblance to the principles of regulation (see Table 3.2):

Table 3.2. Seven principles for the governance of regulators

1	Role clarity
2	Preventing undue influence and maintaining trust
3	Decision making and governing body structure for independent regulators
4	Accountability and transparency
5	Engagement
6	Funding
7	Performance evaluation

Source: (OECD, 2015[2]), *The Governance of Water Regulators*.

Considering economic regulator and regulatory practice described in the previous chapter and the above two lists, there is scope for enhancing both the regulation and the governance of the regulator in Moldova.

Some of the principles above hint at the need to accept iteration, learning and stakeholder consultation (feedback, dialogue) as key elements of best practice. The economic regulatory system (ERS) is therefore circular, operating on a plan-do-check-act basis.

Regulation is part of the entire sector governance (Rouse, 2007[1]). Furthermore, good governance of the regulators is vital for good regulation and thus for service delivery. Distinctions between regulation and policy are not always clear and do require periodic calibration.

Table 3.3 presents several regulatory tasks and functions. It is not immediately obvious in the Moldovan context which task belongs where. It is more important to recognise these functions should be carried out at all.

Berg et al. (2013) make observations on the relations and interactions between regulator, service provider and policy maker: to regulate, one needs a sector that can be regulated. The right interactions are critical to successful development of the ERS:

> The problem boils down to getting a broader set of institutions to support regulatory and managerial actions that promote good sector performance. This means getting the governance structures right (rules of the game) and the substantive actions right (play of the game). *(Berg et al., 2013[3])*

Best practice in economic regulatory systems does not provide for practices that may simply be copied. It requires most of all transparency, dialogue, patience and a professional solution-oriented attitude. For more practical experiences, one can look at country cases (Trémolet and Hunt, 2006).

Table 3.3. Typical functions and tasks for economic regulation

Tasks / Functions	Price regulation	Service quality regulation	Competition regulation	Consumer protection
Gather information and data				
	• Get information on current and projected tariff revenues and costs • Get information on willingness-to-pay, for alternative service levels	• Obtain information on current service levels • Carry out technical studies	• Obtain information on illegal conduct or monopoly behaviour	• Conduct customer surveys • Organise call centres to file complaints
Monitor implementation of rules				
	• Audit financial accounts • Ensure that adequate tariffs are charged	• Ensure service levels are met • Ensure coverage targets are met	• Investigate abuses of monopoly power – predatory practices, etc.	• Perform an administrative audit of systems and procedures in place to educate customers, and share information
Determine rules				
	• Review tariffs, linking analysis to inflation or tariff rebasing • Modify tariff structures and payment methods	• Define or review quality standards • Adapt quality standards to real needs	• Organise bidding process • Rule on competition case following complaint	• Define consumer service standards and requirements
Enforce decisions				
	• Define tariff adjustments on basis of performance • Apply penalties	• Require improvements in service quality	• Mandate break-up of monopoly power or changes in access terms	• Resolve dispute between consumers and regulated firm

Source: (Trémolet and Hunt, 2006[4]), *Water Supply and Sanitation*.

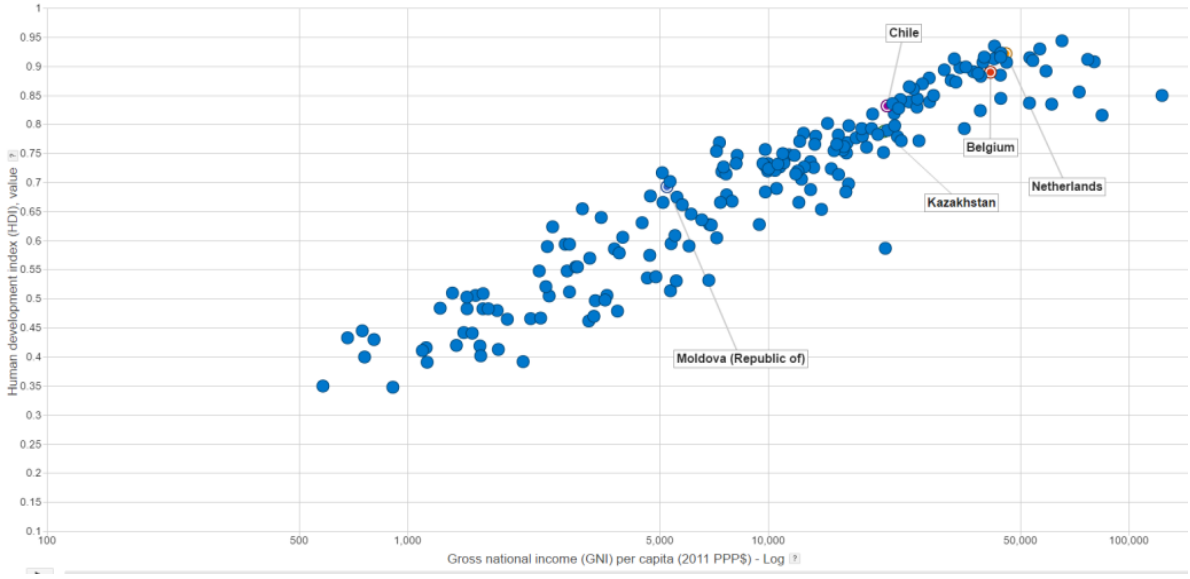
Country experience

There is a long list of countries with experience that is potentially applicable. Reference is made also to the "*Improving Domestic Financial Support Mechanism in Moldova's Water and Sanitation Sector*" report that considered experience in Armenia, Romania, France and Ukraine (OECD, 2017[5]). The country experience described below should be seen as a useful addition.

1. Chile is a middle-income country with a highly advanced regulatory system.
2. Flanders is known for its advanced system of tariff-related social measures.
3. The Netherlands had regionalised water supply in the mid-1970s. It is known for its multistakeholder approaches and has a special WSS social instrument.
4. Kazakhstan is a former country of the Soviet Union that has embarked on comprehensive regulatory reform.

As illustrated Figure 3.1, the countries are in many aspects different from Moldova. When drawing on lessons learned, these differences should always be kept in mind (UNDP, 2015[6]).

Figure 3.1. Gross National Income (GNI) and Human Development Index (HDI) scatter diagram and position of reference



Source: (UNDP, 2015[6]), "*Human Development Report 2015: Work for Human Development*".

Chile

Chile is well regarded both for its water sector performance and its good social services. Water sector reform started in the 1970s, leading to regionalisation and gradual tariff increases. A highlight of this process was establishment of an independent economic regulator *Superintendencia de Services Sanitarors* (SSIS). In addition, four principles of tariff setting were set: non-discrimination, cost recovery, economic efficiency and encouraging conservation. The small SSIS developed a model company against which the 14 utilities could be compared. When setting the tariffs, the future efficiency improvement measures of the utilities were factored in. Under SSIS, leakage levels and cost recovery improved. Still, investment remained too small. SSIS had too little power to have leverage over some of the larger inefficient utilities. These issues were resolved by:

- granting SSIS more power and independence, including funding through a levy on water utilities
- attracting finance for infrastructure through equity sales, concession contracts and involving the private sector, raising USD 1 bln that was subsequently wholly invested in infrastructure.

Among its main activities, SSIS monitors performance of both the sector and concession contracts.

In social terms as well, Chile is a success story. From a social costs perspective, having no access to water is more costly than access at cost recovery tariff levels. Social measures have concentrated on funding extension or financing the costs of increased access, half of which went to the poor.

All consumers are billed the same full rate for the metered amount of water consumed. Means-tested poor customers, however, can bring bills to the municipality. The municipality pays part of the bill, provided the beneficiary pays the other part. In this way, municipalities cover on average 6% of turnover of water utilities.

There can be little debate about the success of Chile in water sector reform. It is not clear, however, to what extent others can achieve the same results. Chile has a long tradition of effective administration and an acceptance of a contractual approach in public sector management. As a result, it has been able to provide targeted support to the poor and raise capital, mostly for wastewater treatment investment. The case of Chile illustrates that economic regulation needs periodic recalibration with policy targets, which is a task for the government at large.

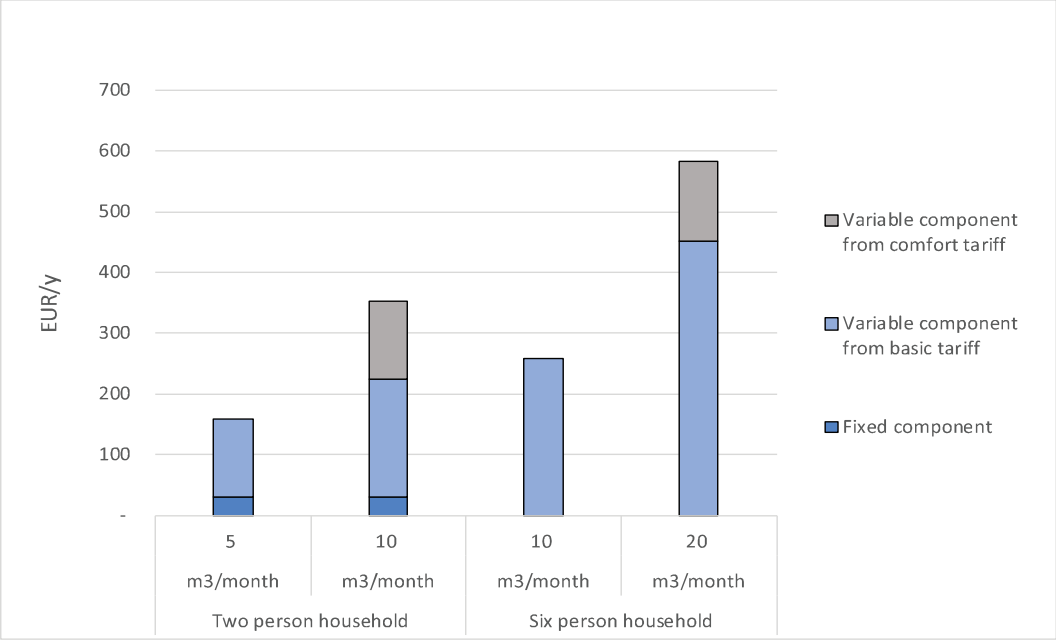
Even in a highly advanced regulatory framework, the regulator must fight its corner. The social system provides for local autonomy (autonomy of local actors) with respect to the extent of support, but not with respect to defining the poor or how to support them. At the same time, capital expenditure has ensured almost universal access to water supply. With half the new connections going to the poor between 1987 and 1995, capital expenditure for WSS can be seen as the most important part of the social protection measures package.

Flanders

The Flanders region of Belgium has perhaps the most advanced and, in the eyes of many, ideal system of securing (social) water tariffing. First, there is only a small fixed fee for costs related to customers such as metering and billing. Overall, it is less than 10% of the bill. The volumetric part of the bill is charged either as “normal” or as “social”. The normal tariff structure is a straightforward Increasing Block Tariff (IBT), but based on the household size rather than on fixed brackets (blocks). In this way, larger households pay a similar price per cubic metre as small households, provided they are in the same tariff group and have a similar per capita consumption.

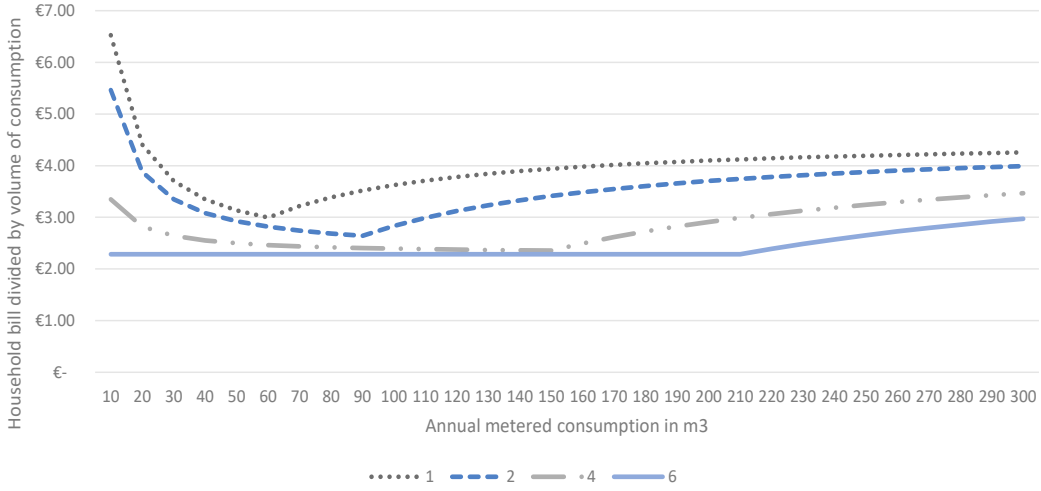
The social tariff is zero for the first 15 m^3 per person per year or 41 lcd. Above that, the social tariff is lower than the normal tariff. Figure 3.2 and Figure 3.3 illustrate the concept. The built-in cross subsidy between smaller and larger units of consumption ensures the marginal price of water is the most expensive for rich and poor alike. In this way, there is an incentive to reduce consumption.

Figure 3.2. Composition of annual water costs for various household sizes and consumption levels, 2017



Source: https://www.farys.be/nl/watertarieven

Figure 3.3. City of Ghent:2018 total household bill equivalent costs per m^3 for different household sizes



Source: *Source*: https://www.farys.be/nl/watertarieven

Intuitively, the concept is appealing. It provides for the poor, provides for environmental incentives at the margin and maintains cost recovery.

Flanders illustrates an advanced social system carried out through the tariff. The regulator exercises a strong influence on social policy, stipulating the size of the volume brackets and the relative tariff differential. There are two brackets (below and above 30 m^3 per household member per year). The tariff in the first bracket shall be half that of the second bracket. The regulator also stipulates the size and conditions of the social tariffs, presently at one-fifth of the normal fixed and variable tariff elements.[1]

The maintenance of the dual block tariff system, however, puts an administrative burden on the utilities. To charge appropriately, utilities have to maintain records on inhabitants per household and the IT systems. Expenditure for WSS is in the order of 1-2% of household income i.e. quite affordable by international standards. It is difficult to assess how well the system maintains affordability for the poor. Obviously, the per capita delineation of the tariff brackets addresses the most pressing argument against IBTs. But little is known on how well the brackets and tariffs perform in maintaining affordability in relation to, for instance, single volumetric tariffs. Brackets are not adjusted in light of updated, more recent poverty statistics. Brackets and tariff structures easily become bastions of vested interests.

This type of redistribution can only take place within the service area. Small consumers and social cases are subsidised by the remaining customers from within the service area. Three factors are necessary for this type of social measure to function optimally:

- The average tariffs should be similar among the nine service areas.
- The distribution of income within the service areas should be similar.
- Per capita income across the service areas should be similar.

Deviations on these conditions bring distortions to distribution of benefits that are difficult to quantify. Assuming the conditions have been sufficiently met in Flanders, one can still ask whether the social benefit of increased affordability of services outweighs the economic costs of the increased administrative burden for utilities. This is ultimately a political question. For Moldova, however, the difference between rich and poor is larger between (current) service areas than within individual service areas. To achieve better affordability for some, poor municipalities would have to redistribute substantially. Other, richer municipalities would barely need to redistribute to achieve basic affordability of services for the poor. IBTs, no matter how they are set, remain an inflexible and broad way to achieve better affordability. Many people benefit and many people contribute. Forecasting revenues and cost recovery tariffs becomes harder for utilities and regulators. An advanced IBT system puts another sizeable administrative burden on the billing systems of utilities.

For all these reasons, it is not clear how effective IBTs and dual tariffing are for Flanders or could be for Moldova.

Netherlands

In the mid-1970s, the Netherlands considered that its municipal water works lacked *economies of scale and scope* to retain efficient service provision in the future. The 1975 Water Law kicked off a regionalisation process that resulted in the ten current suppliers of drinking water. They are incorporated public entities that are 100% owned by municipalities and provinces.

Wastewater reticulation has remained a municipal responsibility. It is financed through a special municipal tax.

Responsibility for wastewater treatment and water management rests with the democratically elected water boards. Water boards are legal persons, the first one of which was established in 1255. The 23 water boards operate on a regional scale.

Historically, the rationale behind regionalisation has been the need for efficient operations. Regionalisation, however, has supported affordability for the less densely populated areas (see Table 3.4).

Table 3.4. Relationship between size of agglomeration and unit costs of WWT

PE (Population equivalent)	Unit investment costs EUR/PE	Unit operating costs EUR/PE annually
5	1 980	90
10	1 390	70
25	1 000	64.10
50	850	64
100	730	63.10
250	640	53.70
500	610	47.60
1 000	600	42.20
2 500	460	36
5 000	390	31.90
10 000	350	28.20
50 000	230	18.10
100 000	180	14.20

Source: (EAP Task Force, 2013[7]), *Business Models for Rural Sanitation in Moldova*.

If all agglomerations up to 1 000 population equivalent (PE) charged based on cost recovery, then tariff rates in rural areas would need to triple those in large urban conglomerations. Rural income is typically smaller. Regionalisation of operations and harmonisation of tariffs across each expanded service can help share this burden. High-income/low WSS unit cost consumers cross-subsidise the lower-income/high WSS costs rural population through the harmonised tariff.

Municipalities collect the following:

- The wastewater reticulation charge to cover municipal sewerage costs. The charge can be based on drinking water consumed, property value or the number of inhabitants.
- The wastewater treatment charges and pollution charges on behalf of the water boards. The charge is not based on metered water consumption, but on three categories: single person households, two person households and households with three or more persons.
- The water system charges on buildings and land, also on behalf of the water boards, for water resource management. It is charged on the main owner occupant of the house or apartment (or land), as a fraction of the property value (or as fee per ha).

As one can see from the above, these charges mostly provide a fixed component to the WSS-related expenditure and may be seen as regressive.

Municipalities in the Netherlands provide for a WSS-related social measure through a partial or full exemption of (exclusively) their poorer citizens. Exemption of only fixed elements of the WSS-related bills leaves intact the incentives to save drinking water.

The Dutch system of WSS provision is complex and appears fragmented. Because of the long tradition and a strong culture of co-ordination among authorities, it does provide for a high level of service and reliability. The regionalisation of services has enabled an automatic cross-subsidy mechanism that would otherwise have been impossible to set up. In addition, a

decentralised targeted WSS-related social assistance is in place through the exemption of fixed charges on poor citizens.

Both the effect of regionalisation and the design of the WSS-related social measures provide interesting lessons for Moldova. As with Chile, the effective redistribution generated by the regionalisation may be as significant as the more explicit WSS-related social measures. Whereas the former is practically irreversible and general, the municipal WSS-related measures provide for firm targeting and flexibility in the amount of redistribution.

If operators rather than the municipality carried out the Dutch concept, policy and execution would be separate. This would incur, perhaps, additional costs and the burden of co-ordination. The flexibility in the criteria remains, as well as local autonomy to determine how much solidarity is needed in WSS.

Kazakhstan

Until recently, Kazakhstan has approached the subject of economic regulation of WSS from an "anti-monopoly" perspective. Despite being a government agency, the Committee on Regulation of Natural Monopolies and Protection of Competition under the Ministry of National Economy of the Republic of Kazakhstan (KREMZK) is a large organisation with many regional branches. Among others, it monitors and interferes in industry accordance to the Law on Competition. It seeks to control, if not prevent, industry dominance. WSS operators, being natural monopolies, are dominant players by definition. WSS operators turn to KREMZK with a tariff application.

Tariff applications are based on a methodology set by KREMZK. The process shows a number of similarities with the Moldovan situation. The tariff application process takes a long time; it involves furnishing numerous data; the methodology is in some respects ambiguous; and the methodology and the way it is applied puts a large administrative burden on WSS operators.

As part of a broad economic reform programme, the government of Kazakhstan also intends to reform the tariff-setting process and the regulatory framework for WSS operators, district heating, seaports and airports. An interesting aspect of this process is the strong collaboration with the European Bank for Reconstruction and Development (EBRD). Based on the government's request, the EBRD has arranged, or is arranging, for an array of Technical Assistance (TA) projects to facilitate this reform. TA takes place at pan-sectoral level with respect to the overall reform of economic regulation, as well as to individual sectors, such as water, heating, electricity, seaports and airports.

With respect to WSS, this TA involves development of a new tariff policy, the elaboration of a detailed methodology and the testing of that methodology in a pilot utility.

A separate project has been launched to elaborate and pilot social measures. Social measures are mostly administered through the housing subsidy system in a way similar to the Russian Federation and Ukraine. These systems aim to cap household utility expenses to a maximum percentage of income, based on a complex reimbursement procedure. A permanent stream of documentary evidence is required to remain eligible for payments. Furthermore, one must prove payment to the utility for amounts not paid to the utility by the housing payment system. Also, in the case of Kazakhstan, the eligibility criteria and the system of subsidy rates are complex and costly to administer for both recipient and subsidy provider. With respect to social measures, the government of Kazakhstan seeks to at least streamline the mechanism, if not to overhaul it entirely (OECD, 2016[8]).

With respect to the reform of the ERS for WSS, the government of Kazakhstan will continue to regulate WSS alongside other sectors within an overall framework. The specific framework may be close to or similar to the one for district heating. These sectors will now be approached as one that naturally need regulation, following from their natural monopoly status. This perspective looks more appropriate than the pure anti-monopoly stance.

Technically, the reforms will lead to a regulatory asset base (RAB) and weighted average costs of capital (WACC) that are better and more appropriately defined. Both items determine an important component of the eligible tariff. The RAB determines the amount of depreciation that may go into the tariff calculation. The WACC determines the cost of capital of the RAB and hence the amount of free cash flow for investment that a utility can build into its tariff.

The reforms are likely to lead to a more business and performance-oriented regulator rather than one based on sometimes inappropriate norms and ambiguous standards. The future economic regulator is likely to be leaner, more oriented to the business plan and its Key Performance Indicators. It will also likely focus on incentivising performance improvement over time. Furthermore, it shall be more aware of its own regulatory impact and the administrative burden placed on its subjects. The involvement of EBRD may suggest that the new regulatory framework will accommodate strong lending to a sector that currently lacks creditworthiness.

The new regulatory framework will be responsive to the interest of lenders, rather than the short-term interest of consumers in terms of low tariffs. Currently, tariffs in Kazakhstan are on average half those in Moldova, though many provinces of Kazakhstan are not less water-stressed than Moldova. In the longer term, however, poor and rich customers alike will be much better off with rehabilitated and extended networks, wastewater treatment, improved customer service, etc. That requires that the ERS also addresses financing the WSS sector.

Yet Kazakhstan is by no means unique in designing ERS reform in collaboration with an IFI. In Romania, the EBRD has also played an active role for many years. Kazakhstan provides a relevant reference because the starting point of its ERS shows a number of similarities to the Moldovan ERS and because it is also a former Soviet Union state. The organisation of the ERS reform in Kazakhstan may inspire Moldova where it is only just beginning. It shows how a country in 2017 with similar reform challenges can go about this process.

Notes

[1] See https://www.vmm.be/wetgeving/algemeen-waterverkoopreglement.pdf

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Chapter 4. Recommendations and conclusions

This chapter provides a set of recommendations on establishing a sound economic regulatory system for water supply and sanitation in the Republic of Moldova. They are based on analysis in previous chapters of this report and consider proceedings from the Expert Meeting and the National Policy Dialogue (NPD) Co-ordination Council meeting in November 2016. It outlines an indicative implementation plan, with references to Annexes for further information. Finally, it makes a wide range of recommendations, including ones with respect to institutional set up, facilitating performance improvement, regionalisation, business models, tariffs, the use of economic instruments, access to finance and social measures. Implementation of the proposed recommendations is discussed at the end of the chapter.

Reform objectives and lead institution

The following seven objectives for an economic regulatory system (ERS) in water supply and sanitation (WSS) have been formulated:

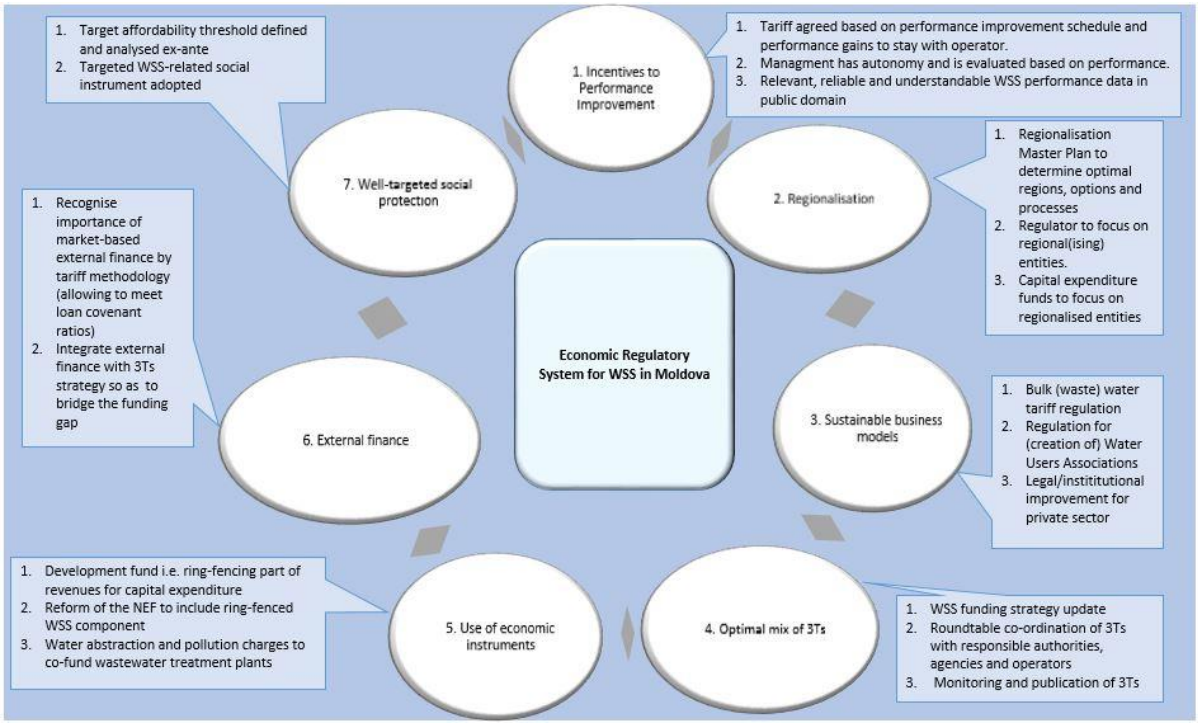
1. A tariff (structure and level) that gives incentives to perform better.
2. More decisive regionalisation of WSS services.
3. The nurturing of sustainable business models, not least for regionalised WSS services.
4. An optimal mix of taxes, tariffs and transfers (the "3Ts"), based on an up-to-date national WSS strategy.
5. Improved use of economic instruments to achieve set WSS policy objectives.
6. Wider use of external finance to bridge the projected funding gap.
7. Well-targeted WSS-related social protection measures.

Figure 4.1 on the next page provides further detail of what can be associated with these objectives. Agreement on the objectives among stakeholders opens the door for implementing the 20 recommendations for comprehensive reform. Over several years, implementation would radically change the evaluation of the ERS in section 2.5. The following sections each elaborate an individual recommendation. Section 4.1 provides summary tables and an indicative implementation framework. Upon adoption of the reform package, a more detailed blueprint must be elaborated to control the processes.

Recommendation 1. Re-establish the WSS Commission to lead and steer the reform.

Re-establishing the WSS Commission is considered a key enabler for progressing on each of the objectives and recommendations. So far, the lack of high-level policy co-ordination has been the main obstacle to policy development and implementation. The re-establishment of the WSS Commission does not guarantee co-ordination; it is only an instrument. If it has a well-scoped mandate with high-level ownership, it can be effective. The WSS Commission is seen as a champion and key instrument for ERS reform. The Commission would meet as often as is necessary, operating formally under the chairmanship of the Prime Minister. In practice, the Commission is operated by one or more dedicated professionals without ministerial or explicit political affiliation. The WSS Commission can provide for better co-ordination as it has more leverage over other institutions than the Ministry of Environment (MoE). At the same time, however, it monitors the MoE and other institutions so that agreed water sector reform measures are indeed implemented. Among many other tasks, the WSS Commission may also continue to push for revision of the design and construction standards for WSS projects.

Figure 4.1. Objectives and the associated achievements



Source: Author's own elaboration.

Providing incentives towards performance improvement

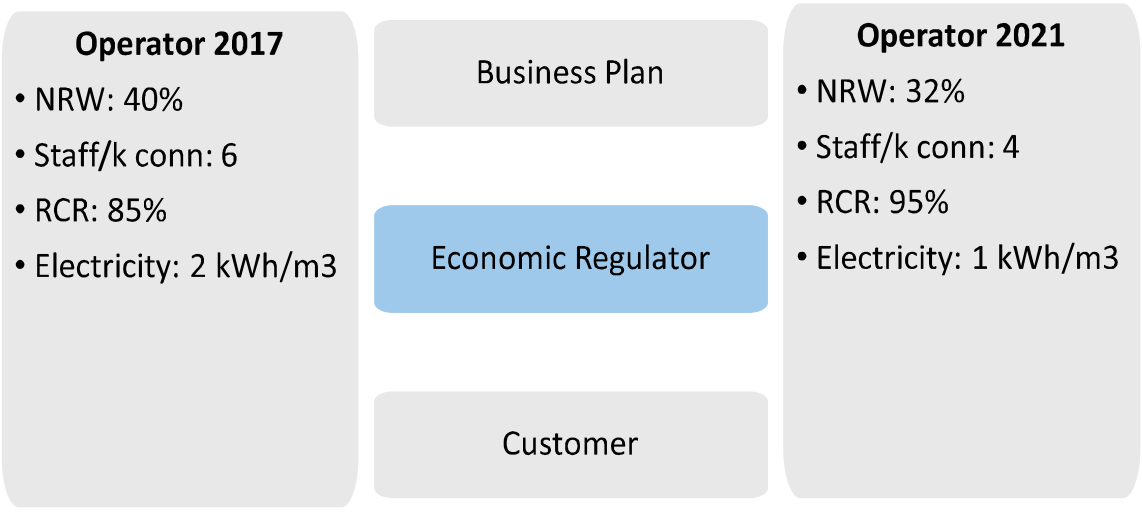
The role of the economic regulator

Section 2.3 of this report identifies several difficulties with the tariff methodology and its application by the economic regulator. The complexity of the tariff-setting process overshadows the basic aim of the tariff i.e. to provide incentives for efficient and economic use of resources by both operator and consumer.

Recommendation 2. Recognise the independence of the economic regulator in line with international best practice.

The economic regulator shall be perceived as a broker in the centre of a positive sum game where both customer and operator can win from future efficiency gains. The independent economic regulator has some discretion in the allocation of the incentives. It can give incentives to the customer to save more water or to the operator to operate more efficiently. A fair mixture of these incentives is needed. This concept is illustrated in Figure 4.2. Starting from the current situation, the operator offers a certain efficiency increase that is backed up by its business plan. The regulator reviews whether this is affordable and feasible.

Figure 4.2. Economic regulator in the centre of the allocation of incentives



Source: Author's own elaboration.

The role of the business plan

How the proceeds of the efficiency gains are distributed is of secondary importance. Eventually, the regulator can ensure that all gains accrue to the customer through lower tariff, improved access or better service. Realising the performance improvements comes first. Once realised, the new efficiency level will be the starting point in the next regulatory cycle. With time, all performance improvement gains can accrue to the customer. Operators need financial leeway and autonomy to realise those improvements. Sometimes it requires investments, which can only pay off over time. Skilful managers will proceed quicker and be more innovative than less skilful ones. Assessing performance improvement potential is therefore much more a business exercise than an accounting one. It is more art than science.

Therefore, the regulator assesses the business plan (or equivalent such as corporate development plan, Financial and Operational Performance Improvement Programme or action plan) as the main document. Absence of a business plan hints at a lack of purpose and at operating in a "business as usual" manner. Explicit targets and clear plans identify operators that are developing their business. Once given the responsibility, the regulator needs capacity to review and act on the findings. For instance, the regulator can publish performance data and use peer pressure as a tool.

Recommendation 3. Require and analyse business plans from operators.

Both municipalities and the economic regulator can require and analyse business plans from operators.

From larger operators one can expect more detailed and higher quality planning. Smaller companies may need to be furnished with a template for a simplified business plan. Such a template can be filled easier and gives a better focus to managers who are perhaps inexperienced in this field.

Recommendation 4. Provide a template business plan and MS Excel model template for projections.

The regulator should provide a template business plan, as well as an MS Excel model template for projections. An outline for this template and model has been attached in Annex B. Note that the computer-based **Financial Planning Tool for Water Utilities** developed by the OECD could support the business plan with financial projections.

Metering differences

In urban water supply, the biggest concern of customers is the large amount of "metering differences" they face (see section 4.3) i.e. the difference between the metered supply to the apartment block at the entry and the sum of readings of the individual apartment meters inside the building. The point of transfer shall remain for all customers the inlet to the building (apartment block). This holds for individual houses, as well as for apartment blocks. Direct contracts with end users need not change how these metering difference losses are distributed among consumers.

In theory, one can ask the operator to control internal plumbing, but the service would come at a price. This service is not a natural monopoly and is typically non-regulated; third parties could take on the task. If the service is covered within the overall tariff, it would be notoriously difficult to add an adequate price tag on this service and to control for its execution. This, however, is the approach of the present tariff methodology in the Republic of Moldova (hereafter "Moldova").

Recommendation 5: Give incentives to property owners to resolve internal leakages.

Property owners should receive incentives to resolve internal leakages. This would entail calculating and applying a uniform tariff for a single cubic metre of water that is delivered to any property (house or condominium). Elaboration, negotiation and regulation are needed to determine in which way and according to what distribution key the metering differences shall be charged upon individual contractors (end users):

- Metering differences may be invoiced by the operator to the entity managing the building.
- Metering differences may be directly invoiced to the apartment owners as an additional separate line item on the water bill, according to a specific distribution key. This key may differ according to circumstances (see section 4.3) or be stipulated by the economic regulator as needed.

The leading principle shall be that payment is due for all cubic metres of water that have entered the private property.

Deciding who pays for the metering differences

Customers from condominiums are concerned first about the amount of "metering differences" and the way this charge is passed on to customers. In urban water supply, the vast majority of water is supplied to apartment blocks or condominiums.

What are metering differences?

Metering differences occur when the volume of water that enters the block exceeds the sum of the volume billed to individual apartments. The volume billed to individual apartments can be based on metering or on a notional consumption volume in the absence thereof.

Individual condominiums are private property, but ownership of the building is collective. Therefore, management is separated from ownership. It is carried out by a

range of bodies such as municipal management companies, associations, private enterprises, etc.

The legislation and institutions for the collective property of the building must allow for its proper management and maintenance. Too often, the collective part of the properties is allowed to deteriorate. That includes the internal plumbing.

From the perspective of service providers, the point of delivery is the inlet of the water pipes to the building. What happens thereafter in terms of water quality and quantity is up to the owners of the private property. Operators may be required to facilitate individual metering. However, due to the design of the plumbing (of the indoor water distribution pipes), individual metering often requires more than one meter per household.

Ultimately, however, operators should be entitled to compensation for the full amount of water that has entered the private property and hence for the associated service provided.

What are the causes of metering differences?

There are a number of possible causes. There may be losses through the collectively owned pipes and connections. Individual apartment meters may be old or of poor quality and hence underreport true consumption. Such meters may fail to register small amounts of permanent consumption, such as through small leakages. There may be tampering with the meter or bypasses. In theory, there may also be inaccurate metering at the inlet to the apartment block. Customers that are not metered may consume more than the notional amount ("consumption norm") that is invoiced to them for direct consumption. All these causes are more likely to occur in older, less well-maintained buildings than in newer, modern blocks.

One solution is to invoice any metering difference directly to the condominium or the entity managing the apartment block. The entity could then pay and seek reimbursement from the apartment owners. This is the practice for collective electricity used for lighting, lifts, and cleaning and maintenance costs.

Operators also may be required to develop sophisticated systems to allocate any metering differences according to a certain distribution key (rule) among apartment owners. In this way, individual apartment owners receive a bill for consumption of two services:

a. direct consumption of water and wastewater services in this apartment

b. fair share of the collective water and wastewater service (allocated according to direct consumption, surface of the apartment, number of inhabitants, etc.)

Presently customers in Chisinau, for instance, receive the second type of service based on their direct consumption. This leads to frustration as honest customers pay both for their full amount of consumption and on top of that, consequently, a disproportional part of the metering differences.

Is individual contracting a solution?

Billing, ownership and supply relationship are separate concepts. At present, individuals are billed based on collective contracts. The move to individual contracts where feasible might be a welcome development. But it does not resolve the question of the metering

differences. Even when there are individual contracts with owners of apartments, the supply remains up to the private property i.e. the block meter.

What is the effect of extending the responsibility for supply up to the apartment?

WSS operators do not have the legal, operational, staff and financial capacity to take responsibility for in-house plumbing. Another question is location of the new delivery point. The responsibility and costs for water losses are currently located at block level. Admittedly, block management does not always take care of this responsibility. There are many issues in relation to access, metering, maintenance, etc. But making the operator responsible further for internal networks only aggravates the problem. In fact, no one will be responsible and everyone will pay the price. It is therefore much better to maintain a strong incentive on blocks to improve internal organisation, metering and maintenance, and to discover fraudulent behaviour.

What is the effect of making the collective owners firmly responsible?

If a community in a condominium decides to get rid of the losses, because the benefits will outweigh associated costs, then it can do the following:

1. Establish the necessary institutions to make this collective choice. This may require establishing an authorisation system, representation, council or other institution.

2. Attract the funding, either through own financing, loan or grant. The funding may be attracted collectively or individually and subsequently pooled.

3. Assign someone to carry out maintenance and/or replace the meters. This may be the WSS operator, but it may be any qualified third party as well.

4. Reap the benefits of a smaller amount of metering losses that need to be paid.

When tariffs go up, the benefits will increasingly outweigh the costs. But challenges remain such as representation, decision making, access to finance and administration. National authorities can support the process by providing template documents. Municipalities can support with help desks and granting schemes. Financial institutions can apply for special credit lines with international financial institutions to fund projects aimed at saving water and energy. These measures would make sense only if the following conditions apply:

1. Water services are priced at the full costs of service.

2. Blocks are invoiced for the full volume of the service.

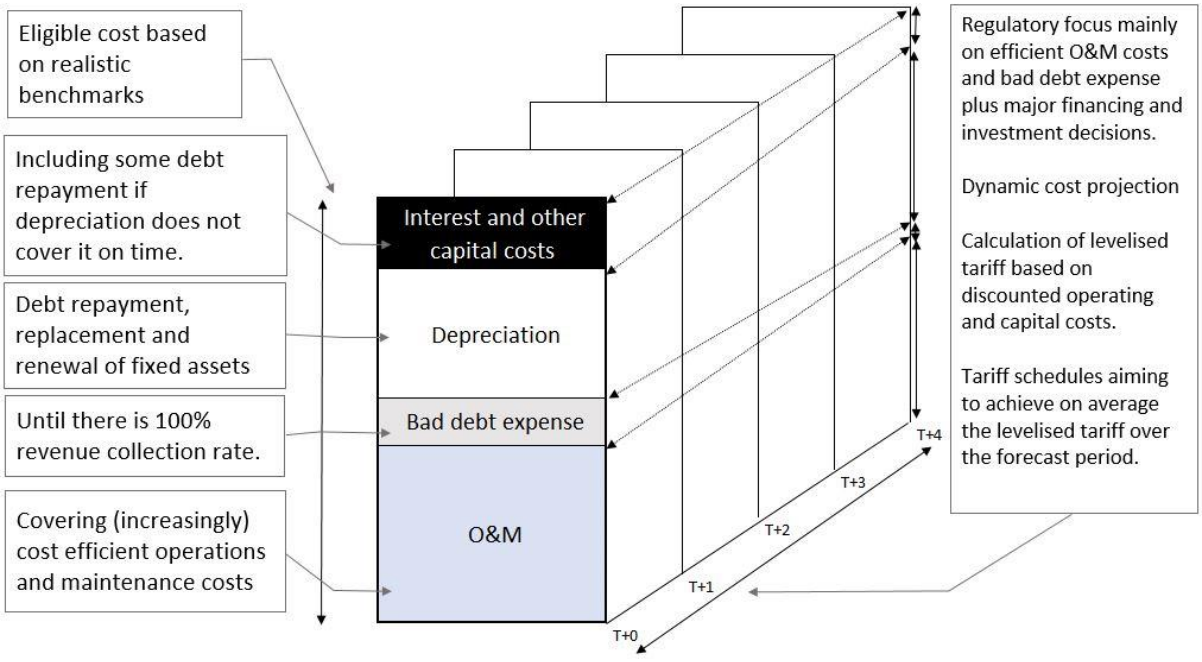
3. Payment is enforced.

Such a change in approach associated with the previous three recommendations is ultimately incompatible with the present tariff methodology. Too much of the tariff methodology has already been determined directly by Law 303 on Water Supply and Sanitation. This is not a desirable situation.

Recommendation 6: Amend Law 303, confining it to tariff-setting principles, and subsequently work out these principles in the new tariff methodology.

This approach will allow for more flexibility and discretion on the side of the independent economic regulator. The objective shall be to focus on the dynamics (see Figure 4.3).

Figure 4.3. Dynamic approach to tariff setting



Source: Author's own elaboration

Recommendation 7: Adopt a dynamic tariff-setting methodology.

Dynamic tariff setting would discount future operating and capital outflows and calculate a levelised tariff. This is like an average cost-recovering tariff over the forecast period. The tariff may rise gradually, aiming to equal on average the levelised tariff over the forecast period. This approach breaks with the static costs base method and anticipates future developments, including regionalisation of WSS services and investments. It will allow for transition periods in achieving efficiency with respect to staffing, electricity use and non-revenue water (NRW). Currently, those efficiency levels can be inserted only into the base costs. This leaves utilities frequently with performance improvement requirements that are out of touch with reality or with no requirements at all. The former is often the case with respect to NRW, the latter with respect to staff to output ratios.

Meanwhile, however, the existing tariff methodology can be used as a guidance document. The regulator shall just have more discretion in its application. A shift in focus towards Key Performance Indicators and business plans can already be initiated.

Recommendation

Recommendation 8: Increase the discretion of the economic regulator, requiring legal and regulatory amendments, as well as clarifying institutional roles among stakeholders.

Incentives to perform will come from other economic instruments too, rather than from the tariff alone. These are discussed in section 4.7.

Furthermore, transparency and good corporate governance provide incentives. As owners of WSS systems, municipalities play an important role. Headline performance data, such as for NRW, staff per population served/connected, specific electricity consumption and customer service shall be firmly in the public domain.

Reccomentadion 9: Publish an annual performance report, identifying winners and laggards, utilities that catch up and those that fall behind.

The focus of the annual performance report, produced by the economic regulator, shall be on improvement rather than purely on "naming and shaming". This will allow for lagging operators to change direction and thus create a better basis for future co-operation.

Facilitating the regionalisation of WSS services

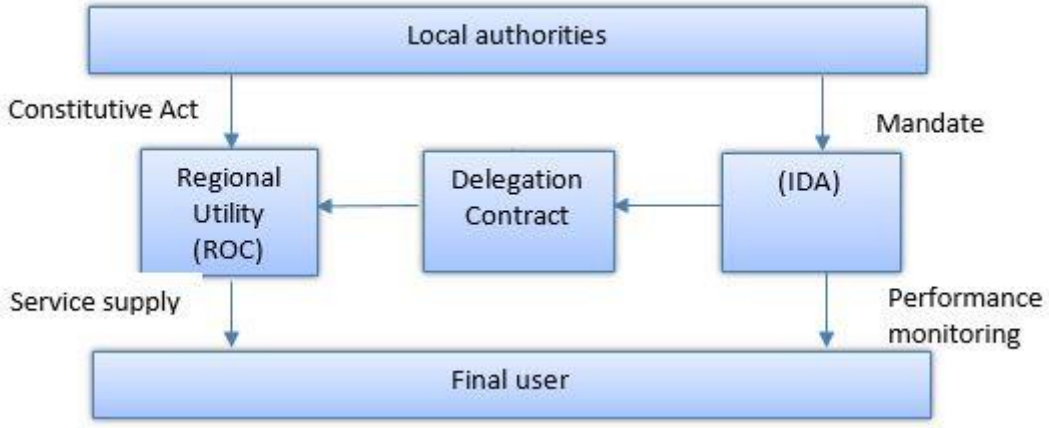
Most smaller operators lack the business planning skills to develop business plans, though anyway the economic regulator cannot analyse too many such plans and supervise their implementation. Regionalisation is therefore a condition for an improved ERS. Larger entities can provide for higher quality data and plans, while the economic regulator can better cope with the amount of data, monitoring and auditing needs. There are many more reasons why regionalisation is the cornerstone of the WSS strategy for Moldova, including economies of scale and scope, access to finance and ability to regulate (Tuck et al., 2013).

Decisive progress on regionalisation

Recommendation 10: Proceed more decisively with regionalisation, making it a firm condition for funding capital expenditure.

The widely accepted Romanian model of regionalisation is illustrated in Figure 4.4. Over the last few years, it has become clear this is the model stakeholders in Moldova want to develop. Legal amendments can focus on making this model applicable in Moldova. It will remain a challenge, but without regionalisation the WSS sector cannot proceed and the set ambitious development goals cannot be achieved. Each step in any regionalisation process must strike a careful balance between short-term obstacles and risk, and long-term opportunities and benefits. Only by making financial support conditional to progress on the regionalisation process does the government send out a firm signal that it is serious on its own development strategy (ANSRC, 2014[1]).

Figure 4.4. Regionalisation concept based on Romanian model



Source: (ANSRC, 2014[1]), Presentation of National Authority for Public Services of Communal Management of Romania, www.danube-water-program.org/media/dwc_presentations/day_0/Regulators_meeting/2._Cador_Romania_Viena_ANRSC.pdf

The World Bank's 2013 *Water Sector Regionalization Review* (Tuck et al., 2013[2]) provided a good ten-year road map, which remains relevant and accurate today. It includes establishment of the Regionalization Task Force, laying the foundations for regionalisation among stakeholders, master planning, institutional structures to be developed, phases in the process, etc. Regional utility may be in public ownership or it can be managed by a private operator (see Annex A for more details).

Recommendation 11: Adopt the approach, road map and timeline set out in the regionalisation review (Tuck et al., 2013[2]).

Transfer of assets

In most transition countries, the exact legal status of WSS assets is slightly ambiguous. At the same time, three things are clear:

1. Assets in use that generate economic benefits must be capitalised and depreciated under International Financial Reporting Standards.
2. Asset stripping is not an option for WSS operators. Most fixed assets in WSS may not be, cannot be and will not be dug up and sold.
3. Most WSS systems in Moldova are in urgent need of rehabilitation.

The exact legal status of the assets is therefore mostly of academic interest. In practice, the WSS operator manages and maintains these assets. Standardised procedures and standard agreements are needed when assets are transferred to an operator. This is recommended not only for regionalisation. There are three cases of transfer of assets and for each of them clear guidelines are required.

1. Extension of the service area

When an operator takes over responsibility for a public network that it previously did not operate, a standardised procedure and a standard agreement is needed on service area extension.

2. Privately-built network handed over to operator

Citizens in rural neighbourhoods regularly invest their own money in the development of a network and intend to hand this over to a professional operator for further use. This shall be possible according to a standard procedure and under a standard agreement.

3. Regionalisation

When a regional operator is established on the basis of two or more existing operators, the assets are put together in a single entity. A standardised procedure and standard agreements shall be developed for this process.

For all three categories, guiding brochures would help stakeholders arrange for their transaction in a clear, legally sound and organised manner. If compensation must be paid, transactions are not likely in any of the cases. That means the law shall make it clear that while such compensation is not forbidden, it is not a requirement either. A recent decision of the Constitutional Court awaits further clarification/jurisprudence.

Recommendation 12: The Ministry of Regional Development and Construction in co-operation with water agency *Apele Moldovei* should provide practical support towards the regionalisation process.

The Ministry of Regional Development and Construction and water agency *Apele Moldovei* should support regionalisation in practical ways. This can start with defining and clearly documenting the steps and procedures under which, in the context of WSS services, assets can be transferred from one entity to another on a solid legal and contractual basis.

Paving the way for sustainable business models

The fully regionalised WSS sector structure will be achieved over 10-20 years. Meanwhile, the sector needs business models that are sustainable, at least for the transition period. Also, there might be several different sustainable business models for regionalised WSS services (OECD, 2016[3]). The sustainability criteria apply equally to the financial and economic, as well as to the quality of service and environmental aspects.

The traditional municipality-owned utility model is not always **sustainable** let alone **optimal.** Increasingly, Moldova needs to obtain surface water from the rivers Prut and Dniester. These sources are important either to save remaining groundwater reserves or because the quality of these resources is no longer acceptable. This alone is an urgent reason to work out other business models, including co-operation with other municipalities and operators.

Rural areas especially need to look for these alternatives. They may be permanent or transitional, such as during the regionalisation process. They may be based on public or private sector management, or on co-operative or not-for-profit association. The business model shall follow the needs, preferences and local capacity constraints in respective communities.

Several business models are described with a focus on the options for rural sanitation in Moldova (see Table 4.1). These models differ from one another on service structure, degrees and forms of regionalisation (consolidation) and delegation, use of technology and service level. There are different needs determined mostly on the location of the service area. Suburban localities have different options than rural agglomerations or remote localities (OECD EAP Task Force, 2013[4]).

Table 4.1. Medium-term sanitation service options for various localities

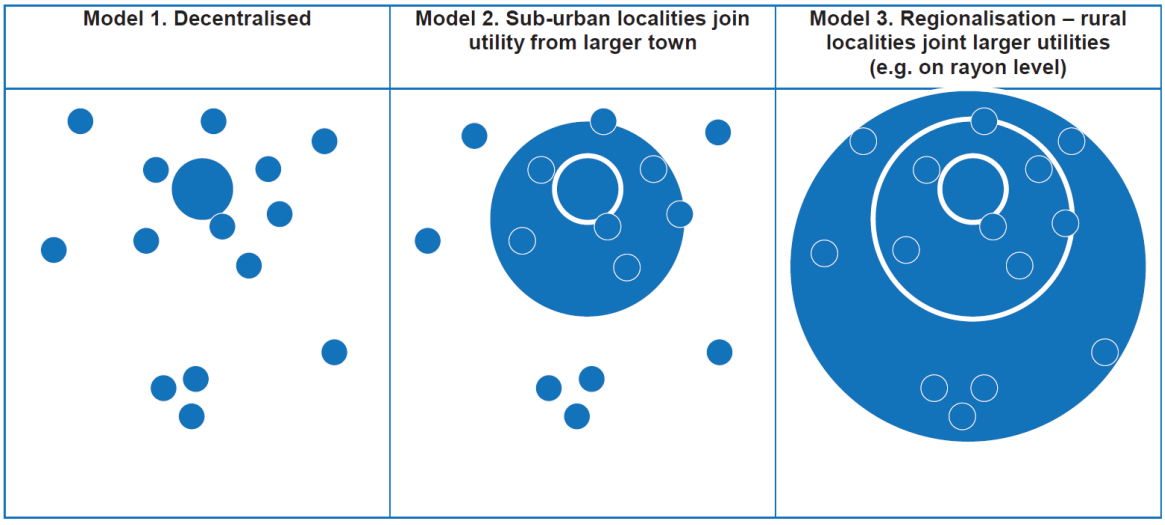
Type of area	Degree of regionalisation	Service provision	Professional services	Technology	Sector financing	Incentives
Suburban	Regionalised	Joint stock company based on existing Apacanal multi-purpose utilities	Small need for "light regionalisation"	Piped sewage collection+ WWTP	Improved social programme	Fiscal incentives for capital investments;
Agglomeration	performance-based contracts					
Remote localities	Regionalised	Association of localities or assets holding company hiring an operator	High need for "light regionalisation"	Piped sewage collection + WWTP	Improved social programme+ solidarity fund	Fiscal incentives for capital investments;

Source: (OECD EAP Task Force, 2013[4]), *Business Models for Rural Sanitation in Moldova*..

The challenge of developing sustainable business models relates closely to the challenge of regionalisation. It would be a mistake, however, to believe that because of regionalisation there is no need to think about sustainable business models. First, a regionalised structure implies another business model and a new corporate orientation. Second, the initial phase of regionalisation may already take a decade. During that time and thereafter, there is a need for viable business models, including ones adopting more flexible standards of service, particularly for remote rural areas.

Business models for different forms and degrees of regionalisation are presented in Figure 4.5. It is expected that over the longer term the sector will move from Model 1 to Model 3. However, even once Model 3 has been completely implemented there can be reasons to structure businesses differently across the regions and even within regions. Regionalisation does not mean centralised standardisation. Both in water and sanitation it may be efficient to make use of outsourcing, private sector involvement, Water Users' Associations or co-operatives of rural drinking water users, different technologies, etc. The optimal degree and form may be different from region to region and different within a region.

Figure 4.5. Business models for different forms and degrees of regionalisation

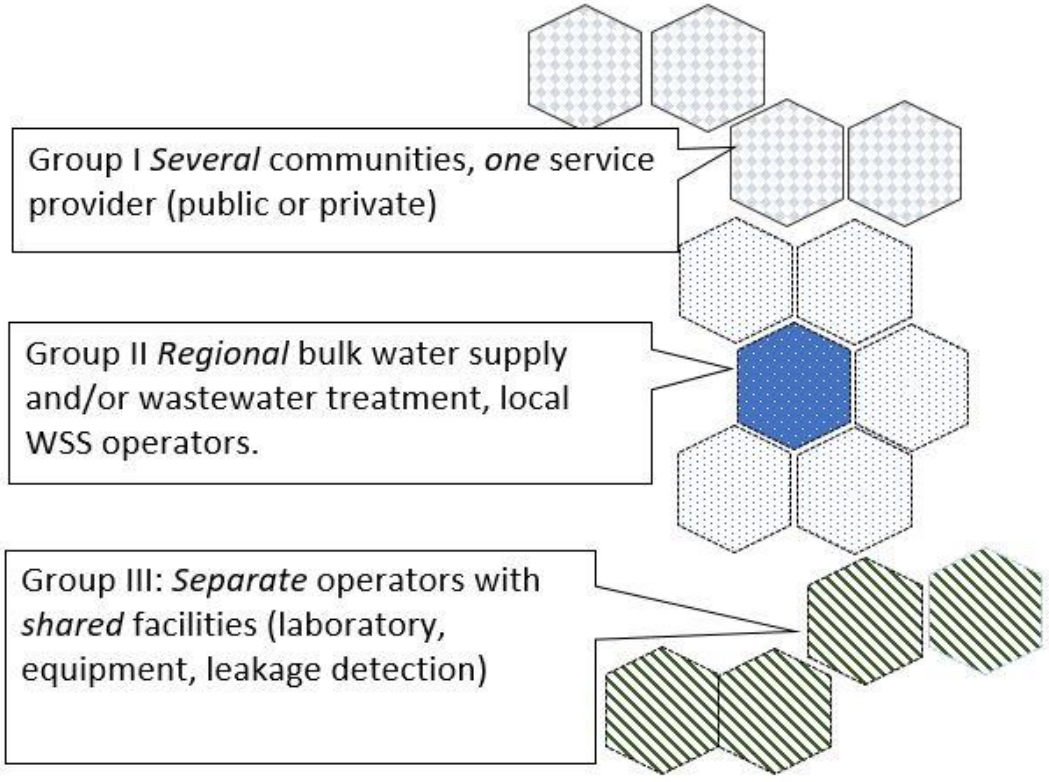


Source: (OECD EAP Task Force, 2013[4]), *Business Models for Rural Sanitation in Moldova.*

Recommendation 13: Facilitate emergence of sustainable business models that serve communities' needs.

Different options are presented in Figure 4.6. (OECD EAP Task Force, 2013[4]) OECD EAP Task Force (2013) furthermore recommends preparing guidelines for local governments on establishing (inter-municipal) joint stock companies (e.g. for septic tank operators, regionalised operations of utilities). It also recommended that such guidelines include templates for statues, regulations and performance-based service contracts.

Figure 4.6. Sustainable regional service provision structures



Source: Author's own elaboration

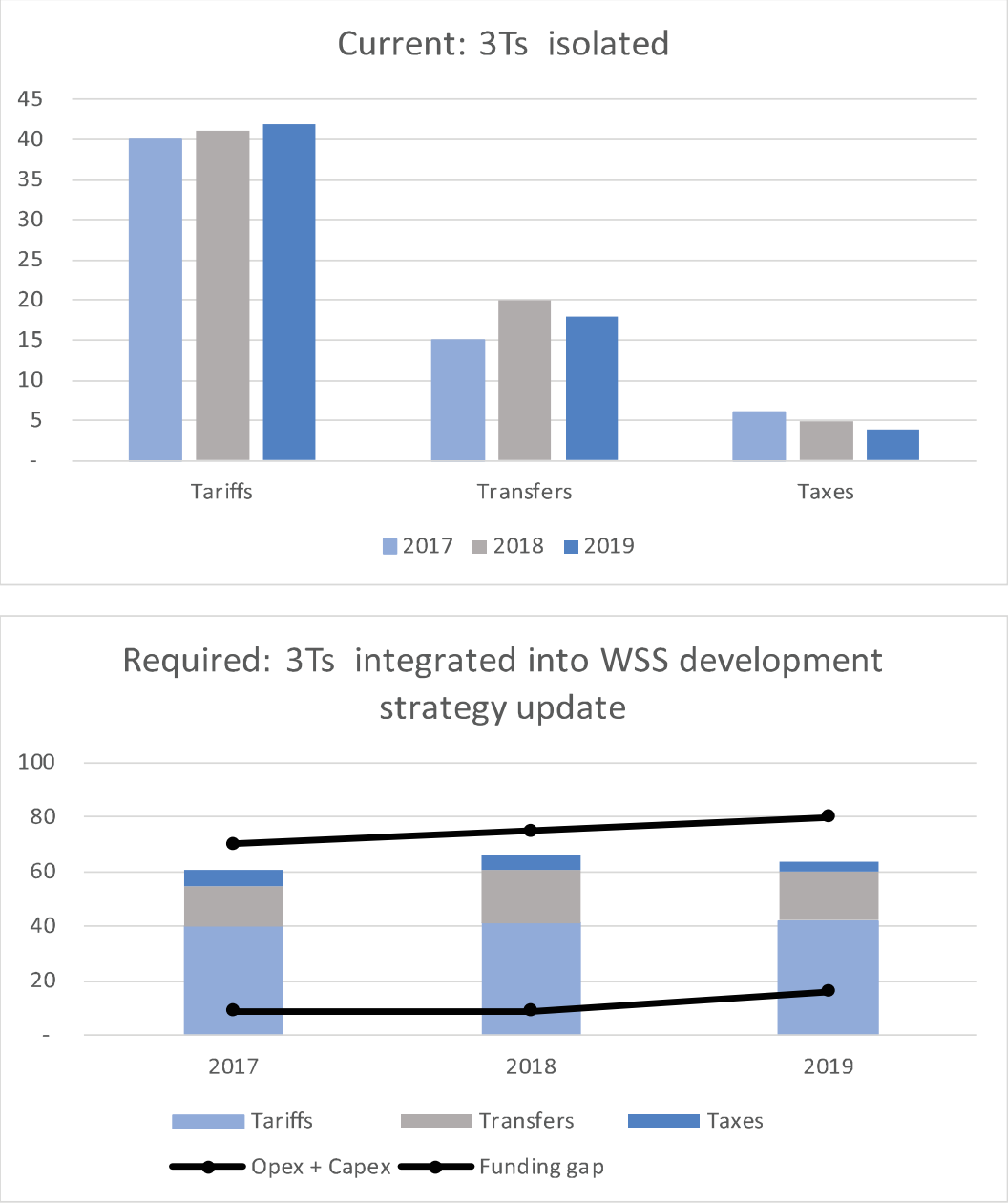
Realising the optimal mix of the 3Ts

As described in section 2.4, the ultimate sources of funding for a WSS operator consist of a mixture of the 3Ts: "tariffs, taxes and transfers". In Moldova, the utility sector cannot develop on tariffs alone. It must rely on a reliable stream of budgetary resources (mobilised through taxes) and international grants (transfers). To make these streams reliable, planning and co-ordination are necessary.

RecommendationRecommendation 14: Develop a data collection, recording and projection system through the Ministry of Environment and water agency *Apele Moldovei*.

By developing a data collection, recording and projection system, the 3Ts can be considered in an integrated way, as illustrated in Figure 4.7, for past, present and future. These data are to be updated and published annually.

Figure 4.7. Integrating accounting for the 3Ts



Note:Data for illustration of the concept only.
Source: Author's own elaboration.

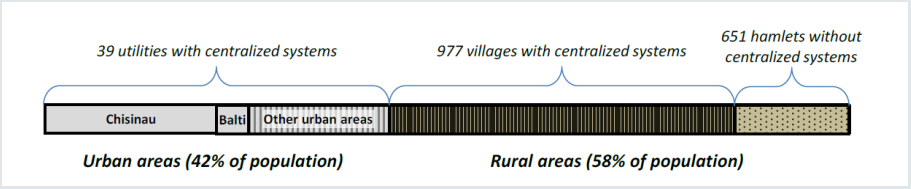
Recommendation 15: Update projection of the 3Ts for a rolling 15-year period (MoT).

In addition to updating projection of the 3Ts for a rolling 15-year period, MoT should also estimate the required operating and capital expenditures. To that end, it should use both bottom-up estimates and experience from transition countries with EU acquis compliance costs. In this way, the funding gap estimate can be updated annually and necessary changes in policy, regulation and financing capacity signalled and initiated. This is vital for external finance, discussed in section 4.8. Costs and funding will not

match automatically and policy makers face difficult choices. Only informed choices allow for an optimised mix of 3Ts, based on ruling out other, less attractive options and mixes.

Box 4.1. Differentiated and "light" regulation

The economic regulator ANRE can play a role in most areas of the ERS – from performance incentives to regionalisation and from sustainable business models to affordability. In Moldova, there is a wide variety of WSS providers, from large corporatised enterprises in the cities to small-scale (private) operators. Often, local authorities provide water supply directly themselves.

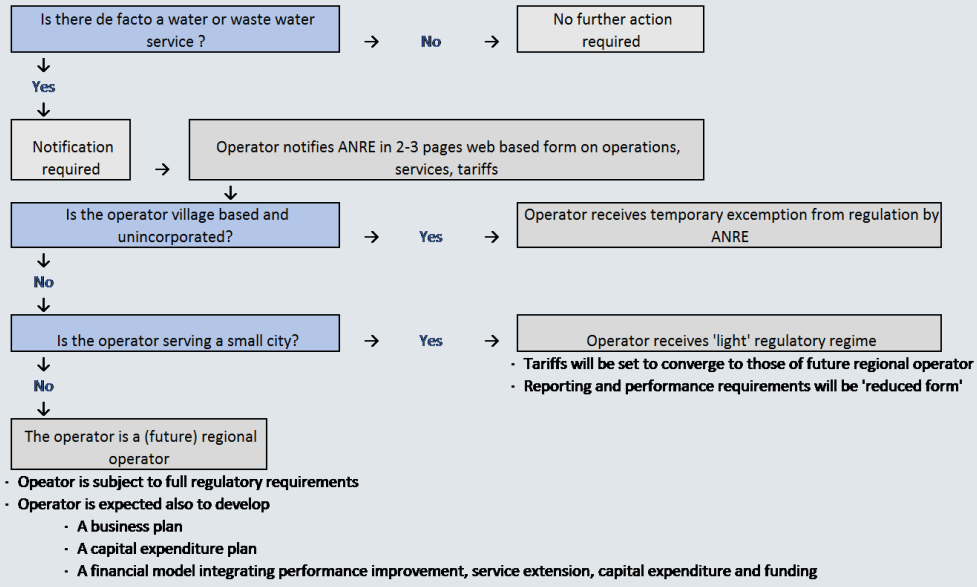


Source: (Tuck et al., 2013[2]), "Water Sector Regionalization Review, Republic of Moldova."

Only operators registered with ANRE are within its scope. In practice, these are the approximately 40 urban WSS operators. Among that group, differences are large, too. Some have already achieved economies of scale, such as *Apacanal Chișinău* and the operators in larger cities. For this category, i.e. the future regional operators, economic regulation can be developed in accordance with recommendations from sections 4.4 – 4.5.

Others may well merge into bigger entities in the future; for this category, a different approach is to be developed. It would suffice to ensure these are "moving in the right direction" i.e. making progress on regionalisation. Rather than complying with a complex tariff methodology, those utilities should converge their tariffs with those of the future regional operator.

Most small operators "fly under the radar" by not registering as a utility. In this way, ANRE cannot assess the supply conditions, demand and needs of a sizeable proportion of the population (58%). In a broader context, that implies the national government of Moldova overlooks supply to these areas (which means it is often substandard). Therefore, it would be good to register any water supply or sanitation service, if only for planning and monitoring purposes. The government may immediately exempt small operators from licensing and compliance with tariff regulations for five years. As outlined above, smaller operators already registered require a light regulation. Light regulation also involves a reduced number of service quality indicators to monitor a much more pragmatic tariff-setting process. In this way, ANRE can facilitate national policy, of which regionalisation is a cornerstone; focus on future regional operators; and still keep an eye on future water supply investment needs and required consolidation of WSS services in the country.



Source: Author's own elaboration; (Tuck et al., 2013[2]), "*Water Sector Regionalization Review: Republic of Moldova.*"

Extending the use of economic instruments

Tariffs, discussed already in Recommendation 6, can be seen as the most important of all economic instruments. Apart from tariffs, however, many other instruments influence behaviour and can help achieve policy objectives. In broad categories, these are charges, such as abstraction and pollution charges; subsidies on products or processes; market-based instruments, such as tradable permits; and voluntary agreements, such as between upstream and downstream water users. Economic instruments are recommended as a tool for environmental policy, next to traditional "command and control" measures.

In Moldova, much of the potential of economic instruments is yet to be realised. This might be surprising considering the emerging water scarcity and pollution issues. Still, economic instruments must be designed with a good understanding of the following, among others:

- the possible environmental and social impact
- the country's institutional, management and expert capacity to implement.

Therefore, it is logical to first improve use of existing economic instruments. Apart from tariffs, these include charges on water abstraction and pollution. (OECD EAP Task Force, 2007[5]) already made a large number of recommendations to make the system simpler and more effective. (UNECE, 2014[6]) reports these have not been subject to further development since 2005, and adds more recommendations.

These recommendations, no matter how urgent, are made in a broader environmental context. In relation to the WSS sector and the required investments for compliance with the water-related EU acquis (only) the following two recommendations are made for specific instruments (OECD EAP Task Force, 2007[5]; UNECE, 2014[6]).

Instrument 1: Development of a budgetary water fund within the National Ecological Fund

Recommendation 16: Create a budgetary water fund within the NEF.

As outlined in section 4.6, there is a need to monitor investment flows into the sector, in addition to increasing these flows up to the absorptive capacity of the country. A fund for water outside of the NEF will create an additional administrative burden and may face obstacles from international financial institutions. Within the NEF, however, it is possible to administer and ring-fence the flows into the WSS sector. The proposed budgetary water fund within the NEF maintains required budgetary flexibility. Investment may be higher or lower in a year depending on macroeconomic circumstances and evolving government priorities (which can change drastically after the next elections). However, it is important to secure stable funding for capital investments in WSS, as water policy objectives cannot be achieved within one election cycle. The long-term progress on this investment programme must be recorded, monitored and kept on the policy agenda. This can be achieved within the structure of the NEF. The Budgetary Water Fund is illustrated in Figure 4.8.

Charges for water abstraction and water pollution can become major sources of funding to the Budgetary Water Fund. However, other sources of funding should not be excluded e.g. the excise tax levied on products contributing a lot to diffuse water pollution: toxic agri-chemicals, motor oil, synthetic detergents with high content of phosphorus (P) and (or) nitrogen (N), etc.

Recommendation 17: Increase water abstraction and water pollution charges and to broaden the base.

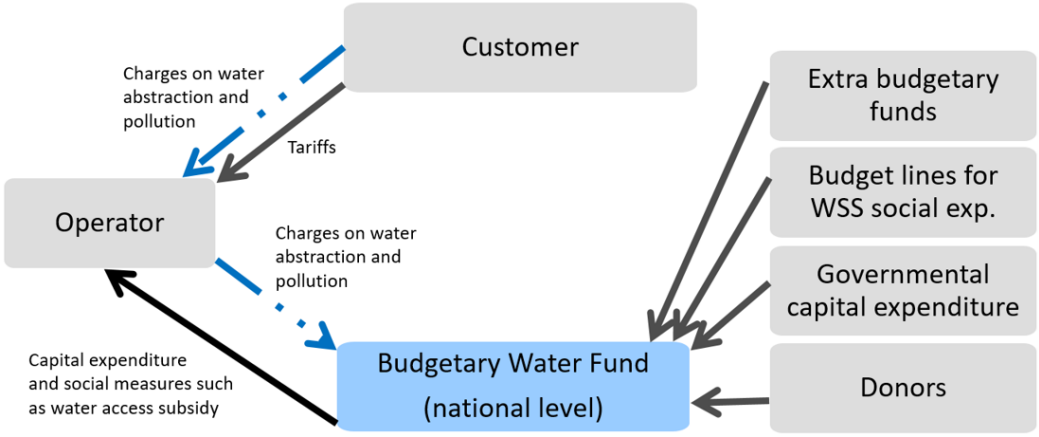
All water abstracted for domestic consumption by household (as well as by some other not-for-profit entities) is exempted from the abstraction charge. This exemption serves no purpose if tariffs are to be harmonised anyway.

Recommendations of the system can be simplified. Charges for surface water and groundwater abstraction must eventually be raised to provide incentives for more economic and effective use of water and to raise funds for capital expenditure. Existing policy to preserve groundwater can be supplemented by a relatively higher water abstraction charge on fresh groundwater of drinking quality (OECD EAP Task Force, 2007[5]; UNECE, 2014[6]).

The proceeds of the water abstraction and water pollution charges shall return transparently back to the sector in the form of capital expenditure subsidies. They might also be used for social support measures such as reducing the costs of receiving access to water.

Detailed recommendations for further general reform of the NEF have been made already through two UNDP projects in 2012-15 and are not repeated here. Improvements have been made by bringing NEF back into the consolidated budget. However, follow-up on these recommendations will bring the NEF (and the NFRD) further in compliance with standards of good public financial management.

Figure 4.8. Workings of the Budgetary Water Fund



Source: Author's own elaboration

Instrument 2: Creation of Development Fund

Recommendation 18: Ring-fence the (share of) revenue from tariffs that cover the depreciation expense, as well as profit, municipal taxes, royalties and lease fees (if any).

This type of revenue is to be used exclusively for capital investment and debt repayment. Romania's Maintenance, Replacement and Development funds represent the most advanced way to do this (Popa T., 2014[7]). However, an escrow account, or a special purpose restricted bank account (SPBA) could achieve this objective as well.

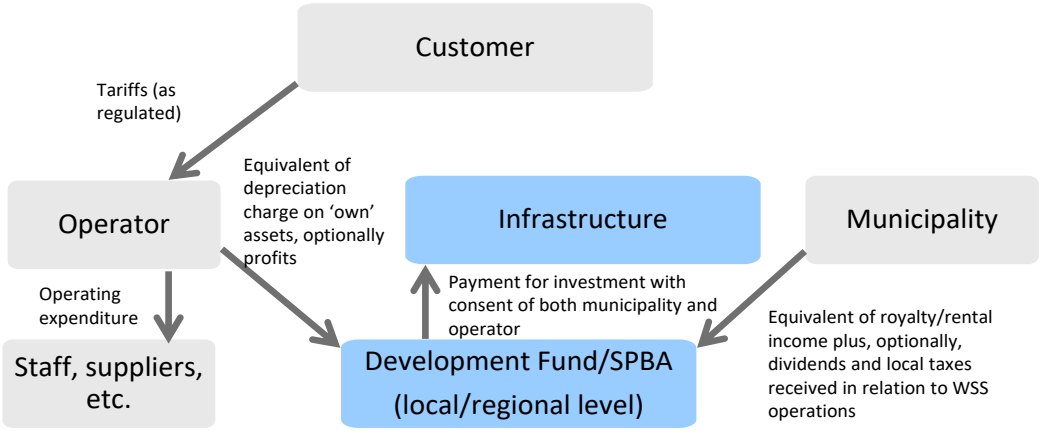
The use of the word "fund", therefore, does not imply that a legal entity must be established to manage the money as is the case in Romania. The underlying economic substance of the fund concept can be achieved with an escrow account. In theory, it could be achieved within the utility accounting system, but this is not recommended.

Ring-fencing the counter-value of the depreciation expense is necessary. It would otherwise easily move into sustaining inefficiencies at the operator level or sustaining tariffs below cost recovery.

There is a further reason why the Development Fund and the associated ring-fencing can be important for the sector. It would rule out any future cash benefits from owning municipal infrastructure. In this way, it overcomes a possible obstacle to regionalisation.

Any municipal revenues in the form of WSS-related royalties, lease or concession fees, profit or otherwise would flow back to the fund for re-investment. In this way, any unresolved ownership question becomes less of an obstacle in the regionalisation process. Ownership would no longer represent any revenue stream for any municipality (see Figure 4.9).

Figure 4.9. Workings of the Development Fund



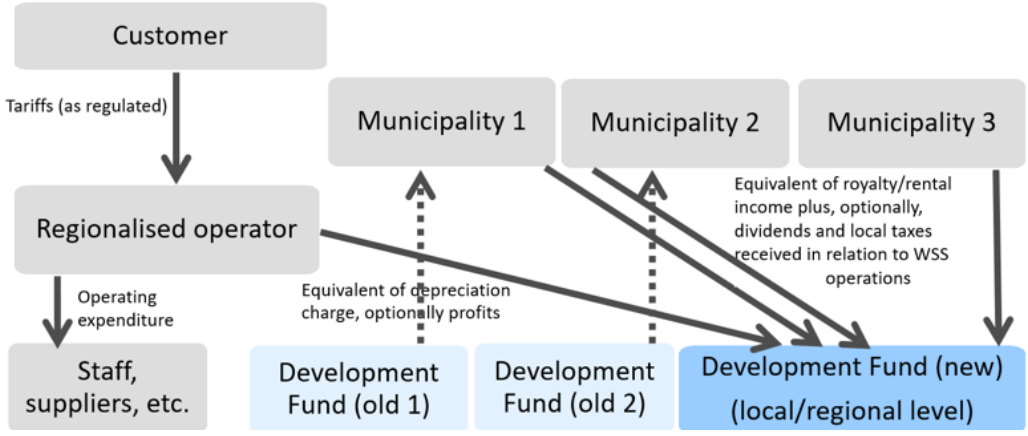
Source: Author's own elaboration.

The Development Fund is a local or regional fund. It is not a substitute for a national instrument and can co-exist with it. Figure 4.10 illustrates how the instrument can operate in parallel with the regionalisation process in Moldova. Each time a service area is extended or merged, a new development fund is created. If this is done through an SPBA the effort and costs are marginal. One needs to open the account, arrange for the purposes for which it can be used and for authorisation (joint signatory rights).

The existing (old) SPBAs will be gradually depleted, with investment going to the service areas foreseen in each old SPBA.

Once depleted, the old SPBA is closed. Typically, that shall be within a year after the merger (or expansion). However, as of the date that merger or expansion becomes effective, all contributions from all constituent municipalities and from the regionalised operator will go into the new SPBA. The challenge for a merged entity will be to distribute the investments over the service area in a manner that is acceptable, fair and economically efficient. The leading principle here shall be economic rationale. For any given service level, rural WSS will typically require more investment per capita. Per km network contributions to the Development Fund from urban areas will be larger than from rural areas. In case of a rationalised WSS service, this is the main channel of solidarity from urban to rural areas.

Figure 4.10. Development Fund in the context of regionalisation



Source: Author's own elaboration.

Improving access to external finance to bridge the funding gap in WSS

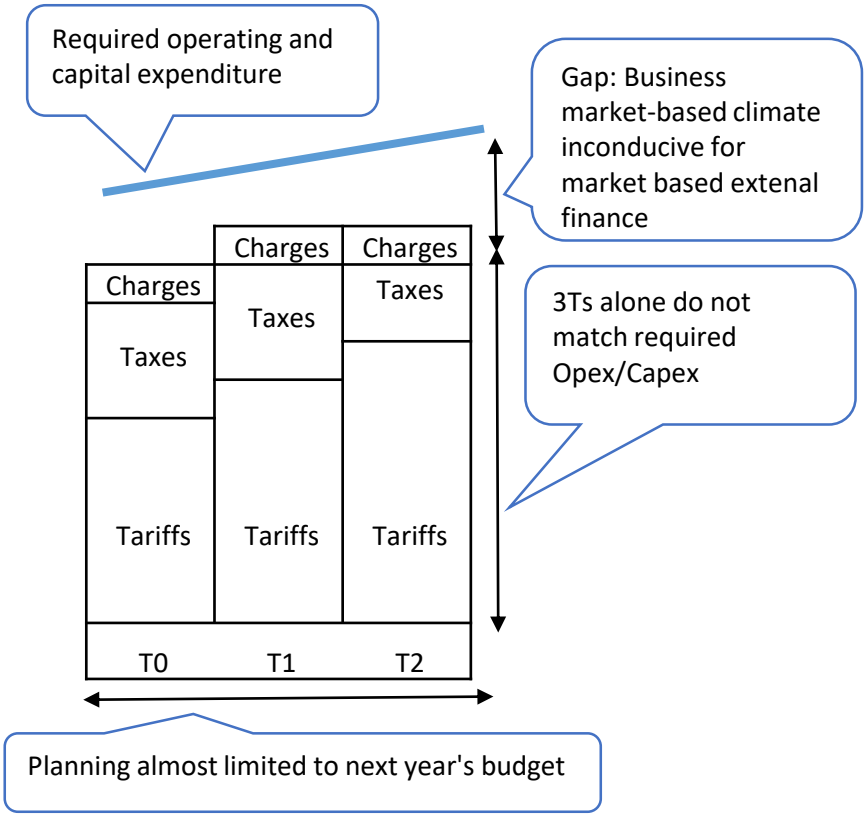
Section 2.4 mentioned the need for assessing the funding gap i.e. the difference between the projected sum of the 3Ts and the sum of the projected operating and capital expenditure at national and local level. To bridge this funding gap, one must find market-based external finance as was illustrated in Figure 1.4.

External finance to bridge the funding gap

RecommendationRecommendation 19: Develop policy to increase the attractiveness of Moldova's WSS operators for external financiers.

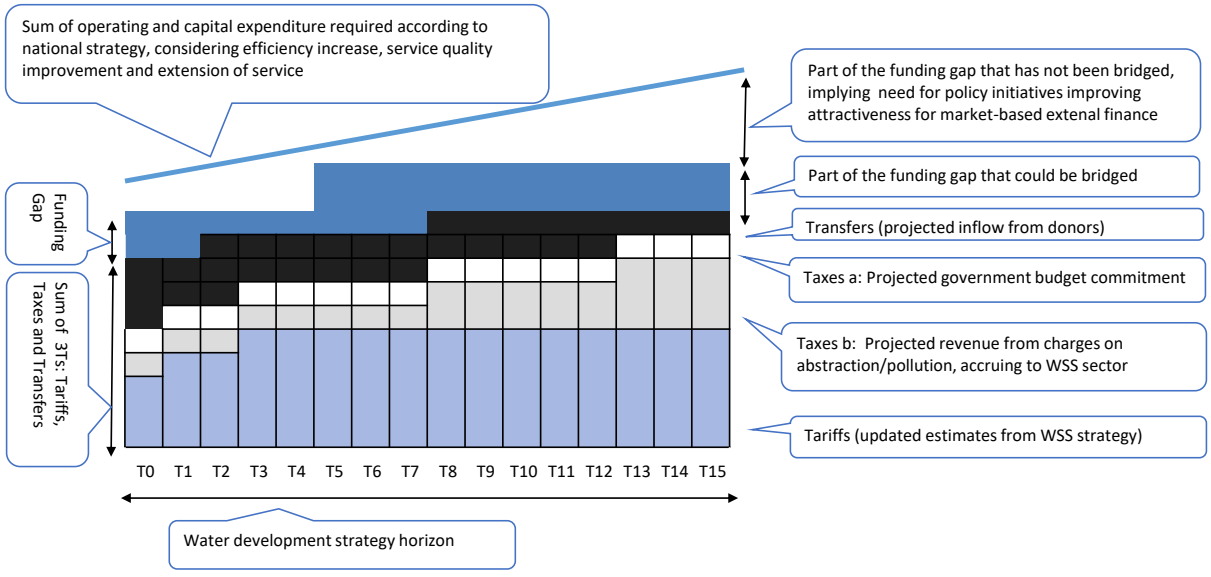
Policy makers and operators shall consider the effect of their actions on external financiers and their perception of the Moldovan market for WSS debt. Most of the recommendations outlined in this report will already improve attractiveness. Regionalisation, transparency and availability of data, business plans and improved economic regulation are a few examples. There is, however, more the government can do in this respect. (Verbeeck, 2013[8]) lists the lack of instruments (such as credit lines) and lack of credit ratings as important obstacles in many transition countries. (OECD, 2010[9]) provides further detail and comprehensive analysis that is of relevance to Moldova, too. Importantly, attracting external finance requires different types of projections than in use in Moldova (see Figure 4.11 and Figure 4.12).

Figure 4.11. External finance: Current type of projection



Source: Author's own elaboration.

Figure 4.12. External finanance: Required type of projection

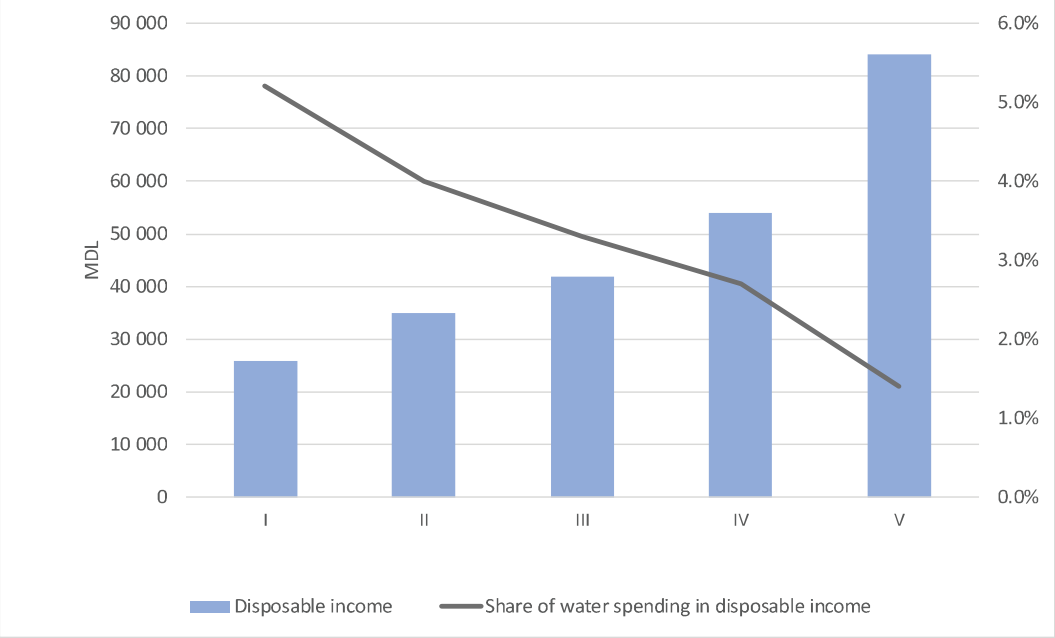


Source : Author's own elaboration.

Establishing strong and well-targeted social measures as a key element of the ERS

The percentage of household income spent on WSS services (see Figure 4.13) is bigger in Moldova than in any other country in Europe. For over a decade, the OECD and others have warned that necessary tariff increases need to be accompanied by targeted social measures and that an appropriate mix of targeted social measures in WSS is much more cost-effective than low tariffs for everyone. It also stresses that access to WSS services is of even bigger importance than the share of income spent on WSS. Recommendations are made for establishing a sustainable domestic financial support mechanism (DFSM) that relates specifically to WSS (OECD, 2017[10]). During a forthcoming transitional phase of rapid tariff increases, DFSM will be particularly necessary.

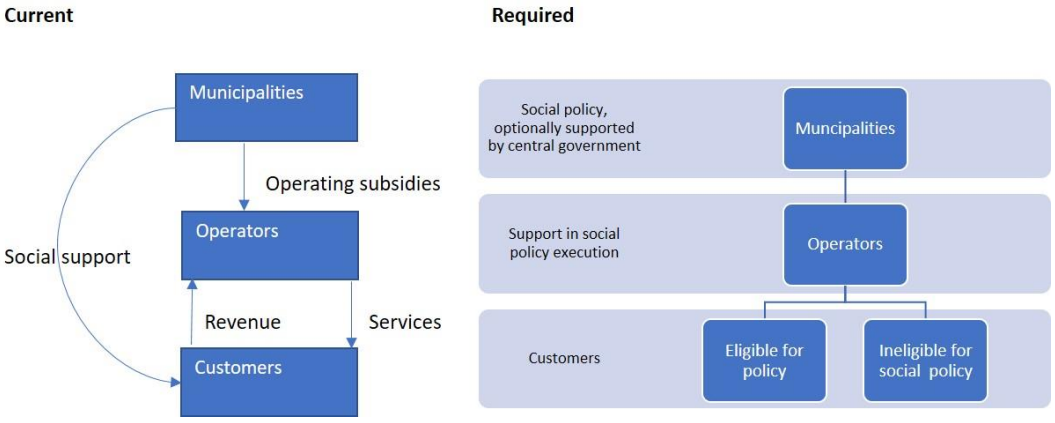
Figure 4.13. Disposable household income (lei per annum) and the share of income spent on WSS services, by income quintiles (2013 data)



Note: The figure was prepared for the economic analysis for the Nistru River Basin Management Plan.
Source: Author's own elaborations based on the National Bureau of Statistics of Moldova (NBS) data available at www.statistica.md/index.php?l=en.

The present and required situations are illustrated in Figure 4.14. Municipalities and central government have certain means to provide citizens with income support. It is not specifically for WSS expenses. A large amount is "spent" on cross-subsidising households and on keeping tariffs low in general. Redirecting these resources for targeted social measures in WSS can make a sizeable difference in access to, and affordability of, WSS services for the poor.

Figure 4.14. Present and required situation with respect to WSS-related social measures



Source: Author's own elaboration

There is still no WSS-related targeted social measure in place. Therefore, this report makes a single, but specific and important recommendation, for a single targeted social measure.

Recommendation 20: Implement a WSS-related social measure in the form of a rebate system.

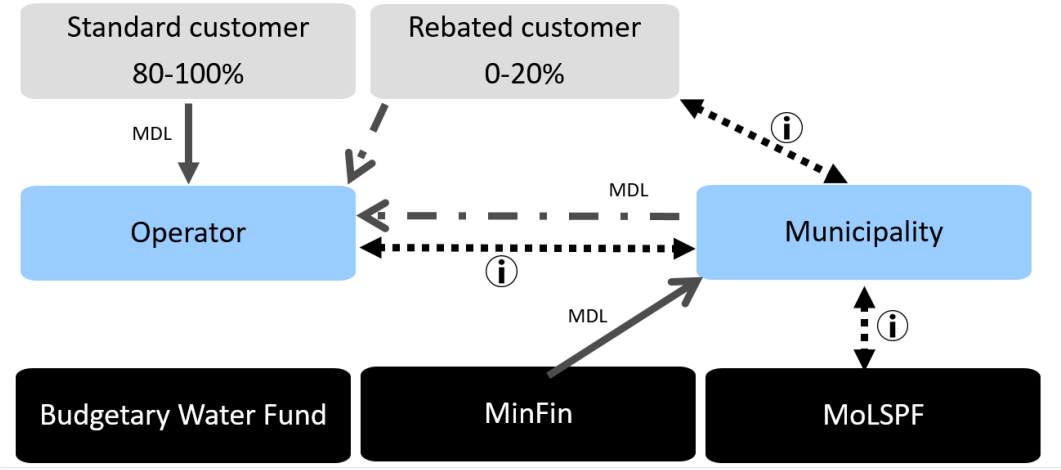
A rebate is a discount on the bill in the form of a fixed monetary amount. The size of the rebate may depend on one's status as a social case. It may vary with the number of persons living in the household and possibly with household income. The latter would eliminate a poverty trap, but induces more administrative costs.

The rebate shall be based on guidelines issued by ANRE or MoLSPF, but shall leave considerable room for local customisation in terms of size and eligibility. One possible option is presented in Figure 4.15.

In any case, the effect shall be neutral on revenues of the operator. That means the operator receives back what is provided as discounts – through higher tariffs and/or subsidies. The financial support of municipality, MoLSPF, MoF and/or from the proposed budgetary water fund is, of course, welcome. However, a rebate mechanism could also function in the absence of any external support. The active involvement of municipalities in determining the poverty line and eligibility criteria for support is a requirement. There is also a need for data exchange between operator and municipality, regular inspection and annual revision of the instrument. Annex C provides a more detailed description of the rebate mechanism.

A rebate mechanism supports the demand for WSS services. This could be an important measure in the short term during a period of tariff increases. Physical access to WSS services is at least equally important over the longer term. This could, for instance, be a micro finance mechanism to support the costs of connection.

Figure 4.15. Workings of a rebate mechanism



Source: Author's own elaboration.

Listed recommendations, key resource documents and TA requirements

The 20 recommendations from the preceding sections aim at improving the ERS for WSS in Moldova and/or creating a more conducive environment for its successful performance. The distinction between these categories is in some cases more obvious than in others. In the case of regionalisation, the causality is both ways: regionalisation would facilitate improved performance of the ERS, while a sound ERS would facilitate regionalisation. Without going into extensive detail, Table 4.2 indicates the type of relationship for each objective.

Table 4.2. Demands on ERS, objectives and the role of a sound ERS, and situation as of today

Objectives	Demands on ERS	A sound ERS…	However, as of today…
1. A tariff that gives incentives to perform better	Monitor and steer performance improvement (1)	… must set tariffs that provide smart incentives to perform better	Shortcomings in methodology and execution (section 3.3).
2. More decisive regionalisation of services	Focus on regionalised entities (2)	… will facilitate AND, if regionalisation is done, ERS itself would perform better	Legal/institutional complexity, insufficient managerial capacity and lack of incentive. Daunting regulatory task for ANRE.
3. The nurturing of sustainable business models	Facilitate the emergence of sustainable business models (3)	… facilitates the introduction of sustainable business models	Significant legal, regulatory and institutional barriers to business models other than the single municipality-owned utility.
4. An optimal mix of the "3Ts" of tariffs, taxes and transfers, based on an up-to-date sector strategy	Tariff increases to fund WWTPs (4)	… leads to an optimal mix	Lack of integrated co-ordination and planning on 3Ts.
5. Proper use of economic instruments to achieve set WSS policy objectives	Recognise need for external finance (7); economic instruments to finance particularly WWT and rural WSS	… provides the key EI in the form of tariff and facilitates the use of other instruments	Limited use of abstraction charge as economic instrument.
6. The use of external finance to bridge the projected funding gap	Allow for achieving SDGs on WSS (8)	… facilitates access to external finance by reducing regulatory risk	Absence of even nominal change in tariffs for many years. No policy to lure financial sector to WSS investments.
7. Well-targeted WSS-related social protection measures	Protection of poor (5) & affordability of service (6)	…provides guidance leading to effective and targeted social protection measures	Absence of WSS-related social measure, although significant tariff increases may be imminent.

Source: Author's own elaboration.

For easier reference, all recommendations are summarised.

Recommendation 1: Re-establish the WSS Commission as a body providing high-level policy co-ordination in WSS.

The subsequent recommendations are grouped per subject, followed by an indicative road map, key resource document(s) and an indication on any required Technical Assistance to implement them.

Providing incentives towards performance improvement

Recommendation 2: Perceive the role of economic regulator as a facilitator of performance improvement and a broker between operator and customer.

Recommendation 3: Require and analyse quality business plans from operators.

Recommendation 4: Provide a template for business plan, setting the minimum criteria and an Excel-based template financial model in compliance with modelling standards.

Recommendation 5: Provide incentives towards resolving irregularities at apartment blocks. The costs of internal leakages (technical and commercial water losses) shall be, and remain firmly with, the owners of the apartments.

Recommendation 6: Confine Law 303 on WSS services to tariff-setting principles and to develop a new tariff methodology based on these principles.

Recommendation 7: Develop a dynamic, rather than static tariff-setting principles.

Recommendation 8: Provide the independent economic regulator already with more discretion, while continuing to use the existing tariff methodology as a guiding document.

Recommendation 9: Publish an annual performance report comparing performance and progress of the urban water operators (economic regulator).

Technical Assistance (TA) required?: YES

Objective: To facilitate development of an economic regulator as foreseen in this report, EU Association Agreement countries typically receive two-three years of TA. This is provided by a small team of one international expert supplemented by a number of short-term experts. Policy consensus on the role of regulator is a prerequisite.

Facilitating the regionalisation of services

Recommendation 10: Proceed with regionalisation decisively, including making future government funding conditional to prior regionalisation steps.

Recommendation 11: Adopt the approach, road map and timeline (Tuck et al., 2013).

Recommendation 12: Ensure the Ministry of Regional Development and Construction and water agency *Apele Moldovei* provide practical support towards regionalisation in relation to process, transfer of assets and guidelines.

Technical Assistance required?: YES. Experience from regionalisation projects in Romania indicates the need for one-two years of TA per region. Before that, support to policy development is needed over one-two years.

Paving the way for sustainable business models

Recommendation 13: Facilitate the emergence of sustainable business models that serve communities' needs through, among others, guidelines, template regulations and support on inter-municipal co-operation.

Technical Assistance required?: NO

This subject has many interlinkages with other ones for which TA is recommended i.e. regulation and regionalisation.

Realising the optimal mix of 3Ts

Recommendation 14: Develop financial data collection and recording system so that the 3Ts can be considered together (Ministry of Environment and water agency *Apele Moldovei).*

Recommendation 15: Update projection of the 3Ts, operating and capital expenditures to a rolling 15-year period. The resulting updated funding gap estimate signals a need for change in policy, regulation or financing capacity.

Technical Assistance required?: YES, being executed.

This subject has many interlinkages with other ones for which TA is recommended i.e. regulation and regionalisation.

Extending the use of economic instruments

Recommendation 16: Create within the NEF a budgetary water fund (BWF).

Recommendation 17: Expand water abstraction and water pollution charges and base to be compatible with an optimal mix of 3Ts. Proceeds of these charges are to be used for investment in the sector and for WSS-related social measures.

Recommendation 18: Create a development fund at operator level applying the valuable experience Romania has obtained with this instrument.

Technical Assistance required?: YES

The creation of the BWF requires reform of the NEF. Earlier consultancies on this subject have had some effect, but not all recommendations have been implemented. A BWF should be created within a broader reform of the NEF (ideally, co-ordinated with a reform of the NFRD).

2. The creation of the instrument of the Development Fund may be integrated together with the TA for regionalisation. But the creation of this fund does not depend on regionalisation and should not wait for it. A small TA (up to three-month assignment of a project manager plus a lawyer) could pave the way for the fund roll-out.

Improving access to external finance to bridge the funding gap in WSS

Recommendation 19: Develop policy to increase the attractiveness of Moldova's WSS operators for external financiers. Furthermore, policy makers and operators shall consider the effect of their actions on external financiers and their perception of the Moldovan market for WSS debt.

Technical Assistance required? YES. International financial institutions may be interested to provide this type of TA.

Establishing strong and well-targeted social measures as a key element of the ERS

Recommendation 20: Implement a WSS-related social measure in the form of a rebate system. The rebate shall be neutral on revenues of the operator and leave considerable room for local customisation in terms of size and eligibility.

Technical Assistance required?: YES

It is recommended to seek TA for the elaboration of options for and implementation of a particular measure, such as the rebate measure. It is not recommended to seek further TA for the preceding analysis and decision making.

Implementation

The 20 recommendations resorting under the seven objectives have interlinkages and somewhat overlap. Increasing the role of ERS in providing stronger incentives towards

performance improvement is perhaps most vital for further development of the ERS. Yet the type of economic regulation depends on the number of regulated entities. It therefore depends on sector structure and degree of regionalisation (consolidation) and delegation. Progress on economic regulation depends ultimately on progress with regionalisation.

Regionalisation shall be complemented by adoption of a sustainable business model for WSS services. During the regionalisation process, additional forms of inter-municipal co-operation have to be worked out.

These business models are all funded through a mix of tariffs, taxes and transfers (3Ts) to cover the projected operating and capital costs (opex & capex). No business model is complete in the absence of an integrated projection of the 3Ts.

Economic instruments are part of the ERS. The use of economic instruments therefore cannot be considered in isolation either. They provide for incentives and are a revenue source to co-finance much-needed investment.

The gap between the sum of the 3Ts and opex & capex can be bridged with external funding, typically market-based. For external finance to flow, however, credibility and creditworthiness must be enhanced. Together, operators, municipalities and central government should be able to better familiarise financiers with the WSS sector in Moldova and to convince them about investment opportunities.

Existing and new measures will lead to an increase in tariffs and charges in the WSS sector in which affordability of service is already under pressure in Moldova. Such increases will not be feasible without a credible social measure that relates specifically to the water sector.

Progress on one objective facilitates that on others. The recommendations relate to one another. A pick and choose approach is therefore difficult. But there are yet many details that must be filled in during later stages. This leaves room for customisation according to circumstances and future developments. Certainly, to clarify, agree, adopt, consult with stakeholders and implement requires a formidable effort from WSS policy makers, civil servants, municipalities and operators.

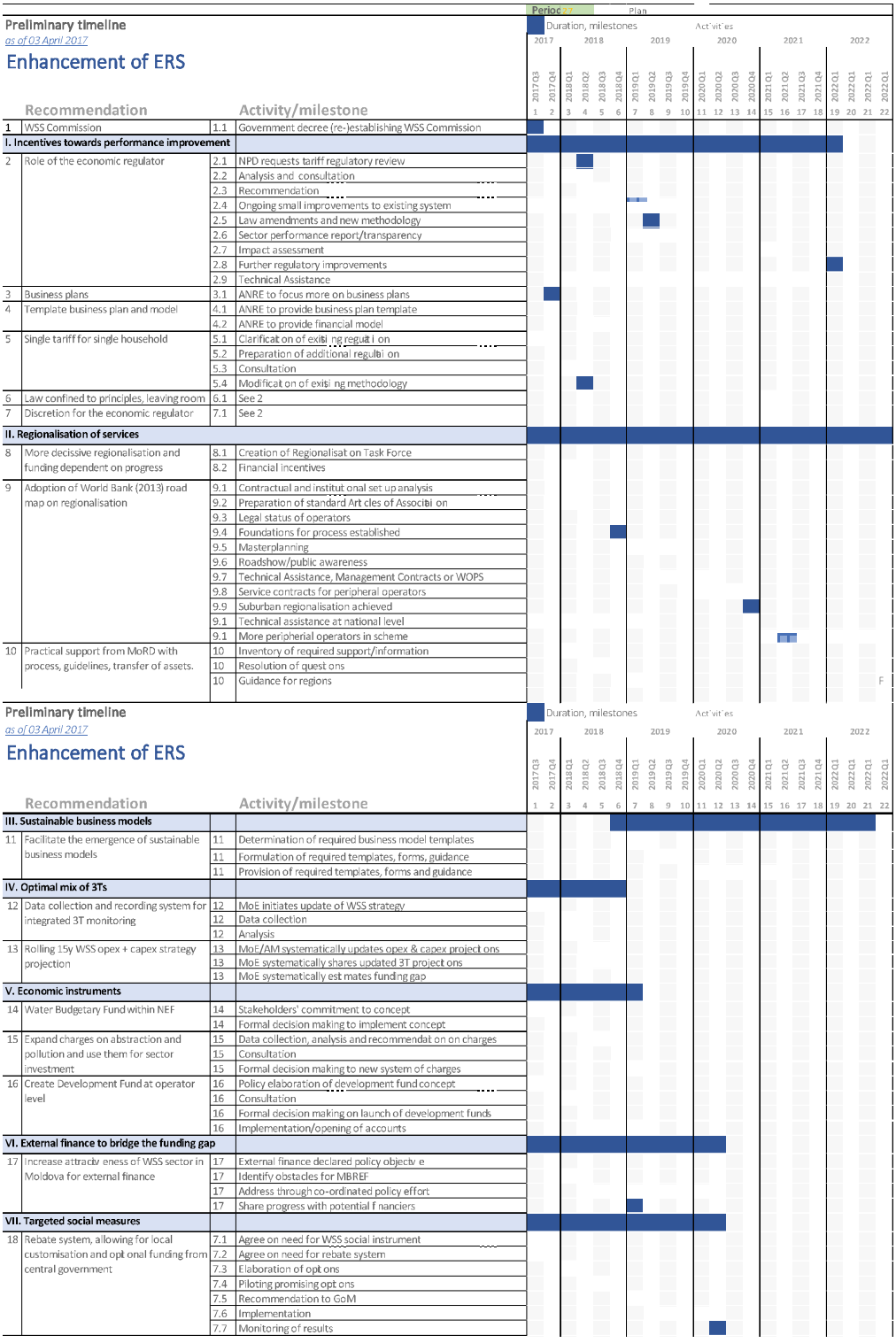
Any implementation plan drawn up in this stage will therefore be under the risk of not being fully implemented in the future. But showing a conceivable implementation framework helps bring implementation closer.

Figure 4.16 on the next pages therefore provides an indicative implementation plan. It has been drawn up in the understanding that many activities, responsibilities, outputs and milestones will require further elaboration and blueprinting during the process. Policy makers and stakeholders shall make a start and work out along the way: (i) the more exact needs for Technical Assistance; (ii) a more elaborated plan for implementation of specific activities in WSS (e.g. a mid-term action and investment plan); and (iii) the need for, and the content of, required legal or regulatory amendments.

The NPD can support this by:

1. subscribing to the recommendations elaborated in this report
2. encouraging policy makers to initiate implementation
3. monitoring and disseminating actual achievements systematically.

Figure 4.16. Indicative implementation framework



Source: Author's own elaboration based on the analysis presented in this report.

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Annex A. The proposed roadmap recognises the high complexity of sector regionalization (Extract from the World Bank [2013] Regionalization Review)

The roadmap spans over ten years and acknowledges key challenges, such as raising the interest of local councils (LCs) and building on utilities with limited capacity. In Moldova, the implementation of regionalisation would be initiated, promoted and managed by the government, whereas decision makers are hundreds of local and municipal councils. The regionalisation process would therefore likely be long and strenuous, as is the case in most foreign regionalisation experiences. The proposed roadmap includes four main phases spanning over at least ten years:

1. two years to define the concept and raise interest among LCs (Phase 1)

2. two more years to strengthen the participating service providers before the reform (Phase 2)

3. another three years to support the establishment and initial operations of the regional utilities (Phase 3)

4. after three years, regional utilities may be sufficiently stable to allow the integration of small rural service providers (Phase 4).

Start at a limited scale and with robust service providers to mitigate risks. The implementation of the proposed roadmap should not be disruptive for an already fragile sector. In that perspective, several principles could be considered. First, instead of a country-wide regionalisation, a pilot project could be conducted in a selected sub-region and involve a limited scale of aggregation. Second, the integration of rural localities lacking professional service providers (the vast majority) may asphyxiate the leading utility of the regional scheme if it is already weak. To mitigate such risk, the aggregation could initially leave aside rural LCs. As soon as the regional utility is able to sustain an acceptable level of performance, it may start incorporating them. During the transition period, the regional utility could decide to provide specific support to rural localities through service contracts.

External technical support could be instrumental to navigate successfully the complexity of such reform. The regionalisation of services is a highly transformative process for the sector. Moldova could largely benefit from the experience accumulated in neighbouring countries throughout the past decade (e.g. Romania, Kosovo). Such support could, for example, take the form of study tours, participation in knowledge exchange workshops on the topic or Technical Assistance on specific topics. In addition, since this reform will require major changes in processes, thinking and work habits at local level, it could be beneficial to receive support and advice from organisations specialised in change management.

The following sub-sections describe the main objectives of each phase of the reform.

Phase 1: Clarify the concept and raise interest

Lay the foundations of the regionalisation process. The objectives are to:

1. Clarify the legal, institutional and financial frameworks of the reform.

2. Prepare a master plan narrowing down the range of aggregation options and describing investment needs.

3. Generate interest of the LCs for the process. This phase would take up to two years. These activities would require a strong mobilisation from the Ministry of Environment. In that perspective, the creation of a regionalisation task force within the ministry would be recommended.

Clarification of the legal, institutional and financial frameworks

The absence of relevant contractual and institutional models could deeply undermine sector development and sustainability. The interconnection of water systems requires that several key questions be addressed, such as:

1. At institutional level: who owns, finances and manages assets?

2. At financial level: who sets tariffs, and how are profits and losses shared between service providers?

3. At operational level: can weak service providers cope with an increased scope of responsibilities?

Suboptimal answers to these questions (or their absence) could, for example, leave communities highly vulnerable to business decisions taken by the parent service providers, interconnection infrastructure without any maintenance, or urban utilities unable to adequately operate services and generate revenues in an unfamiliar rural context.

Define a model of article of association of LCs. As stated above, according to the Law on Local Public Administration, the LCs should be collectively the decision makers regarding the strategy and management of their common operator. Although the Law on Local Public Administration (Article 14) stipulates the right for LCs to associate with the objective of improving the quality of services of common interest, the regulatory framework is not as explicit about the legal forms and patterns of such co-operation.

A detailed review of the legal framework should therefore be conducted, to ensure its consistency with the considered institutional model. In this preparatory phase, a model of articles of association should be prepared, with a particular focus on three aspects:

1. Governance arrangements: how are voting rights allocated among LCs?
2. Conditions required for joining and withdrawing from the association.
3. Regime of assets: who owns the assets created under the association? In case of disbanding of the association, how are these assets returned to their original owner, and what happens with the assets created under the association?

Define the status of the regional operator and its contractual relationship with the association. A model of incorporation act of the regional operation could also be prepared to clarify its legal status, addressing questions such as the entry or exit rights of shareholders, the distribution of shares and voting rights between them. The delegation contract would most likely be in the form of a concession contract (the

operator is responsible for both operation and investment). It would need to address key questions that arise under such type of contract, such as: who decides and finances investment? How are tariffs set and adjusted? How is the performance of the regional utility monitored? What happens in case of failure to meet its targets?

Reassess the tariff policy in the context of regionalised utilities. The water and sewerage tariff policy within the regionalisation context must be clearly stated from the outset, since it could be the stumbling block for a number of LCs. The policy should in particular address questions of heterogeneity of levels of service and capacity to pay between urban and rural areas. If, on average, water services are just affordable for a majority of rural (and pre-urban) population, in some places, the most vulnerable persons may have difficulties for settling their water bills. At the average tariff of USD 1.0 per cubic metre for water supply only in urban areas, 20% of rural population would have difficulties settling their water bills. Such situation is encountered in rural communities connected to the neighbouring urban areas, where many households continue to use shallow wells for non-drinking purposes, as long as these wells are not drying up. The tariff policy should therefore clearly state how the tariff will remain affordable to the poorest segment of the population.

Define the scope of financial incentives. One of the key drivers for regionalisation would be easier access to funds. Adherence to regionalisation will therefore be subject to a strong commitment from the government and the donor community to financially and sustainably support the process. In that spirit, parts of government funds (e.g. the NEF and the NFRD) might be reserved for utilities willing to join the process.

Complete the revised National Water Strategy. To clarify the overall sector policy framework and ensure its consistency with the regionalisation process, the revision of the National Water Strategy, initiated in 2011 with EU financial support, should be at its final stage.

Investment planning tool

Prepare a reliable master plan that will be essential to the design and implementation of sector regionalisation. A nation-wide water supply and sanitation master plan would define a framework within which sizing options can be developed. The objective of the proposed national master plan would be, for each LC, to do the following:

1. Identify long-term needs and source of water supply.

2. Identify investment needs for rehabilitation, replacement or extension of the water and sewerage facilities and their costs.

3. Prioritise and assess the costs of investments.

Without such a planning tool, the regional operators would not be able to accept and fulfil their mandates of concessionaire of the services. Its preparation is therefore urgently needed, under the co-ordination and supervision of the Ministry of Environment.

Mobilisation of LCs

Assess LCs' interest before moving forward with the reform. The Task Force would prepare for the LCs a clear argumentation on the costs and benefits of the regionalisation process, and the key conclusions of the legal and tariff review described above. A

"roadshow" would be organised to consult with LCs. Interested councils would be required to express their pre-adherence to the process, which entails them to benefit from a TA described in the following section. This would not constitute a final commitment to the regionalisation process. Pre-adherence of a significant number of LCs would be required to start up the process. Also, in preparation of the next phase, the terms of reference and bidding documents for the TA would be prepared.

Phase 2: Strengthen service providers before the reform

Prepare service providers for the aggregation process with the support of a TA and through priority investments. A two-year TA to the participating service providers would be hired to audit their level of performance and to review managerial aspects. Specifically, it would provide support to do the following:

1. Improve their organisation and internal processes (through training and on-the-job training).
2. Increase revenues (through improved customer management procedures).
3. Optimise their costs.

Detailed three-year corporate development plans – including maintenance plans, staffing plans, etc. – would be submitted to and discussed with the LCs for approval. These plans would integrate the recommendations of the master plan, to consider the possible impact of new investments. Investments identified by the TA provider that would allow immediate improvement in the utility's operations would ideally be considered as priorities by the NEF and the NFRD.

Complete review of the legal and institutional framework. All contractual aspects regarding the regionalisation process would need to be finalised (association of LCs, delegation contract, etc.) during this phase. Also, draft terms of reference would be prepared for a performance-based management contract (or water operator partnership, WOPs), which could be implemented under Phase 2 between the forthcoming regional operators and a reputable professional utility.

LCs should confirm their participation in the process by the end of this phase. In addition to the LCs that expressed interest during the previous phase, any other interested council would be able to join the regionalisation process at this stage.

Phase 3: Support the establishment and initial operations of the regional utilities

Support the establishment and initial operations of the regional utilities. This implementation phase would take place only if a significant quorum of LCs has officially confirmed their decision to join the regionalisation process. It would include the following steps:

1. The associations of LCs and of the regional utilities are created.
2. The concession contracts between associations and the regional utilities are signed.
3. WOPs are established with reputable operators.

Alternatively, if regional utilities are large enough, operators could be engaged in performance-based management contracts with the boards of the regional utilities for a

two-year term. Under such arrangement, the management of a regional utility would be temporarily delegated to this operator under the association's supervision. A management contract would enable to provide a much more significant support to regional utilities than WOPs, but would only be feasible as aggregation is operated at a large scale.

Partnerships with experienced operators would be critical to develop and strengthen the newly formed organisations. The key objectives of the WOPs (or management contracts) would be to do the following:

1. Support the organisation of regional utilities' headquarters, through the identification, hiring and training of professionals and specialists for the central and support services.

2. Strengthen the regional utilities' operational local branches through the introduction of common procedures, the application of updated business plans with the support from headquarters' resources.

3. Help regional utilities implement the tariff policy.

After two-year support from the "mentoring" operators (or management contractors), the regional utilities would be expected to manage the company efficiently, under the associations' supervision and according to the concession contracts. During that phase, the regional utilities would implement the priority projects identified in the national master plan. After two years, the regional utility would be expected to reach full operational autonomy.

The regional utilities could provide specific support to rural localities that are not yet part of the association. Renewable service contracts could, at that stage, be signed between local branches of the regional utility and LCs of rural localities for operational assistance. The "mentoring" operator (or management contractor) would support regional utilities in preparing standard service contracts.

Phase 4: Expand to rural localities

Expand to rural areas as soon as regional utilities are stable. After completion of the WOPs (or management contracts), regional utilities may need some additional time to do the following:

1. Complete the rehabilitation, replacement or development of infrastructure.

2. Reach and sustain an acceptable level of performance without external support.

Rural communities equipped with piped water systems may then join (on a voluntary basis) the associations of LCs. The duration of this last phase would strongly depend on the original capacity of aggregated utilities. The four phases could last up to ten years.

Annex B. Outline of business plan and financial model template

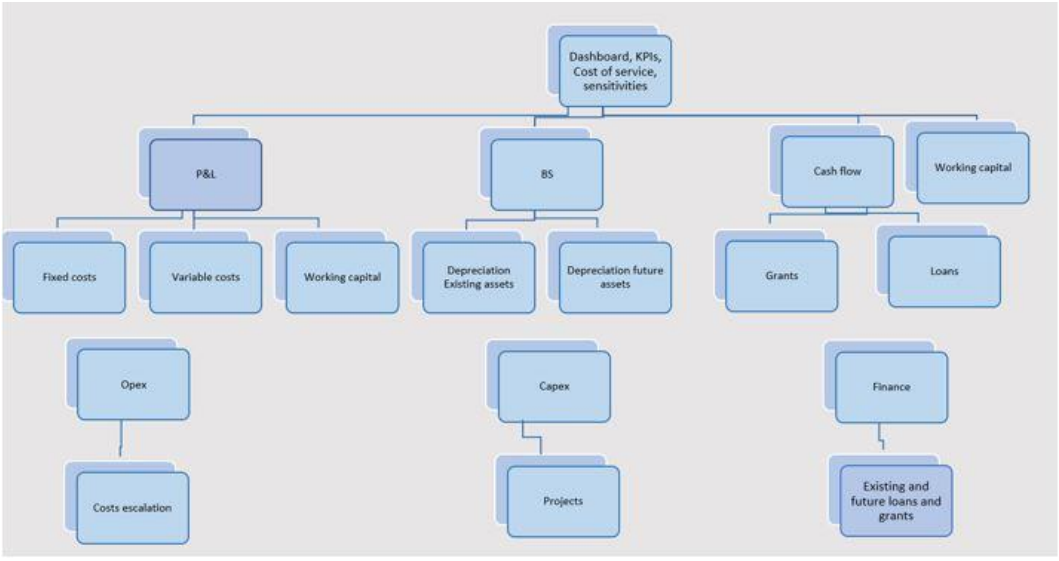
Business plan template:

1. Introduction
2. Vision, Mission and Values
3. Internal and external environment (SWOT and PESTEL analysis)
4. Objectives
   - Objective 1: (For instance:) Reduce non-revenue water (description of the objective and the associated 2-3 Key Performance Indicators)
   - Objective 2: (For instance:) Optimise staff and organisational structure
   - Objective 3: (For instance:) Improve customer service and dialogue
   - Objective 4: (For instance:) Develop as a regional operator
   - Four objectives together providing for integrated results
5. Objective 1:
   - 5.1 Best practice and current performance

   (description of best practice and current performance for each of the 6-10 dimensions/activities associated with progress on that key objective)
   - 5.2 Closing the gap

   (definition of projected progress over forecast years)
   - 5.3 Milestones: Annual defined level of achievement (*a table showing a list of milestones for each of the dimensions for each forecast year)*
6. Objective 2: etc.
7. Implementation
8. Financial viability (based on financial model – see Figure A B.1)

Figure A B.1. Financial model components



Note: The financial model to hand over to the utilities shall have the above components integrated into a single Excel file prepared according to financial modeling standards.
Source: Author's own elaboration.

Annex C. Description of proposed rebate system for WSS in Moldova

The text below is an extract from (OECD, 2017[1]).

A rebate system can provide the most flexibility, targeting and cost-efficient way to establish a social measure in WSS. It may also be applied to the cost of connection. The rebate system intends to support low-income customers by providing a lump sum discount on the WSS bill. It has been chosen because it:

- may be designed to target low-income groups more specifically than its alternatives (in particular Increasing Block Tariffs)
- may be designed to leave room for local customisation
- is relatively simple to administer
- has a high degree of flexibility so it can be adjusted or abolished over time
- gives incentives for customers to pay bills on time
- may be designed so it does not affect the ability of the Apacanal to recover its costs.

It is called the rebate system because it provides a lump sum discount for some or all household customers i.e. between 0% and 100% of households may be made eligible for the system.

The rebate system does not change the average value of the household bill because it is an internal subsidy from households to households. It is paid for by households that are better off. The decision on the design of the rebate system stands apart from the affordability percentage. If tariffs are unaffordable for the population at large, the rebate system cannot solve that. If tariffs are unaffordable for a part of the population, the rebate system can address that, but only insofar as other customers can be obliged to compensate for the discount provided to the eligible group.

Therefore, the Apacanal will not be worse because of the rebate system. On the contrary, it may lead to a better payment discipline because the rebate can be realised only upon payment of the bill. To the extent that rebates cannot be fully realised, they even provide extra revenue to the service provider. First, rebates cannot be realised in case of late payment i.e. the rebate expires. Second, by definition, the rebate cannot lead to negative income for the Apacanal provider on a particular bill. If someone's bill is lower than the size of the rebate, then one can realise only up to the amount of the bill. The rebate may be realised only against the pure revenue of the service provider. Other taxes and charges remain payable. Because such taxes and charges may be levied on top of the revenues of the service provider, a complication may occur. However, since a discount for rapid payment is widely used in other sectors of the economy, it is expected that fiscal authorities can accept this instrument.

First, the percentage of redistribution for the Apacanal must be decided. This discretion may be left to the Apacanal, to the municipality or to the Apacanal with a requirement for consultation.

The regulator should set an appropriate maximum to protect well-off customers from paying a too large part of the total household utilities water bill. Table A F.1 sets this maximum percentage at 25%. At this level, the invoiced tariff per cubic metre will get very large. This may incur political acceptability issues. Let us suppose the Apacanal wants to use 15%.

This means the following:

- The revenue requirement is increased by 15%.
- The household tariff goes up by 15%.
- The resulting extra amount of revenue is distributed among customers as a discount.

The rebate is provided to 0%-100% of customers. Those customers that receive the rebate, AND pay their water bill on time AND consume a relatively small amount of water pay less per cubic metre than other customers. This achieves exactly the intended effect of Increasing Block Tariffs, but more efficiently and effectively. Instead of providing a full rebate, certain households may receive a partial rebate, for instance linked to income level. In this way, poverty traps can be mitigated. One may also link the size of the rebate to the number of inhabitants in the households (as is done in the Netherlands). Local customisation to specific circumstances is possible as well.

Apart from setting a maximum percentage for redistribution, the regulator may leave freedom to the local community to decide on the size of the rebate and conditions for eligibility. This is more a social question that can be resolved in the given framework of the rebate system (whereby individual metering is a key condition).

- Some communities may want to structure the rebate as a lifeline and make the first cubic metres of water virtually free. This requires only a small rebate percentage.
- Others want to target the instrument to a wider group of vulnerable people. This requires a higher percentage and wider eligibility.
- Yet others may want to use it as an instrument for water conservation. In that case, everyone may be eligible.

Neither the average tariff, nor the affordability criterion, nor the average value of the bill are affected through the rebate. Because of its progressive effect, the rebate will increase the number of people for whom water services are affordable. There will always be people who cannot afford water services or need additional social assistance. Through the rebate, such cases are reduced rapidly and efficiently. It is therefore a very good first step in the process of building up social WSS measures. As a result of the rebate, everyone that keeps water consumption to an absolute minimum will have a low water bill. Table A C.1shows the rebate mechanism works in a fictitious numerical example. In this case, the rebate is phased out over a number of years; communities may also opt for a permanent rebate. Figure C.1 compares volumetric tariff with and without rebate.

If local governments are given limited discretion in setting the rebate percentage, they should be made aware of policy instruments available. They also know about the room for local customisation (the percentage of projected household revenues that will be redistributed and the eligibility criteria for a rebate).

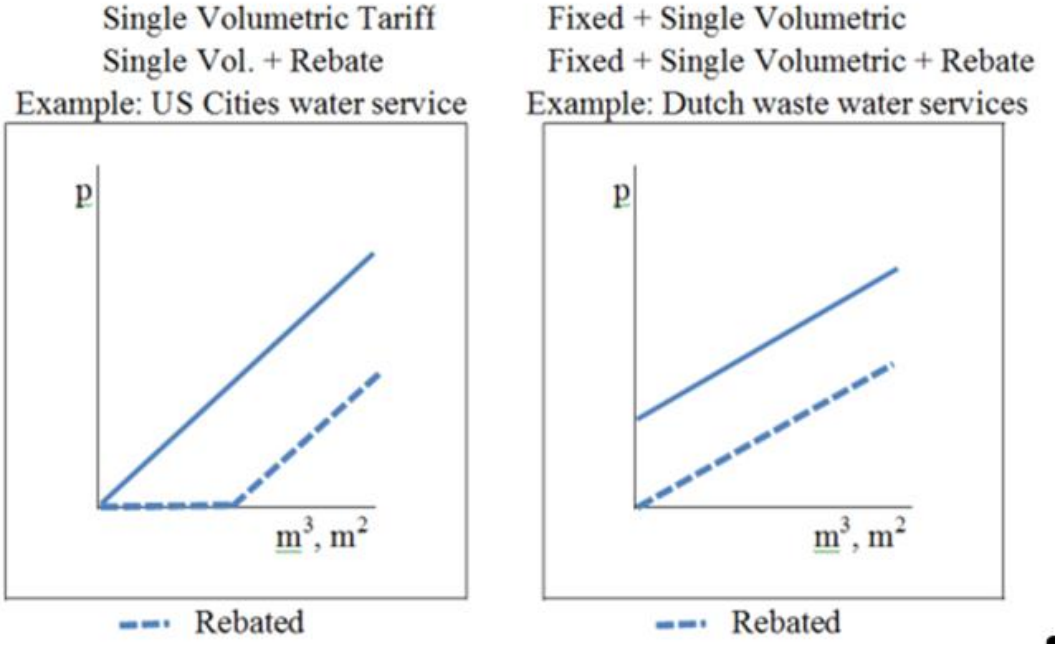
If the rebate is made available to specific groups, local government will have to set the criteria, inform local community and take responsibility for verification.

Table A C.1. Example for rebate calculations

REBATE CALCULATION							
Opted for rebate percentage (the amount of household income to be redistributed)		15%	12%	9%	6%	3%	0%
A. Original (before rebate) tariff schedule approved by regulator	curent	2016	2017	2018	2019	2020	2021
Household tariff per m³	€ 0.85	€ 0.91	€ 0.96	€ 1.02	€ 1.08	€ 1.13	€ 1.19
Legal entities per m³	€ 0.95	€ 0.99	€ 1.03	€ 1.07	€ 1.11	€ 1.15	€ 1.19
B. After rebate tariff schedule							
Household tariff per m³ Increased with rebate %	€ 0.85	€ 1.04	€ 1.08	€ 1.11	€ 1.14	€ 1.17	€ 1.19
Legal entities per m³ Unchanged from A!	€ 0.95	€ 0.99	€ 1.03	€ 1.07	€ 1.11	€ 1.15	€ 1.19

Note: The extra revenues can be redistributed as rebates according to different, locally established criteria. These may include universal household entitlement, monetary value per household or household inhabitant, type of dwelling (household, apartment), type of customer (poor, elderly, etc.).
Source: Author's own elaboration.

Figure A C.1. Volumetric tariff with and without rebate



Note: Not all customers need to be elegible for the (full) rebate. If all customers were elegible, the effect would be similar to IBTs
Source: (Verbeeck and Vucijak, 2014[2]), *Towards effective social measures in WSS*, Proceedings of the conference on regional water utility management, Tirana, 5-7 November, 2014, https://1drv.ms/b/s!Anl6ybs2I7QGhdUX96FsaFC6JTUpIA

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