Modernization of local public services in the Republic of Moldova

- Intervention area 2: Regional planning and programming -

Regional Sector Programme on Water Supply and Sanitation: Development Region North

Final version

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Acronyms and abbreviations

ADA	Austrian Development Agency
AGRM	Agency for Geology and Mineral Resources
AMAC	Association of Moldova Apa-Canals
ANRE	National Energy Regulatory Agency
AoI	Area of Intervention
CALM	Congress of Local Public Authorities
DRC	Development Region Centre
CW	Constructed Wetlands
DR	Development Region
DWD	Drinking Water Directive
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EIA	Environment Impact Assessment
EIB	European Investment Bank
ENPI	European Neighbourhood and Partnership Instrument
EU	European Union
FOPIP	Financial And Operational Performance Improvement Programme
FS	Feasibility Study
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoM	Government of Moldova
GOST	State Standard
IDA	Intercommunity Development Agency
IFI	International Financing Institutions
IMC	Inter-Municipal Cooperation
JSC	Joint Stock Company
LPA	Local Public Authorities
MBF	Midterm Budgetary Framework
MDL	Moldovan Currency - Lei
MDG	Millennium Development Goals
MLPS	Modernization of Local Public Services
MoEn	Ministry of Environment
MoH	Ministry of Health
MRDC	Ministry of Regional Development and Construction
MSIF	Moldova Social Investment Fund
MWUDP	Moldova – Water Utilities Development Programme
NBS	National Bureau of Statistics
DRN	Development Region North
NEF	National Ecologic Fund
NIF	Neighbourhood Investment Fund
NRDF	National Regional Development Fund
ODA	Official Development Assistance
OSP	Operational Sector Programme
PPC	Possible Project Concepts
PPP	Public Private Partnership

PS	Pumping Station
PSPI	Pre-adhering Structural Policy Instrument
RDA	Regional Development Agency
ROC	Regional Operating Company
RSP	Regional Sector Programme
RSWG	Regional Sector Working Groups
RWSSP	Regional Water Supply and Sanitation Plan
SCADA	Supervisory Control and Data Acquisition
SDC	The Swiss Agency for Development and Cooperation
DRS	Development Region South
SNiP	Design and Construction Standards and Norms
TA SPSP	Technical Assistance for the Implementation of Sector Policy Support Programme
USAID	United States Agency for International Development
UWWTD	Urban Waste Water Treatment Directive
VPC	Viable Project Concept
WB	World Bank
WHO	World Health Organization
WOC	Water Operating Company
WS	Water Supply
WSS	Water Supply and Sanitation
WSSP	Water Supply and Sanitation Plan
WSSNP	Water Supply and Sanitation National Project
WTP	Water Treatment Plant
WW	Wastewater
WWTP	Wastewater Treatment Plant

Definitions

Below are the definitions of the main terms used in the document:

- Aquifer – underground layer of rock or other types of geological layers with a porosity and permeability able to allow a significant the flow of underground water or to capture significant quantities of underground water;
- Water main pipeline – part of the public water supply system built of the pipelines between the water abstraction site and the public water distribution networks;
- Human agglomeration –an area where the population and/or economic activities are sufficiently concentrated for urban waste water to be collected and conducted to an urban waste water treatment plant or to a final discharge point;
- Water supply –overall activities and works carried out with the aim to capture treat, transport, store and distribute drinking water to the final consumers;
- Drinking water – water intended for human consumption, as follows:
  - All water either in its original state or after treatment, intended for drinking, cooking, food preparation or other domestic purposes, regardless of its origin and whether it is supplied from a distribution network, from a tanker, or in bottles or containers;
  - All water used in any food-production undertaking for the manufacture, processing, preservation or marketing of products or substances intended for human consumption unless the competent national authorities are satisfied that the quality of the water cannot affect the wholesomeness of the foodstuff in its finished form;
  - Water from local sources, such as wells, springs etc. used for drinking, cooking meals or in other household purposes. The Ministry oh Health can make an exception from the quality parameters without endangering the consumer's heath.
- Surface water – still water and flow water having contact with the soil surface;
- Groundwater – waters below the soil surface, in the zone of saturation and in contact with the soil or the subsoil;
- Wastewater – water used in household, social and economic activities, containing pollutants or resides altering its physical, chemical and bacteriological characteristics;
- Industrial waste water – any waste water which is discharged from premises used for carrying on any trade or industry, other than domestic wastewater and run-off rain water;
- Household wastewater – wastewater coming from households and services, usually resulting from human metabolism and household activities;
- Urban wastewater – means domestic waste water or the mixture of domestic waste water with industrial waste water and/or run-off rain water;
- Water connection – part of the public water supply network ensuring the connection between the distribution network and the property network of a premises or a building;

- Waste water and run-off sewage and treatment – activities and works carried out with the aim to collect, transport, treat and dispose of waste and pluvial water in a natural water receiving tank;
- Consumer – natural or legal person benefitting from public water supply and sewage services based on a contract concluded with the operator;
- Adequate purification –any wastewater purification process and/or system that, after disposing waste water, continues to meet the relevant quality requirements provided in the technical norms and approvals and water management authorizations in force;
- Primary treatment – the treatment of wastewater by means of a physical and/or chemical process involving the settlement of the suspended matter or by other processes where biological oxygen consumption BOD5 of the influent wastewater is reduced at least by 20%, and the suspended matters – by at least 50%.
- Secondary treatment – treatment of urban waste water by a process generally involving biological treatment with a secondary settlement or other process in which the requirements established in accordance with the provisions of the regulations in force;
- Operator – a legal person operating and maintaining a public water supply and/or sanitation system providing the consumers with public water supply and/or sanitation services based on a direct contract;
- Water supply and sanitation program (WSSP) is a document planning investments for the long term development of the water supply and sanitation infrastructure, worked out for a specific region, rayon or locality (municipality, city, village, commune), so as to perfectly fit the existing systems as well as the funds and constraints related to the local water sources and the provisions of the law in force;
- Water resource – surface water, ground water and atmospheric precipitation on the territory of the Republic of Moldova;
- Sewage network – a system of pipelines collecting and transporting urban and/or industrial wastewater;
- Exterior water supply and sanitation network – part of the water supply and sanitation system outside the premises of the buildings, yards and territories of companies and organizations (up to the delimitation line);
- Centralized drinking water supply system – a set of constructions, installations, activities and operations (procedures) by which the water captured from a natural source is treated, transported, stored and distributed to the consumer, according to the quantity and qualify norms in force; Decentralized drinking water supply system – water abstraction and preparation installations and constructions (well, spring, drill well (artesian well) with/without treatment facilities etc.) without distributing it the consumption site;
- Sewage system – drains, addition facility, pumping stations and equipment used to collect, transport, purify and dispose the treated water in a receiving tank.

1 Introduction

1.1 The purpose of development the Regional Sector Programme

The overall purpose of this document is to recommend a Regional Water Supply and Sanitation (WSS) Plan for the future development of the WSS services in the communities of Development Region North, in the context of regional development, as defined by the Ministry of Regional Development and Construction (MRDC) in Moldova.

The WSS Regional Sector Plan (RSP) is an operational tool for regional planning with the main objectives to:

- Increase the capacity of Local Public Administrations (LPAs) in developing sustainable regional projects;
- Create all necessary conditions for a project pipeline in the WSS sector in the three target Development Regions (North, Centre and South), incorporating all the development needs of the sector in compliance with the relevant, strategic and in force, political and legal framework.

The RSP will focus on strengthening the WSS sector planning and programming at regional and local level in order to optimize investments needs and develop sustainable projects in the specific sector.

The general objective of the WSS RSP is the improvement of the quality and access to water and wastewater services and the establishment of regional efficient structures for an improved management of the WSS services.

The specific objectives of the WSS RSP are to:

- Ensure compliance with the provisions of the national and EU legislation for the water and sanitation sector;
- Ensure the extension and rehabilitation of the water supply and wastewater systems;
- Bring the preparation of the Possible Project Concepts (PPCs) into Viable Project Concepts (VPCS) and to the point where they can be ready for financing (Ready to go Projects) by different institutions and donors.

1.2 Problem identification

Based on the experience of central and regional government authorities experience in identifying projects for funding from two calls for proposals under the national fund for regional development, there is an urgent need for improved sector planning on a regional basis. The projects presented in the calls for proposals were initiated without any real reference to the national or operational strategic guidelines. The need for change became clear in order to facilitate the emergence of projects with better preparation, as well as based on both national policy and on more detailed regional sector planning. In the planning for the WSS sector, potential project concepts (PPC) have been identified, the most promising of which thereafter will be developed into viable projects for financing.

As mentioned above, the WSS Regional Sector Programme is an operational tool that will be used further to support the development of better investment projects in Moldova, and it also:

- Incorporates sector development needs, as well as complies with existing sectorial policies, practices and the relevant strategic framework;
- Contributes to decision-making regarding the need for financial resources for the further development of projects;
- Contributes to the dialogue with potential development partners, presenting a clear view of investment needs and development perspectives in the WSS sector.

At the same time, there are clear and commonly agreed limitations of regional sector programmes:

- The sector regional programmes are not aimed at creating a new additional set of policy documents in the development region (DR);
- RSPs do not substitute for sector policy development at the central level, but facilitates their latter in the regions;
- Sectorial regional programmes should not be perceived as all-embracing sectorial plans and programmes aimed at comprehensively implementing all aspects of national policy at the regional level;
- RSPs are not Water supply and sanitation plans (WSSP).

This document will be the basis for further project identification, planning, development and implementation of the recommended water supply and wastewater systems in the Development Region North. Priority will be given to projects that can be implemented in the short-to-medium term (i.e. before 2020). The eventual implementation of the recommendations of this document will result in the development of WSS services systems in DRC that are consistent with the national development goals, EU policy, and which will significantly contribute to the national, regional and local development.

Subsequently, as the water supply and sanitation plans (WSSP) are finished and approved, the RSP will be reviewed according to the provisions of the respective plans.

1.3 Methodology

This document has been developed through a phased approach that ensured a proper balance between national objectives, local and regional needs, area initiatives and it is based on a large stakeholder's consultation, providing:

- Baseline data collected from all rayons within DRN. These data include population and economic aspects, data on current level of development of the WSS services and status of infrastructure, on-going projects financed by the National Environmental Fund, National Regional Development Fund and international donor community/development partners;
- Projections of population and future water demand;
- Options for aggregation of localities in the context of WSS services, analysed and accompanied by recommendations on further implementation;

- Best available technologies, financial estimations of future investments, etc.;
- Gender issues to be considered and included in possible project concepts;
- An action plan on short and medium-term measures to be undertaken in the development of the WSS sector until 2020.

The regional programmes have been developed following a participatory approach based on the decisions of the representatives of the working group (created under the aegis of the North Regional Development Agency) that includes representatives of the Local Public Authorities (LPAs level 1 and 2) and WSS operators, of each rayon in DRC, and also representatives of the Ministry of Regional Development and Construction and the Ministry of Environment (MoEn), with technical assistance from national and international experts.

Programme consultations have taken the form of workshops at which all project information, analysis and recommendations concerning the planning sector have been presented, discussed and agreed.

This document has been developed taking into account all relevant policy and legal framework, valid at national, regional and local levels in force at the time of its elaboration. However, it has to be considered that this legal framework is under a continuous process of development and change, still expected in the foreseeable future.

2 Current status analysis

2.1 Current legal and policy framework

The present Water supply and sanitation (WSS) Regional Sector Programme (RSP) is developed considering all relevant international, national and sector policy documents, with the intention of contributing to the implementation of the National WSS Strategy (2014 and achievement of the relevant sector National Development Goals.

The current policy and legal framework in Moldova is in a transitional period and in the coming years considerable changes are expected. As the main strategic sector documents are under a revision process, this document (RSP) will have to be periodically updated to take into consideration the provisions of the policy documents in force at the time.

Annex 1 of the RSP provides more details related to the policy, legal and regulatory framework relevant for the WSS sector.

2.1.1 National policy framework

The basis of Moldova's development policy is expressed in the Strategy "Moldova 2020" preceded by the National Development Strategy (NDS) for 2008-2011 aiming at improvement of national policies and approximation of legal framework in compliance with the environmental EU Acquis and standards. NDS sets a number of directions for the development of the WSS sector, including the national targets for achieving the Millennium Development Goals (MDGs) in the WSS field for 2015-2025.

The main sector policy document is the recently approved National Water Supply and Sanitation Strategy covering the years 2014-2018. This policy document updates the Water Supply and Sanitation Strategy in communities of Moldova (2007), for the years 2008-2025, as well as essentially repeals the existing 2015 National Water Supply and Sanitation Programme approved in 2005.

The basis of the new Strategy is in the technical report on the reviewing of the strategy developed by the Technical Assistance for implementing the Water Sector Policy Support Programme (SPSP, 2012). The respective report includes a thorough analysis of the WSS development directions that has been further used for a shorter version of the Strategy. In order to ensure the consistency of the data, in some cases, this RSP makes reference to the calculations presented in the respective report.

The 2014 WSS Strategy prioritizes interventions in the development of the sector and sets out medium and long-term reform objectives, which include inter alia:

- Decentralization of the public WSS services to the Local Public Authorities of level 1 -Local governments are the main responsible entities for creating, organizing and controlling the operating of public water supply and sanitation services;
- Extension of central piped water supply and sewage systems and increase of rate of access for population to these services in order to meet relevant MDG's National Targets (see Section 3.3.1); and

- The promotion of market economy principles and attracting private capital through licensing the operator, as well as ensure the conditions necessary for appointing WSS services.

The strategy also promotes sustainable development measures and environmental protection of water resources by harmonizing the national legal framework with the EU Acquis, specifically noting the Drinking Water Directive (DWD) 98/83/EC and the Urban Wastewater Treatment Directive (UWWTD) 91/271/EEC.

The Strategy has a logical and structured approach related the planning of the infrastructure development and identification of projects, comprising a planning divided in two stages:

- Development of the Water Supply and Sanitation Plan (WSSP), including priority investment in the mid-term budgetary framework (MTBF);
- Preparation of the feasibility studies (FS).

Currently, investment projects are often developed based on insufficient grounds, which can lead to an increased risk of such investment projects sustainability. In this context, a simplified “Regional Sector Programming” is needed in order to accelerate the development progress in the WSS sector, especially in the mid-term. The Regional Sector Programme will serve as a tool for initial identification of the possible and viable project concepts which may be developed later in feasibility studies and possibly prepared for procurement.

The Strategy does not provide directly the preference for using surface water. But the action plan foresees the development of the group water mains from the Nistru and the Prut Rivers. Groundwater resources are clearly indicated as the main sources for remotely located rural communities and temporary/reserve sources for certain grouped supply areas. The given strategy refers less to a comprehensive assessment of groundwater availability. Still, the extensive hydrogeology data with its assessment of groundwater resources developed during the Soviet period were made available to sector planners and the data clearly indicated safe groundwater reserves of drinking quality in considerable quantities in different parts of the country[1].

The previous 2007 WSS Strategy included a general water supply scheme as base for future sector development. Even if this scheme was developed at the beginning of the 1990s and no longer corresponds to the current water needs, in absence of other national and regional plans, this RSP will also consider the solutions proposed in the respective scheme, taking into account the real current conditions.

The strategy suggests a new authority regulating the WSS sector: the National Agency for Energy Regulation (ANRE) which will work out a new methodology of establishing tariffs and which will be responsible for licensing operators based on performance indicators. Even if the law on the public service of WSS was approved recently, a period of transition is planned for the years 2014-2016 with a view to develop secondary legisla-

[1] Source: GIZ/MLPS, Report on the available water resources, Gh. Jalalite, An. de Jong, 2013

tion on a license issuing system, national performance indicators, the tariff policy etc. This period of transition represents a certain level of uncertainty in the regulatory framework should the working out and approving of the secondary legislation be delayed. An important aspect in the regional development of the WSS services provided by the reviewed Strategy is the Inter Municipal Cooperation (IMC) which is reflected in a compulsory provision of a joint service providing agreement concluded between the beneficiary communities and the WSS operator to be met before the investment projects in the infrastructure[2].

The estimation of the capital investment for implementing the Strategy, based on a realistic scenario, shows that during 2014-2028 a total of Euro 705 million are needed (the equivalent in the national currency), of which Euro 194 million should be invested the first five years (2014-2018). The total investment costs for every rayon are obtained by a estimation of the specific average costs per capita multiplied by the number of inhabitants living in the area covered by the projects.

Prioritizing according to the number of inhabitants the water and sewage investment needs mentioned in the Strategy is the right approach which will increase the feasibility and sustainability of the related projects and services. Because of the limited financial resources, large urban communities will have priority in receiving investments, as they have already existing networks which need to be renewed and extended. Thus, during a relatively short term, a larger number of population will have access to quality services. This will be considered in the process of identifying possible project concepts (see Section 5).

According to Moldova's commitment to implement modern sanitation solutions (such as: constructed wetlands, EcoSan toilets etc.) stated in the Protocol Water and Health, the WSS Strategy encourages implementation of such technologies.

Ministry of Environment is the main government entity responsible for implementation of the WSS Strategy, while other line institutions are included in coordination group.

The National Regional Development Strategy (2013-2015)[3] identifies the WSS sector as a priority area for future development and sets responsibilities for regional WSS sector planning to the Ministry of Regional Development and Construction and local public authorities, while the main institution responsible for the WSS planning at the national level is the Ministry of Environment (MoEn).

2.1.2 Legal framework

The new Water Law no. 272 (Monitorul Oficial no. 81/26.04.2012, entered into force on 26.10.2013) is shaping the water related legal framework regarding the management, protection and efficient use of surface water and groundwater, defining two river basins Nistru and the Danube-Prut and Black Sea. The Law endeavours to protect water from pollution and sets environmental quality standards. The wastewater discharges from urban areas and rural areas are also regulated. Geographical areas vulnerable to agricultural pollution will have to be identified.

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[2] Section V, Chapter 2. The water supply and sanitation strategy for the years 2014-2028 (2014)

[3] Governmen Decision No 685 of 04.09.2013 on approval of the National Development Strategy for 2013-2015, published on 13.09.2013 in Monitorul Oficial Nr. 198-204, art No: 792

Supply of drinking water is regulated by the Drinking Water Law no. 272 of 10.02.1999. This Law sets requirements to ensure the safe operation of water supply. The service shall be provided on a contractual basis between the operator and the consumer. The approval of the Law on Public WSS Services resulted in amendments in the current legal framework in force. This is a crucial point, which will allow promotion of cost recovery principles for water services. The current legal provision is that the LPAs are responsible for approval of tariffs, which often results in underestimation of tariff levels and consequent worsening of the financial situation of water operators. The current setting is a risk for sustainability of future projects. The WSS RSP shall be developed on the assumption that in all future projects, the operating and maintenance costs will be recovered through user tariffs.

The law on the public water supply and sanitation service (no. 303 of December 13, 2013) establishes the legal framework regulating the providing of the WSS service and will enter into force in September 2014. This law was drafted with a view to promote the main provisions of the WSS Strategy and represents a key document which provides that the public water supply and sanitation systems are managed by the LPA. All the goods and facilities in the WSS sector are owned by the local public administration which is intended to have full authority over planning and developing the local strategy and prioritizing investments. Thus, the LPA shall assess and establish the most appropriate ways to aggregate WSS services. Therefore, RSP is in line with these provisions.

According to this law, ANRE will be granted expanded authority over licensing the national, regional and municipal (urban) WSS operators and drafting the tariff establishing policy. Nonetheless, the law does not necessarily refer to the operators in the rural localities.

The Law provides the drafting of a set of secondary regulations on the public WSS service until the third quarter of 2014. Currently, the lack of such regulations makes it difficult to plan the WSS services.

Government Decision no. 934 of 15.08.2007 on the establishment of automated information system "State Register of natural mineral waters, drinking and bottled soft drinks", and specifically its Annex 2, further regulate the quality of drinking water. The decision sets quality monitoring and reporting requirements. Although provisions of this annex are a practical transposition of the EC DWD, it has been commonly recognized that the official transposition will require a separate primary law. Taking into consideration the continuous process of legal approximation, possible project concepts identified under this Program shall comply with the national regulation on drinking water quality, aiming at full compliance with the EC DWD.

The Government Decision no. 950 of 25.11.2013 sets requirements for wastewater collection, treatment and discharges into sewerage systems and/or natural receiving water bodies for urban and rural localities. This regulation is a partial transposition of the EC UWWTD, while the full transposition is seen as subject for long transitional process.

A properly constituted and elaborated law with all associated regulations is an essential part of WSS sector reform and provides the enabling environment for sector development and investments. However, until the regulations for the new Law are developed and enacted, this Programme must be developed within the boundaries of the project-

ed policy prescription. In such a situation, there is a risk that this Programme, as well as the list of possible project concepts, will not be in full compliance with the provisions of the revised legal framework. Therefore, the Programme shall be reviewed periodically and adjusted according to the provisions of the law in force.

2.1.3 Design and construction standards

In the Republic of Moldova, engineering and construction of water supply and sanitation infrastructure is based on SNIP and GOST standards. The SNIP and GOST standards are uniform design and construction codes and regulations which were elaborated during Soviet times and applied in the entire Soviet Union. They last underwent review about 30 years ago.

Currently, the following design standards are considered as the main guidance documents in WSS:

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

The present WSS design and construction standards are inadequate and cause unnecessary investment and operational costs for WSS infrastructure. Ongoing application of the SNIP and GOST standards without any revision leads to a situation that:

- Most likely, over dimensioned water supply and sanitation infrastructure will be engineered, approved and implemented as the required capacity is based on SNIP consumption norms which define a total water demand of up to 600 l/pers./day for urban areas and 150 l/pers./day for rural areas, while current average consumption in Moldova is only 111 l/pers./day 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 fire-fighting). These instructions result in oversized, often poorly performing and overly expensive systems in terms of both capital and operating costs;
- Internationally accepted best practices and state-of-the-art technologies cannot be implemented in Moldova as permitting institutions are refer solely to the requirements of the SNIP and GOST standards.

Thus, a review and revision of the existing SNIP and GOST standards are required in order to implement environmentally sound, cost efficient, affordable, and sustainable water supply and sanitation systems.

In 1995, the Ministry of Health (Centre of Public Health) issued the Hygienic Regulation on design of water supply systems, which included a number of prescriptions for normative consumption of water. Still, it was mostly taken from the old Soviet standards and today requires revision. The Technical Assistance project under the EU-WSPSP has drafted standard documents for calculation of water demands and generated wastewater volumes, which are more realistic and practically transpose the existing Romanian standards. These standards have been handed over for examination to the Ministry of Environment with further promotion and approval recommendations.

Still, the main problem is the lack of specific standards for small-scale rural systems. The existing codes give common provisions for both urban and rural areas, resulting in massive over-sizing of small-scale systems due to high fire-fighting flow demands and storage requirements. Moreover, modern treatment technologies are not covered by the existing norms, creating an obstacle in country-wide implementation of such technologies (e.g. constructed wetlands, Ecosan toilets etc.).

Section 1.1 of SNiP 2.04.02-84 requires planning and design of sewerage systems in parallel with water supply projects, as well as a mandatory development of future water balance. The Sanitary Regulation on design of WS systems prohibits connection of individual houses to water supply networks without having access to public sewerage system.

The existing SNiP 2.04.03-85 (Section 6) allows the use of septic tanks for decentralized wastewater systems, while the abovementioned Hygienic Sanitary Regulation has a contradictory statement and prohibits in-house water connection with consequent discharge into a septic tank. This issue remains to be further clarified through legislation.

Decentralized treatment can provide the safety and reliability of conventional large-scale treatment, and can offer many additional benefits to communities[4]. According to the World Health Organization, access to hygienic wastewater disposal means access to a sewage system, septic tank or other hygienic means of disposal[5]. Septic tanks are widely used in different countries, from the United States, the European Union to the Russian Federation. In the United States, nearly one in four households depends on an individual septic system or small community cluster system to treat their wastewater[6].

In the context of regional sector planning, it absolutely essential to optimize the investment and operating costs. A comprehensive revision of the existing design standards and norms will considerably contribute to achievement of the overall efficiency and implementation of modern technologies. Efforts are underway (for example the MLPS project funded by GIZ).

2.2 Institutional WSS Sector arrangements

2.2.1 Current National-level arrangement

Currently, the key stakeholders in national regulation and development of the WSS sector are the Ministries of Environment (MoEn), Regional Development and Construction (MRDC) and Health (MoH), with an important role of the Ministry of Finance (MoF) and the State Chancellery.

The MoEn is the lead Ministry in charge of the WSS Sector, responsible for developing the necessary national policy, legal and regulatory frameworks, and its subsequent implementation, including programming and implementation of the necessary investments in the WSS infrastructure.

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[4] US EPA http://water.epa.gov/infrastructure/septic/upload/MOU-Intro-Paper-081712-pdf-Adobe-Acrobat-Pro.pdf

[5] WHO http://www.euro.who.int/__data/assets/pdf_file/0009/82386/E93103.pdf

[6] US EPA http://water.epa.gov/infrastructure/septic/

The ministry of regional development and constructions is the central specialized authority in the public administration which develops and promotes the state policy in the urban and land use planning, architecture, urbanism, constructions, producing building materials, housing and regional development. In the WSS field, the MRDC has a significant contribution in the planning and development of WSS infrastructure through its three Regional Development Agencies (RDAs).

In addition, the MoEn also manages the National Environmental Fund (NEF), while the MRDC administers the National Regional Development Fund (NRDF). Together, these funds are the most important sources of national financing in the WSS sector.

The MoH deals with all aspects of drinking water quality. The MoF mobilizes and disburses the necessary budgetary means in line with established practices. The State Chancellery monitors on behalf of the Government the fulfilment of the Governmental programmes by the relevant Ministries.

Currently, the National Agency for Energy Regulation (ANRE) is in charge for development of methodology for WSS tariff calculation and recommends tariff levels.

Two non-profit associations are highlighted at the national level, i.e. the Association of Moldovan Water Operators (AMAC) and the Congress of Local Administrations in Moldova (CALM).

Sector statistics are collected on a regular basis and processed by the National Bureau of Statistics.

Donors and International Financing Institutions (IFIs) constitute an important source of sector funding. Donor coordination is ensured through the Sector Coordination Council for Coordinating Foreign Assistance “Environment, Water Supply and Sanitation”. The main ODA representatives in WSS sector in Moldova are: EU, World Bank (WB), European Bank for Re-construction and Development (EBRD), Swiss Agency for Development and Cooperation (SDC), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Austrian Development Agency (ADA) etc. (see Section 2.6).

Detailed mapping of the WSS sector institutional setup is provided in the Annex 2 to this Plan.

2.2.2 Local level

Local Public Administration distinguishes two levels in Moldova, i.e. level 2 dealing with rayons or equivalent (37), while level 1 constitutes the lowest level, i.e. municipalities, villages, or equivalent (in the order of some 900 entities). WSS services are the responsibility of the level 1 LPAs, concerning both investments as well as ensuring of service provision.

Around fifty (50) Water Operating Companies (WOC: Apa-Canal) that deal both with drinking water and sanitation, operate the larger urban systems while municipal services, private initiatives or Water User Associations manage the remaining systems, comprising in total some 560 entities.

In the Region North, the WSS services are provided by 23 urban operators, while villages are covered by the local service providers. Some urban operators (from Soroca and Floresti rayons) have already started regionalization of WSS services through ex-

tension to the neighbouring villages. Also, a public-private partnership (PPP) project is planned to cover several rayons from RDN between Soroca and Balti.

Coordination between LPAs (level 1) is provided by the Rayon Administrations (level 2) while MRDC operates 3 Regional Development Agencies that also deal with investments in WSS sector.

Around 40 WOCs are members of the Moldovan Association of Water Operators (AMAC) while the majority of LPAs are members of the Congress of Local Administrations in Moldova (CALM).

2.2.3 Institutional shortcomings and potentials

The EU Technical Assistance outlines a number of serious shortcomings in the current institutional setup at the national level:

- Fragmented, poorly defined or overlapping responsibility of actors at national level (MoEn, MoH, MRDC and subordinated bodies);
- Weak communication and coordination between existing structures especially regarding WSS investment programming and monitoring (MoF, MoEn and MRDC).
- Uncoordinated development of WSS infrastructure at local level often driven by donors without coherent oversight or monitoring at national level, etc.

The National WSS Strategy (2014) and new Law on Public WSS Services are planned to bring considerable institutional changes in the WSS sector. ANRE will soon to become the WSS sector regulatory body, responsible for licensing of operators and tariff setting policies. This will lead to stimulation for further regionalization of WSS services and consolidation of the WOCs. Furthermore, this will also contribute to the general improvement of the WSS service quality.

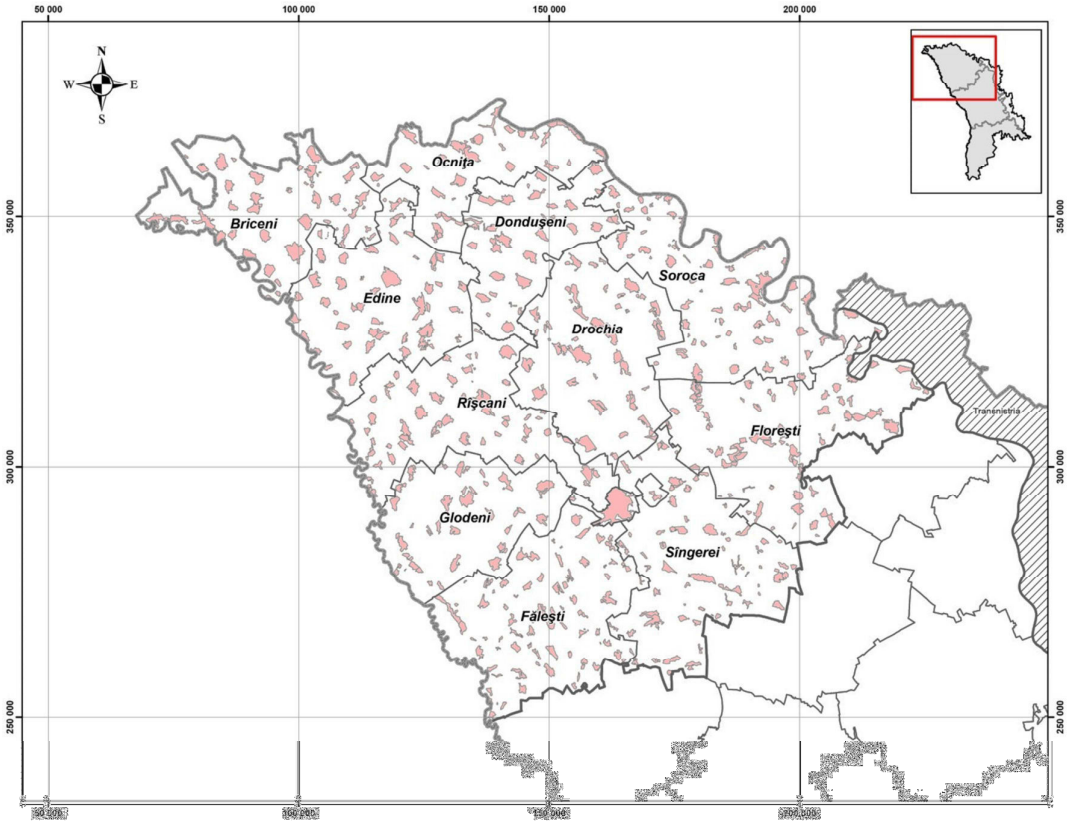
2.3 Geographic conditions of the DRN

2.3.1 Territorial organization and population

The Development Region North (DRN) covers the northern territory of the Republic of Moldova. Geographically, the region borders to the north and east with Ukraine, to the west with Romania, to the southeast with the Camenca district of Transnistria, and to the south with the districts of Ungheni, Telenesti and Soldanesti of Development Region Centre (DRC).

The DRN includes the municipality of Balti, 11 districts (Briceni, Edinet, Donduseni, Drochia, Falesti, Floresti, Glodeni, Ocnita, Riscani, Singerei, and Soroca). It has a total area of about 10,014 km² (1,001,394 ha), which is approximately 29.6% of the total area of the Republic of Moldova. The region comprises 315 administrative territorial units, which cover 571 communities, including 20 towns.

Figure 2-1: Geographic location and territorial division of the DRN



Source: GIZ/MLPS, based on www.geoportal.md

Most of the population (over 60%) lives in communities with less than 5,000 people, 20% of the population lives in towns and villages with populations between 5,000 and 20,000 people. The largest urban area in the region is Balti with an official population of about 144,800 inhabitants, followed by Soroca with 37,700 inhabitants and Drochia with 20,300 inhabitants[7].

The region has 33.8% of the total number of the country's villages and 32% of the country's towns.

In the beginning of 2013, the official region's population was 999.2 thousand7. During the last years, the DRN population has been in continuous decline due to negative natural growth and migration.

Detailed data on population, including growth projections are provided in Section 3.2 and Annex 7 of this Plan.

2.3.2 Climate and geography

The climate is continental, with warm, dry summers and cold winters. The average volume of precipitation varies between 520 mm and 620 mm. The average annual tem-

[7] National Bureau of Statistics http://www.statistica.md

perature is +8°C. The absolute minimum temperature recorded was -36°C, while the mean temperature for January is -5°C. The maximum recorded temperature is +38°C, while the average temperature for May is +20°C. The North of the region has the shortest frost-free period (be-tween 178 and 188 days). Another feature of the DRN is a high frequency of floods, excessive rain, landslides and increased vulnerability to climatic hazards and increased climate variability.

The topography of the DRN comprises the Plateau of Moldova in the North, the Plain of Northern Moldova in the Centre, the Middle Prut Plain in the West, the Nistru Plateau in the East, and the northern sector of the Central Moldova Plateau in the South. The relief of the region is a largely a hilly plain heavily fragmented by valleys, with a general decrease in altitude from the north-west to the south-east. The maximum altitudes are in Lipnic (259 m), Visoca (348 m), and Baxani (349 m) in the northeast. The relief of the DRN is heavily affected by exogenous processes (landslides and soil erosion). There are between 10 and 30 land-slides per 100 km², the most affected districts being Riscani, Glodeni, and Singerei (with between 30 and 50 landslides per 100 km²).

The hydrological network includes the Prut River, which is the natural border to the West, and the Nistru River, which has the greatest water flow in the region, a source of water supply for the cities of the DRN and the natural Eastern border. The hydrographical basin of the Prut River includes the effluents Camenca, Ciuhur, Racovat, Larga, Vilia, Draghiste, Girla Mare, and Caldarusa. The Raut River rises in the DRN with its effluents the Cainar, Cubolta, Camenca and Ciulucul Mare. Hydrotechnical works constructed on the Prut River created the largest reservoir in the region (Costesti-Stinca).

2.3.3 Availability of water resources

Water sources of the Republic of Moldova are represented by surface waters (3,621 river courses, and 4,143 natural and artificial lakes), and ground waters (4,810 artesian wells, and 166,542 shallow wells)[8]. The current estimated water availability in Moldova is limited to some 500 m^3 per capita per year or less, making Moldova a “water scarce,” water-stressed country; water scarcity may be further exacerbated by climate change[9].

A detailed study on the water resources available is presented in the Annex 5 to this Plan. The main findings are included in the sections below.

2.3.3.1 Surface water

Moldova shares transboundary surface and groundwater resources with Ukraine in the Nistru River Basin and the Southern Basins discharging into the Black Sea, and Romania in the Prut River Basin.

The Nistru River is a transboundary river 1,362 km[10] long, which starts in the Ukrainian Carpathians, flows through Moldova and reaches Ukraine again near the Black Sea. The upper and lower reaches of the Nistru flow within Ukraine, having a total length of

[8] Yearly Book “IES 2010 Environmental protection in Moldova”, Ministry of Environment, State Environmental Inspectorate

[9] Technical Assistance for the Implementation of Sector Policy Support Programme in the Water Sector, The Final Draft Revised WSS Strategy 2012

[10] Agency ”Apele Moldovei”, http://www.apelemoldovei.gov.md/

629 km. Another 225 km of the river is shared by Ukraine and Moldova, while 475 km are within the borders of Moldova. The Nistru River is the major source of drinking water for Moldova, providing some 83% of total abstracted water for drinking purposes.

The Prut River is the last major tributary of the Danube before the Danube Delta. Its basin area is 28,395 km^2, and covers parts of the Ukraine, north-eastern Romania, and eastern Moldova. Currently, the water abstracted from the Prut River in Moldova constitutes only 2% of the total abstracted volume in the country.

Currently, the localities from the North Region are supplied with surface water from the fol-lowing main intakes:

- The Nistru River: Soroca. Designed to cover 6 rayons from Soroca to Balti municipality (currently, only Soroca and Singerei rayons and Balti municipality are partially covered);
- The Prut River: 4 main intakes in Briceni, Edinet, Falesti and Glodeni, designed to provide water to the localities from the respective rayons.

Moldova has signed the UNECE Water Convention and has international transboundary agreements for water resources management with Romania and Ukraine. The agreements cover water resources management issues at the strategic level and allow for cooperation and data exchange between the countries. The agreements imply that Moldova should in-form its neighbours regarding any transboundary water resources development projects which may have a significant impact on either the quantity or the quality of the rivers and the groundwater resources. This shall be taken into consideration in the process of identification of possible water sources.

2.3.3.2 Groundwater

2.3.3.2.1 Groundwater quantity

The geology of Moldova consists almost entirely of sedimentary rocks which dip from north-east to southwest. The multiple layers of aquifers in Moldova are composed of limestone and sandstone in the north, and mostly sands in the south. The groundwater flow follows the geology and the oldest groundwater can be found in the west and southwest of the country where the groundwater in the lower aquifers is confined, anaerobic and progressively brackish.

The Baden-Sarmatian Aquifer is the most important aquifer in Moldova and consists of un-consolidated sands deposits overlying extensive calcareous siltstones to massive reef lime-stone. The reef limestones are known as the “hydrogeological windows” as their high permeability allows rapid groundwater recharge into and through the aquifer. This aquifer is the main source of groundwater in the central part of Moldova. The groundwater increases in salinity with depth towards the southwest, and there are high fluoride concentrations in the western part of Moldova.

During the Soviet Era, a large number of hydrogeological studies were carried out in Moldova, which proved that there were significant amounts of groundwater available in Moldova, which at the time conformed to water quality standards. The Soviet studies were based on predictions covering a period of 10,000 days (approximately 27 years). As the studies were completed some time ago, a number of wellfields have reached

the end of this time frame. Available groundwater monitoring data shows that ground-water levels are steady in most parts of Moldova, and most have been rising since at least 2005. This indicates that ground-water is being actively recharged through precipitation, which makes it a sustainable water source.

The explored and approved main groundwater reserves for Region North are shown on the Table below:

Table 2-1: Groundwater Reserves in North Region[11]

Region	Rayon	Potable Groundwater Reserves (m^3/day)	Non-potable Groundwater Reserves (m^3/day)	Total Groundwater Reserves (m^3/day)
North	Balti Municipality	49,800	-	49,800
	Briceni	12,300	-	12,300
	Donduseni	-	-	-
	Drochia	19,300	-	19,300
	Edinet	4,500	8,700	13,200
	Falesti	28,100	-	28,100
	Floresti	23,900	-	23,900
	Glodeni	7,600	1,900	9,500
	Ocnita	17,700	1,300	19,000
	Riscani	29,900	3,700	33,600
	Singerei	6,200	120	6,320
	Soroca	19,000	-	19,000
	Total RDN	**218,300**	**15,720**	**234,020**
	Total 3 Regions	**1,428,360**	**64,260**	**1,492,620**
	ATU Gagauzia	31,500	15,800	47,300
	Chisinau Municipality	46,760	10,900	57,660

Source: GIZ/MLPS, Water Resources Report, Gh. Jalalite, An. de Jong, 2013

Also, a considerable number of deep wells of limited production capacity (up to 10 m^3/h) were drilled during Soviet times and can be found in each separate locality.

Although the explored groundwater reserves in the North Region represent only some 15% of total approved groundwater reserves in 3 regions, the production capacity is sufficient to cover the current 22 thousand m^3/day (2012) and projected future 64 thousand m^3/day (2020) demands of the North Region and shall be considered in the water resource planning process.

2.3.3.2.2 Groundwater quality

The superficial aquifer is the one which is the most contaminated by anthropogenic activities such as human and animal waste, use of fertilizers and pesticides. Most rural communities tap into this aquifer through large diameter dug shallow wells. It is possible that uncontaminated groundwater can be located in the superficial aquifers up gra-

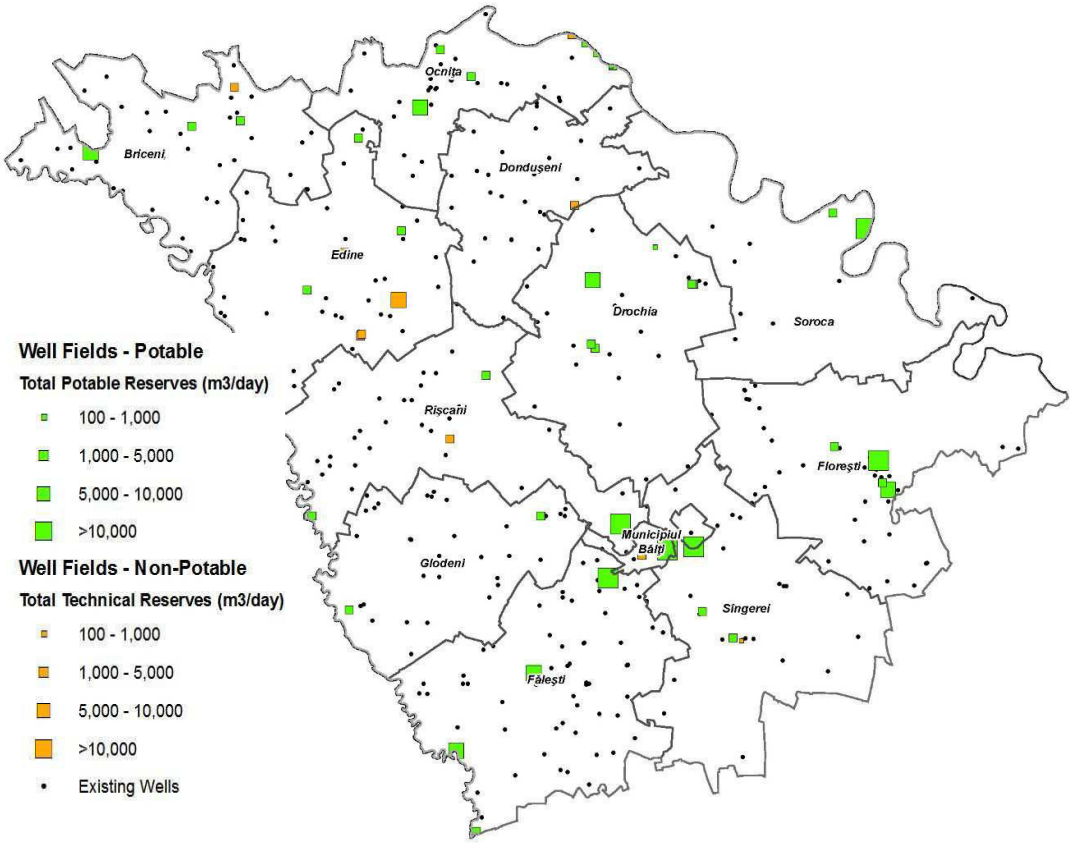
[11] Data sources: Soviet Groundwater Resources studies, AGEOM

dient of urban centres and agricultural areas. This also applies to springs with forest catchments.

The deeper aquifers have very variable water qualities, which generally degrade down gradient in particular in the West of Moldova. Where the groundwater is anaerobic, naturally occurring elevated levels of fluoride (F), boron (B), iron (Fe), hydrogen sulphide ($H2_S$), ammonium (NH_4-), dissolved organic carbon (DOC), and sulphate (SO_4) can occur. These contaminants are natural, and can be treated by a variety of methods. However, this option has not been successfully explored to date in Moldova and there are a number of water treatment plants that have been built and not operated for a single day. There is a need to implement technical training, institutional strengthening activities, as well as other technical treatment options.

The map of the explored and approved groundwater resources, as well as water quality in the North Region is shown in the figure below:

Figure 2-2: Explored main groundwater resources in the DRN



As shown above, considerable groundwater reserves are available in almost every rayon of the Region. Together with the existing deep wells of smaller capacities, these groundwater reserves will be considered as potential drinking water sources for the localities in the North Region. In presence of reliable surface water sources, the groundwater sources will be given a lower priority.

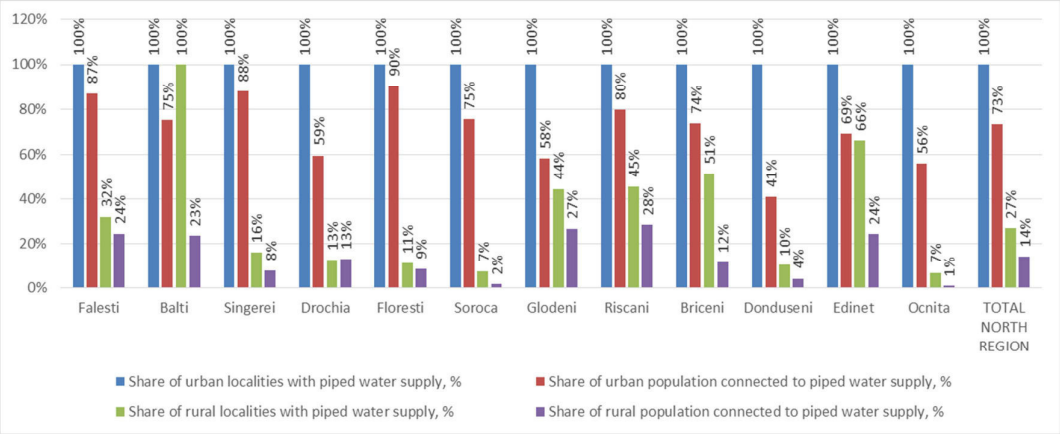
2.4 WSS infrastructure performance

For analysis, a profile has been developed of the current WSS situation in each rayon in DRN, and these are presented in Annex 3.

2.4.1 Service coverage

According to the information available (November 2013), all (100%) urban localities and some 27% of rural localities in the North Region, have piped water supply systems. However, most of the existing water systems do not achieve full coverage rate, providing drinking water only to some 73% of urban population and 14% of rural inhabitants. The overall share of total population covered with piped water services in the North Region is estimated at some 34%, while the average national coverage is some 54%. The detailed estimation of water supply service coverage in the North Region is presented in the Figure below.

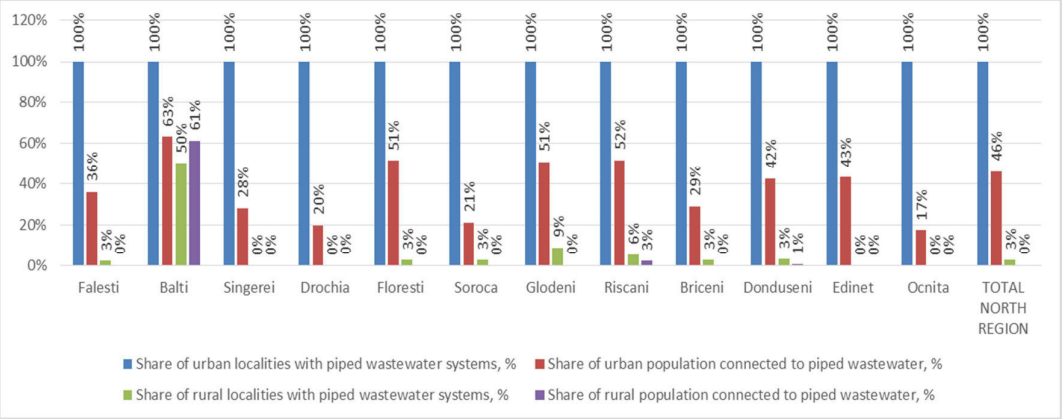
Figure 2-3: Estimated connection rate to water supply services in North Region



Source: GIZ/MLPS, Questionnaires data, 2013

The level of development of piped wastewater systems is considerably lower, as compared to water supply. All 100% of urban localities and only some 3% of rural localities in North Region have piped wastewater systems. Most of the existing wastewater systems do not achieve full coverage rate, having only some 46% of urban population and none (0-1%) of rural inhabitants connected. The overall share of total population covered with piped wastewater services in the North Region is estimated at some 16%, while the national coverage is some 30%. The detailed estimation of wastewater service coverage in the North Region is presented in the Figure below.

Figure 2-4: Estimated connection rate to wastewater services in North Region

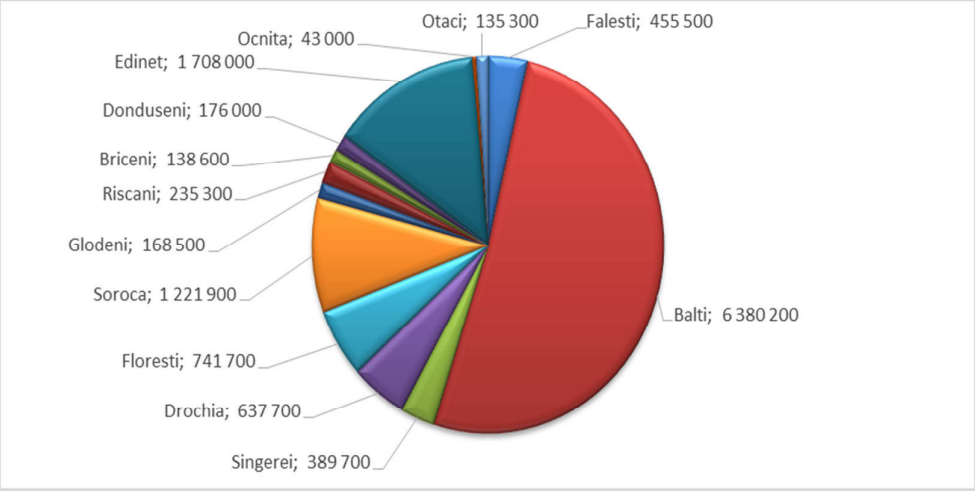


Source: GIZ/MLPS, Questionnaires data, 2013

2.4.2 Water balance

According to AMAC, the total water produced for drinking purposes in urban areas of the North Region in 2011 was of approx. 12.4 million m^3. The major volume of drinking water is produced in Balti (some 51% of total urban water produced in the Region), followed by Edinet (14%) and Soroca (10%). A detailed breakdown of volumes of water produced by towns is presented in the Figure below.

Figure 2-5: Annual water production in urban areas of the North Region, m^3, 2011

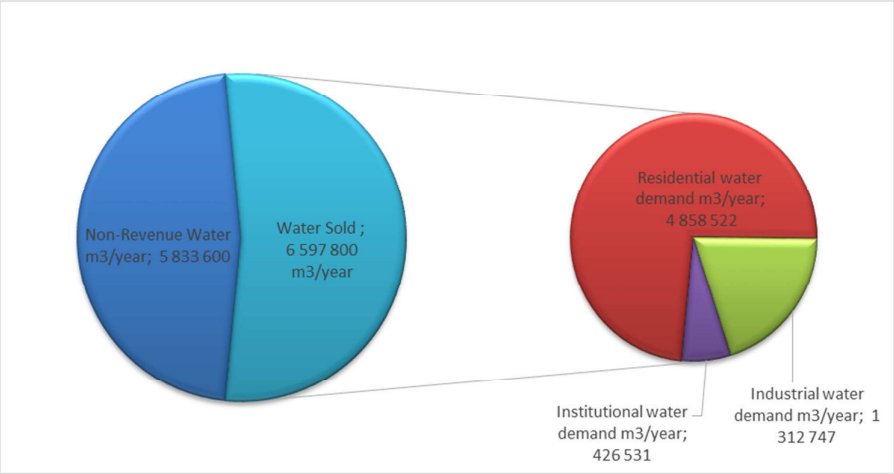


Source: Moldova Apa-Canal Association, www.amac.md

Only some 53% out of the total water produced is sold to consumers, while 47% of water produced is considered as non-revenue water. The major drinking water consumer in the region remains households. Some 74% of total water sold is used by the residential sector, while industrial consumption is some 20% and institutional consumption accounts for about 6%. It should be noted, however, that the presented numbers refer on-

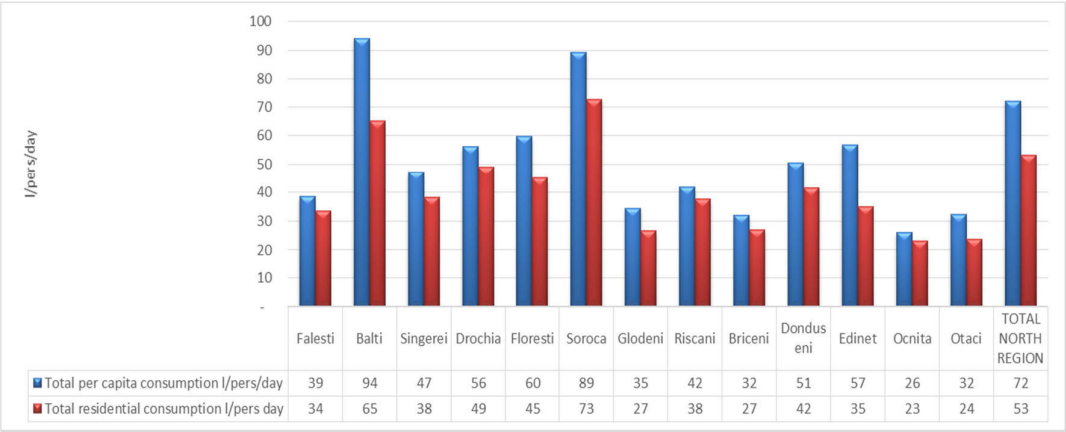
ly to consumption from public water supply systems, while industry relies heavily on private deep wells and no structured evidence on industrial consumption is available.

Figure 2-6: Total water production and consumption in urban areas in the North Region[12]



The average specific consumption of water in the North Region is about 72 l/person/day, while residential consumption is about 53 l/person/day. Current national levels (including Chisinau and Gagauzia) for water consumption are: 128 l/person/day total and 99 l/person/day for residential consumption.

Figure 2-7: Specific water consumption in urban areas in the North Region, 2011



	Falesti	Balti	Singerei	Drochia	Floresti	Soroca	Glodeni	Riscani	Briceni	Dondus eni	Edinet	Ocnita	Otaci	TOTAL NORTH REGION
Total per capita consumption l/pers/day	39	94	47	56	60	89	35	42	32	51	57	26	32	72
Total residential consumption l/pers day	34	65	38	49	45	73	27	38	27	42	35	23	24	53

Source: Moldova Apa-Canal Association, www.amac.md

Currently, there is no reliable evidence on water production and consumption in rural areas. The main assumptions for rural demand are described in the Section 3.2.

[12] Moldova Apa-Canal Association, www.amac.md

As described above, the level of development of piped wastewater systems is lower, resulting in a wastewater return rate of about 76% of water sold in urban areas. The institutional and industrial consumers have an input to public wastewater system of some 33% of total wastewater received.

More details on current water balance in the North Region are provided in the Annex 4 to this Plan.

2.4.3 Quality of service

Continuity of water supply services in most of urban areas from North Region achieves 100%, while Drochia, Glodeni and Otaci provide water for 9-12 hours per day. In most of rural areas, water services are provided with interruptions and the average continuity of service is considerably below 100% (24/24).

As mentioned in the Section 2.3.3, the main water sources for drinking water supply in urban areas in the North Region are surface (Prut and Nistru rivers) and ground water. The abstracted surface water is treated at water treatment plants (WTP) in Soroca (Nistru River, designed to cover six rayons from Soroca to Balti, currently Soroca and Singerei rayons as well as Balti partially covered), Briceni, Edinet, Falesti, and Glodeni (all – the Prut River). The rural areas are mainly provided with groundwater, which in certain cases does not comply with drinking water quality standards. The main pollutants found in groundwater are fluorides, ammonia, nitrates and hydrogen sulphide, etc. Continuously aging pipelines present a permanent risk of microbiological pollution.

Water quality monitoring systems exist in all urban areas, while rural areas benefit from seldom tests carried out by the laboratories from Centre of Public Health and Environmental State Inspectorate.

An improvement of drinking water quality is required and this issue shall be addressed in the WSS RSP.

The quality of wastewater services is very poor. Although all urban areas have WWTPs, most of the existing treatment facilities are worn out and have been taken of operation. Currently, mechanical treatment is provided for all urban wastewater, while biological treatment functions only in Balti municipality as well as Floresti and Drochia Towns. The treated wastewater from all urban areas (except Balti, Floresti and Drochia) does not comply with the allowable discharge limits in force.

2.4.4 Status of infrastructure

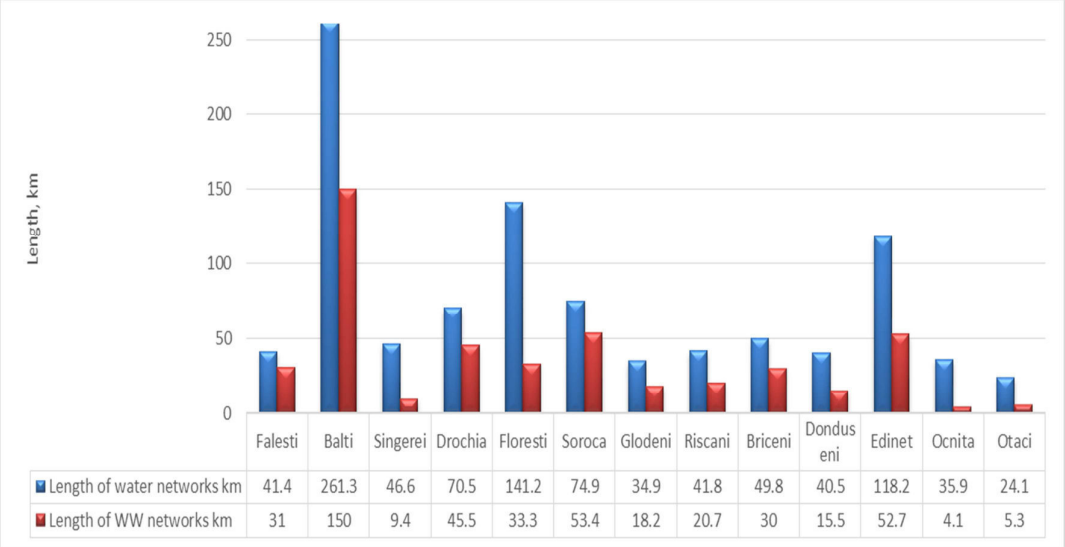
The status of the existing WSS infrastructure considerably varies from urban to rural areas. During the last years, with the financial support coming from the international funding agencies, State budget and national funds, as well as benefiting from an improvement of the national economy and individual welfare (due to remittances) in the regional context of European Union expansion, there was a positive change in the WSS infrastructure status and quality of water delivery service for most of the urban localities. The following towns have been benefiting from the donors support: Soroca (EBRD, WB), Riscani (GIZ), Balti (EBRD, WB), Floresti (EBRD, WB), Edinet (DANCEE), which has resulted in substantial improvement of the existing WSS infrastructure in the respective towns. Still, some parts of the distribution networks remain

beyond the repair, and need some urgent replacement. Hydraulic optimization of the existing water networks is required to meet the current demands.

Wastewater systems remain underdeveloped and need substantial investments in extension of collection networks, renovation of sewerage pumping stations and WWTPs.

The lengths of the existing urban water and wastewater networks are shown in the Figure below.

Figure 2-8: Length of the existing urban water and wastewater networks, km



	Falesti	Balti	Singerei	Drochia	Floresti	Soroca	Glodeni	Riscani	Briceni	Dondus eni	Edinet	Ocnita	Otaci
Length of water networks km	41.4	261.3	46.6	70.5	141.2	74.9	34.9	41.8	49.8	40.5	118.2	35.9	24.1
Length of WW networks km	31	150	9.4	45.5	33.3	53.4	18.2	20.7	30	15.5	52.7	4.1	5.3

Source: Moldova Apa-Canal Association, www.amac.md

For the rural localities, the situation varies depending on the access to water sources, demographic trend and their geographical position related to their proximity to large urban centres and access to main transportation network. With donor or governmental support, in some of the rural localities old systems have been rehabilitated using the existing deep wells, and in others completely new distribution systems have been built. Since these rural systems lack the capacity of water treatment, the provided water in most cases is not suitable for drinking (naturally or human contaminated). In the case of groundwater of good quality, the risk comes from microbial contamination due to poor disinfection practices (insufficient chlorination). In the systems that rely on surface spring water, the quality of the service varies largely. A significant part of the population relies on dug wells that do not correspond to quality standards, and run dry during the summer.

Wastewater services in the rural areas remain at the rudimentary level of development, mostly characterized by decentralized use of pit latrines with direct wastewater infiltration into the ground.

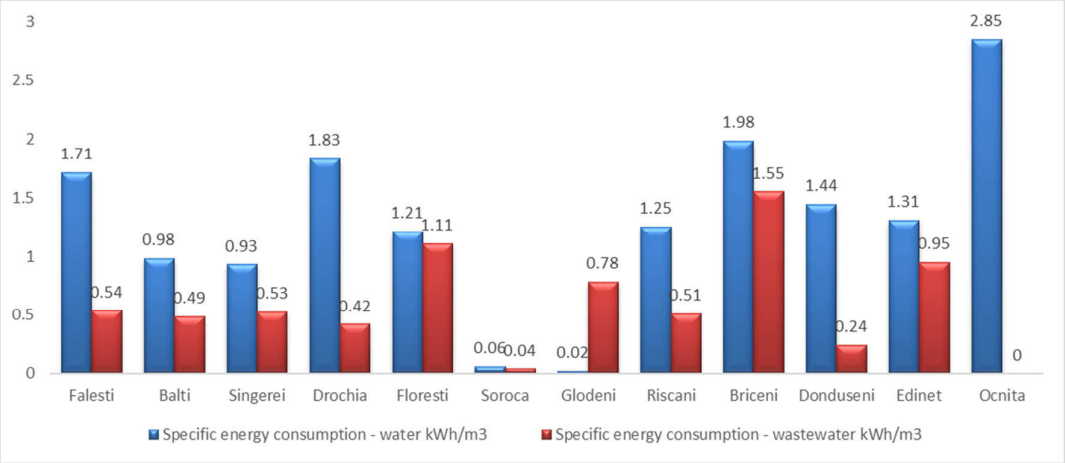
2.4.5 Operational efficiency

The operational efficiency of the existing WSS services in the North Region generally remains low. Most of companies are overstaffed (over 10 staff persons per 1,000 con-

nections), providing inadequate operation and maintenance of the existing facilities. Non-revenue water levels achieve almost 50% of total net water produced, while pumping stations are run in inefficient modes, resulting in high energy consumption.

The specific energy consumption for water and wastewater services in urban localities is shown in the Figure below.

Figure 2-9: Specific energy consumption for water and wastewater services, kWh/m^3



Source: Moldova Apa-Canal Association, www.amac.md

As mentioned in the Sections above, the biological wastewater treatment is not carried out in most of urban WWTP, which results in relatively low energy consumption for wastewater services. Still, current energy consumption does not provide the required levels of environmental standards, and the specific energy consumption is expected to gain a substantial increase after implementation of a proper biological treatment technology.

Although the existing regulation requires most of the urban systems to maintain in staff qualified personnel, due to migration, aging working force, low tariff policy, etc., it can be assumed that technical expertise at small water utilities is not self-sufficient despite overstaffing. AMAC has recently launched an educational programme for professional WSS operators, which can be recommended for strengthening of the companies' expertise.

Companies from Balti, Soroca and Floresti, supported by various donors, have had good experience improving their operational efficiency (see Section 2.7), which resulted in staff optimization, non-revenue water and energy consumption reduction, as well as general automation of the operations (e.g. SCADA system in Floresti).

Still, the rural systems are affected by a lack of technical expertise and are generally run by water user associations. These systems continue to benefit from assistance and technical expertise from their original donors (such as SDC) or face the risk of collapse (in the case of donors and programs that stopped or concluded their activities). The new rural systems have the advantage of being made of new materials (high density polyethylene (HDPE)), have simple level of automation and do not require high level

expertise, but the sustainability is still at risk because the local operators are not ready to deal with the variety of technical, institutional and financial challenges.

2.5 Gender and social issues

2.5.1.1 Gender issues

Gender, in contrast to biological sex, refers to the social roles adopted by and attributed to men and women. There are multiple different gender roles, which vary according to different cultural, historical and economic circumstances. Gender roles are often closely intertwined with the rights and obligations of women and men within a given society, as well as the power relations between them.

Gender equality means that women and men enjoy the same status. This implies that they have equal conditions for exercising their human rights and realising their potential to contribute to national, political, economic, social and cultural development.

Women and men usually have very different roles in water and sanitation activities; these differences are particularly pronounced in rural areas. Women are most often the users, providers, and managers of water in rural households and are the guardians of household hygiene. If a water system breaks down, women, not men, will most likely be the ones most affected, for they may have to travel further for water or use other means to meet the household's water and sanitation needs.

Addressing the different priorities of men and women in WSS activities improves the quality and sustainability of WSS projects. For example:

- Women's needs for water become more of a project focus. These needs are often related to small-scale activities (gardening, small-scale livestock production and domestic use), but they are vital for the household;
- The design and siting of WSS facilities will better reflect the needs of both women and men. For example, laundry facilities might be included in areas that offer greater privacy for both men's and women's individual needs. The correct siting of sanitation facilities is particularly important because toilet practices are often the subject of cultural sensitivities that will usually differ between men and women;
- The technology adopted is likely to better reflect women's needs;
- Technical and financial planning for the on-going operation and maintenance of WSS facilities is improved. As the main users of WSS facilities, women tend to be actively involved in maintenance;
- Women's financial skills make them ideal candidates in saving and managing funds for the on-going operation and maintenance of WSS facilities;
- The demand for sanitation facilities is likely to be high because the strong desire of women and men to have private, convenient and secure facilities for themselves and their children is recognised;
- There are likely to be greater health benefits because all members of the community (men, women and children) are involved.

During Workshop no. 4 (held between 29 – 31 October, 2013), a special session was dedicated to gender issues in the WSS sector, and a specific exercise was developed, concentrated on the following questions:

- Are both men and women involved in community decision-making for water and sanitation services?
- Who is voicing community preferences related to the selection of water and sanitation technologies and siting of facilities?
- Are both men and women discussing hygiene problems and possible solutions?
- Are both women and men being trained as caretakers of community facilities?

The results of the exercise carried out by the participants of the Working Group from the Development Region North are shown below:

Figure 2-10: Results of gender survey in the Development Region North

Source: GIZ/MLPS, Workshop exercise results, 2013

From a gender perspective, the following issues were outlined by the working group:

- Competitiveness;
- Professionalism;
- The affordability level of the population for WSS services.

The importance to respect gender equity was commonly recognised by the working group. However, it is important to notice that risks associated with gender issues were given a lower scoring as compared to the other WSS sector development risks (see Section 2.8).

2.5.1.2 Social issues

At present, the living standard in cities is different from the rural areas, with less economic perspectives, lower income per capita compared to urban areas and difficult access to water and wastewater services. Development of cities as urban centres presents an opportunity for regional development policy, including policy implementation of specific legislation of the WSS sector, perspective seen as gradual revitalization of the Moldovan economy leading to an increase of the living standard of the population in all regions.

There is a need to extend water and wastewater services in rural communities, which will help increase the quality of life and living conditions in rural areas, along with the urban ones. These criteria, as well as national objectives in the WSS sector, are taken into consideration when developing the Regional Sector Plan in this area. In this context it should be noted that in accordance with EU practice, the total annual cost per capita for both WSS services must not exceed 3.5-4%[13] of the average annual disposable income per capita in the area served by the existing WSS system.

There is a vital need for planning the WSS sector in the three regions and attracting new investments that will solve socio-economic problems related to the following aspects:

- Creating new jobs;
- Improving access to WSS services of good quality;
- Increasing the quality of life and living conditions especially in rural areas;
- Improving environmental protection and population's health.

2.6 Levels of WSS Sector financing

2.6.1 Country level

In Moldova, State Budget sources are the major means of public financing of the WSS sector. There is a two-stage budget formulation process for strategic and annual budgeting decisions - Medium-term Budgetary Framework (MTBF) and Annual Budget.

The primary source of information on public expenditure in WSS sector in Moldova is the State Budget[14], which defines the levels of state budget allocations to different public institutes, specific funds and programs, and local public authorities. Additionally, contributions from the National Environmental Fund, National Regional Development Fund, Moldova Social Investment Fund and WSS service providers were assessed

[13] http://www.emwis.org/documents/meetings/events/selected-events-5th-world-water-forum-istanbul-36778/rapports-prepares-par-henri-smets-pour-istanbul/01-EAU-FR-5mars.pdf/download/1/01-EAU-EN-5mars.pdf

[14] Law on State Budget: No52 of 31.03.2011 (2011); No282 of 27.12.2011 (2012); and No249 of 02.11.2012

based on the most reliable data available. All allocations included in the State Budget and National Funds are considered as public WSS investments, regardless of the source of financing (internal or external).

The information on distribution of the IFI and donors contributions not reflected in the State Budget is rather limited and is included as an average amount over the last five years.

The estimated levels of WSS sector financing are presented in the Table below:

Table 2-2: The estimated levels of WSS sector financing

ENTITY	2011	2012
Ministry of Regional Development and Construction:	79,943	28,167
• Direct State Budget allocation to MRDC WSS Investments	20,200	200
• National Regional Development Fund - WSS	59,743	27,967
Ministry of Environment:	234,887	363,690
• Direct State Budget allocation to MoEn WSS Investments or contribution to external financing projects	3,800	4,050
• External Financing Projects	130,370	230,610
• National Environmental Fund WSS	100,717	129,030
Local investments	28,043	55,047
Other funds	-	28,067
Moldova Social Investment Fund - WSS estimated	-	28,067
TOTAL WSS Public Investments, including:	342,873	474,970
• Internal resources	212,503	216,294
• External resources	130,370	258,676
Total budget revenue, thou. MDL	**19,048,823**	**21,494,000**
Country GDP, thou MDL	**82,348,703**	**87,847,000**
WSS public expenditure (internal sources) as % GDP	0.26%	0.25%
WSS public expenditure (internal sources) as % budget revenue	1.1%	1.0%
WSS public expenditure (incl. budg. external) as % GDP	0.42%	0.54%
WSS public expenditure (incl. budg. external) as % budget revenue	1.8%	2.2%
Additional average external resources – Donors (estimate)	88,246	88,246
Estimated total WSS investments, thou. MDL	431,119	563,216
Estimated total WSS investments, million Euro	25.45	33.25

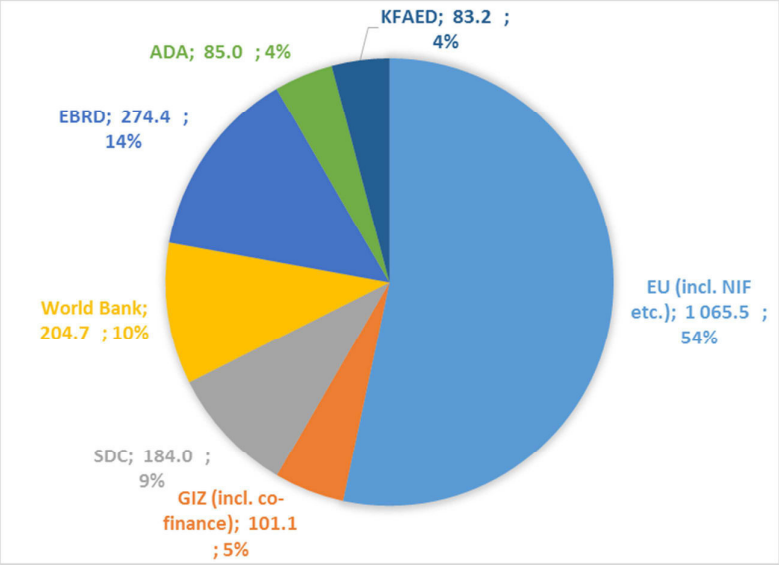
Source: State Budget Law: no.52 of 31.03.2011 (2011); no.282 of 27.12.2011 (2012); and no. 249 of 02.11.2012; Experts estimates GIZ/MLPS

The lack of a structured water investment database, as well as inconsistencies in available data prohibits the precise estimation of total investments in WSS sector in Moldova. According to the EU WSPSP Technical Assistance, the budgeted amount for WSS in 2012 was estimated at some 450 million MDL[15], which is comparable to the above estimates (475 million MDL).

The allocated foreign investments in the WSS sector during the last five years (2009-2013) are estimated at up to 2.0 billion MDL, including the investments reflected in the State Budget. The largest sector contribution is provided by the European Union:

[15] EU TA Water SPSP, Technical Report No 6 (TR6-C3) Budgeted WSS Infrastructure for 2012 http://ta-water-spsp.eu

Figure 2-11: The estimated total ODA contribution (2009-2013)[16]



Source: GIZ/MLPS, available donors information

Still, it is important to mention that the allocated investments do not present real figures on the disbursed amounts, and the largest investment projects (e.g. EU Water SPSP, EBRD MWUDP) are still under implementation.

Assuming the successful use of the total amount of the allocated external investments, the average annual amount of total foreign investments (budgeted and particular donor projects) during the last five years is estimated at 400 million MDL (23.6 million Euro) per year. The EU Water SPSP-TA assesses limits of the absorption capacity of ODA at 19-21 million Euro per year[17].

2.6.2 Regional level – North Region

The WSS sector in the North Region benefits from the State Budget, national funds, donor funds, and local contribution. While the exact distribution of WSS investments between regions is not known, assuming an even distribution of funds results in an average budgeted public investment of 160 million MDL per year for each region. Taking into consideration separate unbudgeted donor contributions, the total amount of WSS investments is estimated at about 190 million MDL per year for each region.

The Soroca-Balti water main benefits from special attention from the Government receiving NEF allocations of 6 million MDL in 2011 and 14.8 million MDL in 2012 for renovation of existing equipment, as well as 11.5 million MDL from the NRDF for further pipeline extension to Singerei Town. Also, EBRD has recently conducted a feasibility

[16] MSIF: The total budget is 20 mln USD, while investment in WSS sector is estimated at 10% of the total budget;

GIZ: The total budget is 19.9 mln Euro, while investment in WSS sector is estimated at 30% of the total budget

[17] EU TA Water SPSP, Republic of Moldova's Water Supply & Sanitation Strategy (Revised Version 2012) – 2nd Draft October 2012 http://ta-water-spsp.eu

study for public-private partnership, aimed at attracting private investments in the water sector.

A joint EBRD-EIB-EU NIF Moldova Water Utilities Development Programme foresees creation of regional water operators in the towns of Soroca and Floresti, with a total investment amount of 6.5 million Euro (Floresti) and 4.0 million Euro (Soroca). The other ODA active in the region are the World Bank (NWSSP in Floresti, Soroca and Balti) and GIZ (Riscani Rayon).

The first Regional Operating Plan (2010-2012) included 11 WSS projects with a total investment requirement of 223 million MDL, out of which only three projects with total budget of 33 million MDL have been financed from the NRDF.

The updated ROP (2013-2015) envisages five investment projects in the WSS sector with a total investment amount of 186.5 million MDL, which is expected to be mainly financed by the NRDF.

2.7 Lessons learned in the WSS sector in Moldova and other countries

The inclusion of a Lessons Learned chapter has the purpose of presenting glimpses of specific experience accumulated by various consultants/institutions/NGOs/national agencies, etc., in addressing the sectorial challenges for water and wastewater. Generic solutions of “one size fits all” should be avoided in Moldova and in general there is resistance to accepting solutions that were developed for other countries, although more recently, the experience of the neighbour Romania, which joined European Union in 2007, started to receive more attention and acceptance in Moldova. For this reason, occasionally, the WSS RSP refers to neighbouring country experience on different subjects such as: extensions of services to rural area, regionalization, tariff setting, etc.

2.7.1 Water source and water quality

- The quality of the water varies significantly, with the general tendency of tapping the most convenient access to a water source, with preference to groundwater that is not further treated. Major surface water sources, such as river water, are used only by large urban settlements located in the immediate vicinity of the river (both Prut and Nistru), since this water requires extensive treatment;
- Abstraction of water from deep wells does not guarantee good water quality. Experience shows that developing new wells may prove to be a costly mistake (towns - Ceadir-Lunga, Nisporeni, villages - Sarata Noua (Leova), Balasesti (Singerei), etc.) since the treatment of such water requires complicated technology and significant amounts of energy, resulting in expensive operation and unpredictable outcomes:
    - The water source for Ceadir-Lunga is groundwater with a high content of boron and fluoride. In 2008, the entire water network was renovated and a new water treatment plant (WTP) was built. The Turkish Agency for International Cooperation (TIKA) invested some 10 million USD as a grant. The WTP is based on reverse osmosis technology. The plant, however, has never been brought into operation because the operating costs for such a plant were unaffordable for consumers. According to the Ceadir-Lunga water company’s estimates, the operation cost of the WTP would be around 1 Euro per m^3 of

treated water. Therefore, decisions on building of groundwater treatment plants shall be taken only basing on a feasibility study;

- No operating instructions or other documentation for the plant have been handed over, and actually the WTP has never been transferred on Apa-Termo balance. The result is that despite of existence of fully renovated network and a brand new water treatment plant, no water of acceptable drinking water standard can be delivered to the customers.

- The majority of the villages took the initiative and developed their own local systems, by revitalizing existing deep wells. Often in such cases, however, the quality of the water remains questionable and it is distributed without any other treatment, except for occasional chlorination. In isolated cases – namely, the Floresti and Orhei utilities – due to access to a good source of groundwater, rural localities along the the water pipelines are interested in being connected;
- Some projects (e.g. SDC/Apasan, former USAID projects, MSIF, NEF, etc.) are opportunity driven, that is by the availability of good and sufficient water sources. When these projects finance existing wells, it is important to ensure that water quality improves after abstraction begins;
- From the experience of the systems funded by SDC (Apasan), it can be concluded that for small rural settlements, the catchment of surface springs can be very convenient, especially if the water quality is acceptable as it is, but it suffers from seasonable variation of the spring capacity (risk of running dry during summer, i.e: Zberoaia, Nisporeni);
- The localities that have both access to surface and deep waters have been inclined to use surface water and conserve the deep wells as alternatives (Chisinau, Balti, Falesti, etc.);
- In Soroca, a new groundwater intake was built under the World Bank Pilot Water Supply and Sanitation Project (2003-2008) but has never been taken into operation. The Government Decision no.1188 dated 02.11.2004 was adopted in which Soroca was decided to be connected to the Soroca-Balti surface water pipeline and prohibited to use its own groundwater source. Therefore, development of new groundwater intakes in the localities with accessible surface water shall be avoided;
- The treatment of water extracted from deep wells is non-existent at the rural level and chlorination is done insufficiently and not continuously. The chlorination is done only after repairs or when indicated by medical prevention procedures (such as when school starts, or when there is a risk of epidemics). For the same rural systems, the water quality is not systematically monitored and is usually done by sampling the water source only. Most of the laboratories (rayonal centres) do not have sufficient chemicals to perform detailed analysis;
- The regionalization projects implemented under the Instrument for Structural Policies for Pre-accession (ISPA) and Sectoral Operational Program (SOP) in Romania focused on centralized surface and groundwater intakes for grouped localities were commonly recognized to improve significantly the water quality monitoring and control. This practice shall be considered in the Republic of Moldova.

2.7.2 Water distribution

- The World Bank Energy Audit Report[18] (2012), as well as EBRD FOPIP Diagnostic Report (2012) state that the existing urban water systems in Moldova are in rather poor operational condition, suffering from significant volumes of non-revenue water (NRW) in the distribution network (some 50% on average), most of them as physical leaks, but there is also a significant amount of commercial losses (illegal connections, tampering with individual water meters, errors of measurement, etc.). This negatively affects the quality of the water service provided and shall be addressed as an important measure for improvement of service level;
- An experiment conducted in 2003 in Nisporeni (USAID and SDC), when the system was pressurised for 24 hours continuously, demonstrated that an old system cannot hold the desired pressure level due to corroded pipes. The fix can only be obtained by systematic replacement of the old section (especially highly corroded steel pipes) with new pipes. However, the World Bank Pilot WSS Project (2003-2008) revealed that even this fix may not prove to be efficient if it is performed at reduced scale, because partial rehabilitation of distribution systems within same pressure zone will increase the failure frequency in the older sections. Therefore, the replacement of old pipelines shall be planned and carried out in a systemic manner, with necessary pressure regulation measures, as stated below;
- Creating pressure zones for the distribution system led to lower pressure in the systems, thus less pipe breakages and smaller volume of water losses. This also has the benefit of reducing the energy consumption (e.g. - WB NWSSP Energy Component for Causeni);
- Replacing larger section of pipes can be done by using pipe-in-pipe technology (which avoid digging cost in urban settlement) as it was applied in Orhei, Floresti, Nisporeni, etc.;
- Previous USAID and WB projects purchased and transferred leak detection equipment for water utilities that for most of time has not been used – for reasons of lack of qualified personnel and insufficient training on-site. This shall be considered when procuring new equipment;
- The introduction of variable speed drives pumps (VSD) also resulted in a smooth more efficient operation of the systems which rely on direct pumping in the distribution system. As an example, rather than raising the pressure for the entire neighbourhood, booster pumps with VSD was installed for a group of high rise buildings in Ungheni (USAID, World Bank), Cahul and Causeni (World Bank). Proper selection of the pumps or introduction of new, more efficient pumps can result in immediate savings for water utilities (Floresti, Orhei, Ceadir-Lunga – EBRD, World Bank);
- Many existing water supply systems suffer from poor conceptual design, resulting in high operating (energy) costs. This may be found in inappropriate location of treatment/pumping facilities, lack of pressure regulation, etc., requiring unnecessarily expensive operations. The most representative example is in Balti municipality (WB NWSSP), where two existing pumping stations were proved to be un-

[18] The World Bank National Water Supply and Sanitation Project (NWSSP), Energy Component

necessary for reliable water supply, and simple decommissioning of these stations allowed significant reduction in energy consumption (up to 30%). Such low-cost investments with high impact can be replicated in other urban areas;

- With very few exceptions, water utilities in Moldova lack the capacity for proper monitoring and control in the system - control flow meters are either not installed or not functioning, pressure gauges are not calibrated or broken, control valves are semi-operational or stuck. Most such failures are not expensive to fix, but are a direct consequence of poor management and lack of responsibility. In some instances, lack of data is preferred, since accurate measurement will demonstrate unacceptable level of water losses in the systems. The water utility from Floresti implemented an ambitious SCADA system which revealed higher than expected levels of NRW, but having precise data allows now a better and more efficient control. Such practices should be largely demonstrated in Moldova. This can also reduce the number of pump operators. In general, water utilities have numerous personnel. Utilities should attract fewer better qualified/paid personnel. Similar SCADA systems are being implemented in Cahul and Orhei;
- Most of the rural areas that operate independently new or rehabilitated water distribution systems continue to exist and operate due to inertia. Since the life of the pumps is shorter than of the pipes, the first sign of weakness has already appeared – the original pumps are replaced almost randomly – disregarding design recommendations, by-passing original protection and automation equipment. Most of monitoring and control equipment is not functioning (control meters, pressure gauges, etc.). Besides increased operational costs, this also demonstrates a more serious problem: the systems are operated without repair and rehabilitation and any failure arising in the system catches operators by surprise;
- Also specific to rural area is the use of water for irrigation. This poses a higher risk for the operation of the system – insufficient water, insufficient pressure, and increased rates of water theft. Some water user associations have successfully applied increased tariffs for water exceeding a set family quota;
- Some water user association have implemented a monthly connection subscription. This is the most convenient way to deal with the increasing amount of inactive connections (empty houses due to migration).

The conclusion is that without improved operational practices of the existing urban water supply systems, extension of service areas are very unlikely to be cost-effective or sustainable. As has been seen in Romania, the urban settlements are the driving force and support the development of operation of systems for rural areas. If efficient operations are not achieved within the city limits, the extension of services to other areas will only pass on further losses and poor practices to rural areas.

2.7.3 Wastewater collection and treatment

The capital expenditure for collection and treatment plants for wastewater is higher than for water distribution. For urban settlements, the collection of the wastewater is an absolutely necessity, especially for the multi-storey buildings. Rural settlements tend to lag behind with the wastewater systems, although they may have very good coverage of water service. The main lesson learned from experience in both Romania (ISPA,

SOP) and Moldova (GIZ/MLPS) is a low willingness of the population to connect to centralised wastewater systems. The experience of the neighbouring country Romania with new centralised but unused rural wastewater systems is not positive in addressing the collection and treatment of the wastewater due to complicated non-homogenous concentration of houses, low connectivity, insignificant volumes of produced water, etc.

In Moldova, as a general rule, the wastewater treatment plant also exists where a collection system was in place, but their current functionality is questionable.

2.7.3.1 New wastewater treatment technologies

A new environmentally-friendly and energy efficient wastewater treatment plant was built and put into operation in September 2013 in the town of Orhei. The plant uses constructed wetlands technology that has lower maintenance and operation costs than traditional technology.

The objectives of the Orhei Wastewater Treatment Project were to improve the quality of sanitary services in the city of Orhei, reduce the discharge of pollutants, including nutrients, from Orhei municipal sources that flow into the Raut Rriver, and demonstrate and disseminate cost-effective nutrient reduction technologies for municipal wastewater sources.

Another project based on constructed wetland technology was built with financial support from SDC in the villages of Rusca, Sarata Galbena, etc. The operation of the system demonstrated that continuous monitoring by qualified personnel and continuous maintenance are a must in order to secure the functionality of the system.

2.7.4 Regionalization of WSS services

2.7.4.1 Regional operators

The EBRD FOPIP Final Report[19] states that the operational capacity of the existing water operators in six regions of Moldova remains to be very low. A number of serious inefficiencies in energy, non-revenue water and staff management were identified. All these problems, resulting in very high operating costs, have a significant negative impact on tariff levels. In some companies, the operating costs are estimated to be up to 40-50% higher due to operational deficiencies. In such circumstances, prior to any extension of company's operations, the essential activity must be improvement of companies' internal efficiency.

A lack of trained staff capable to bring and promote the innovative ideas and improve the companies' operational efficiency was also noticed. In certain cases, the companies preferred to focus on their daily reactive maintenance routine work rather than deal with process planning, monitoring, analysis and improvement.

The main lesson learned is that any regionalization of services needs to consider investments and measures to improve the financial and operational performance of operators.

[19] EBRD Moldova Water Utilities Development Program, Financial and Operational Performance Improvement Programme, Final Report, Sweco International AB, 2013

2.7.4.2 Tariffs

The concept of a common tariff for the entire service area, commonly implemented in Romania, was also introduced in the EBRD MWUD Program for six regions in Moldova. The main obstacle faced in Moldova is the resistance of local public authorities to accept a common tariff, which is usually higher than the tariff for a decentralized solution. This is mostly explained by fact that the decentralized solutions provide unsustainable low-quality service, which requires lower operating costs.

In Romania the biggest change in the perception of quality of service came with the introduction of mandatory licensing of water operators, requiring them to comply with certain quality indicators. This reform is also expected to take place in the near future in Moldova, as the Law on Public WSS Services has been adopted by the Parliament of Moldova. Licensing of operators is expected to accelerate regionalization of water services and stimulate inter-municipal cooperation between the local public authorities.

2.7.4.3 Inter-municipal cooperation

The management of the regionalized services in Romania is based on the inter-municipal cooperation expressed in Inter-communal Development Associations (IDAs). In Moldova, implementation of such associations is not seen as possible within the current legal framework. Therefore, the EBRD MWUDP implements a more simplified model of a joint stock company, where local public authorities participate as shareholders.

At present, no clear direction at the government level has been provided on an exact institutional model for a regionalized WSS service, which is seen as a considerable obstacle in further regional development.

2.8 Key issues and risks in WSS sector development

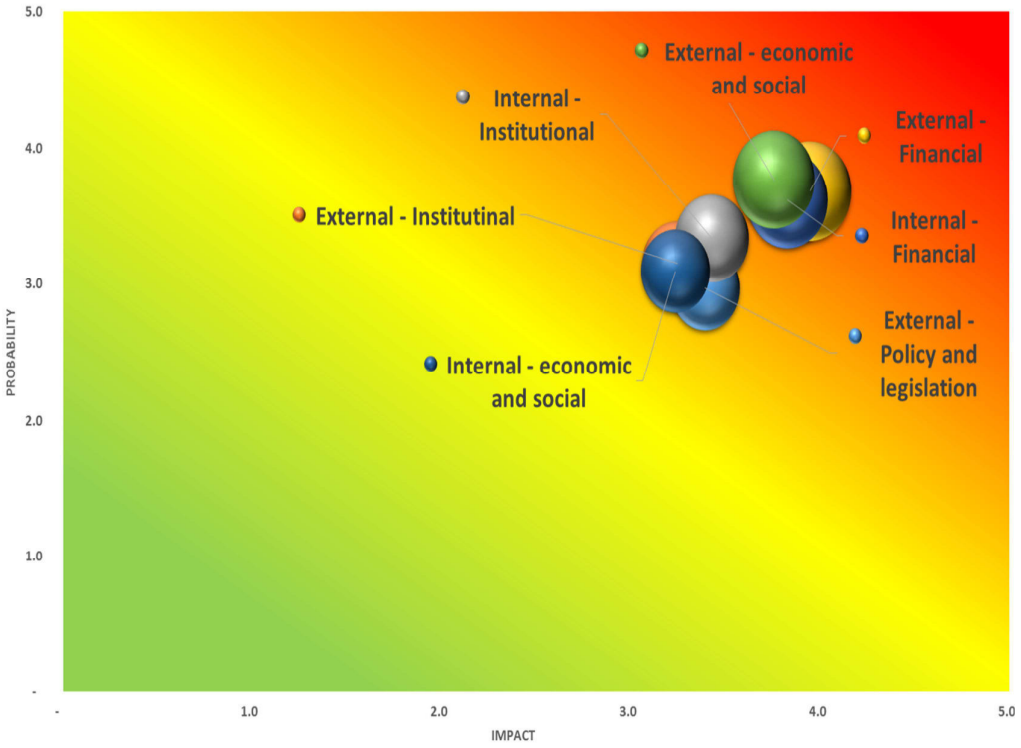
In order to develop a proper planning scenario, a number of most important sector issues and associated risks have been identified and assessed.

Based on the WSS sector analysis provided in Chapter 2, a preliminary list of issues and risks was developed and presented and analysed by the Working Groups in three respective regions during the fourth WSS Regional Planning Workshop (held on October 29-31, 2013). In total, the WGs accepted and assessed 27 sector specific risks, split into four main categories: (i) policy and legal; (ii) institutional; (iii) financial; and (iv) economic and social. The internal risks were considered at the RDA level and below (Rayon administration, LPA's, population, etc.), while the external risks referred to the national (sector ministries and higher) and international levels.

A quantitative risk assessment was carried out based on calculations of two components of risk: the magnitude of the potential loss (impact, 1 – low, 5 - high), and the probability that the loss will occur (1 – low, 5 - high).

A summary of risk assessment results by main categories for all three development regions is shown in the Figure below:

Figure 2-12: Risk analysis for WSS Sector Development. General categories

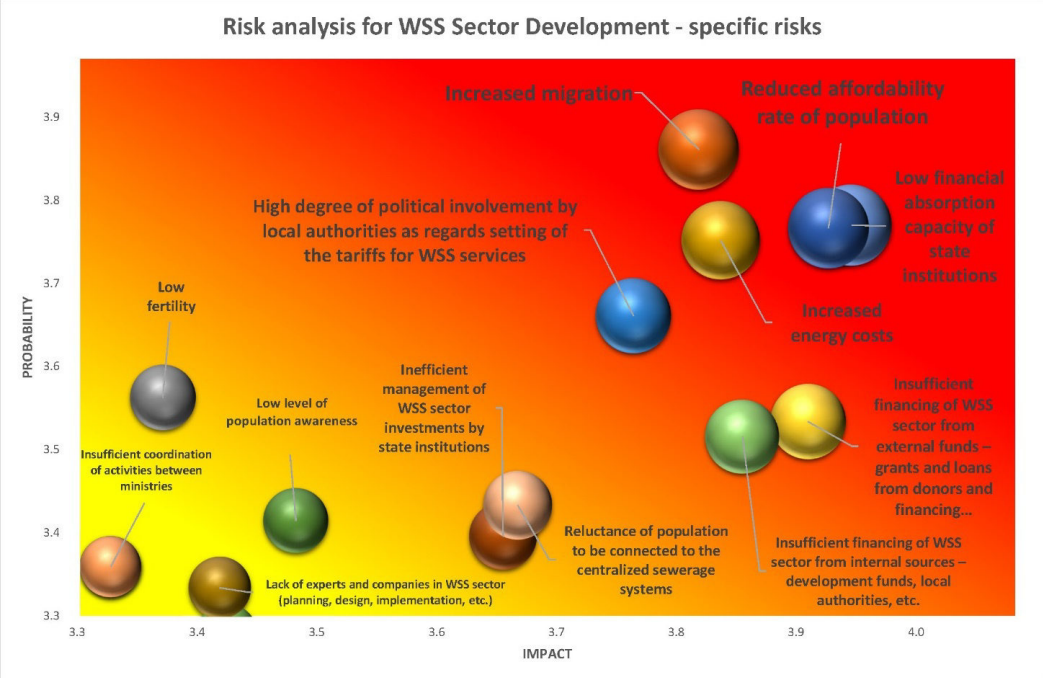


Source: GIZ/MLPS, Workshop results, 2013

As can be seen from the figure above, the highest risks in WSS sector development are associated with the external socio-economic and financial situation, as well as with policy development. The major specific socio-economic constraints and risks shown in the Figure below refer to high out-migration of the population accompanied by low fertility rates, which lead to population decrease and ageing. This in turn leads to higher costs per person, which adversely affects household affordability and demand for water services. In such a situation, residential customers are reluctant to bear any costs for water and wastewater services and are generally reluctant to connect to centralized piped water and wastewater systems.

The main financial constraint is the combination of insufficient external and internal sector financing and limited absorption capacity at both government and local levels (see also Chapters 2.6 and 4.1). The situation is aggravated by poor coordination between the ministries and subordinated departments. Prior to accessing the increased external financing, significant institutional improvements at high level are required.

Figure 2-13: Risk analysis for WSS Sector Development. High-Ranked specific sector risks



Source: GIZ/MLPS, Workshop results, 2013

The WSS Sector continues to lack major policy documents and a sound legal framework that would enable efficient sector planning and development. It is expected that adoption and implementation of the new policy and regulatory documents will accelerate the process of sector development and will allow for obtaining additional external financing.

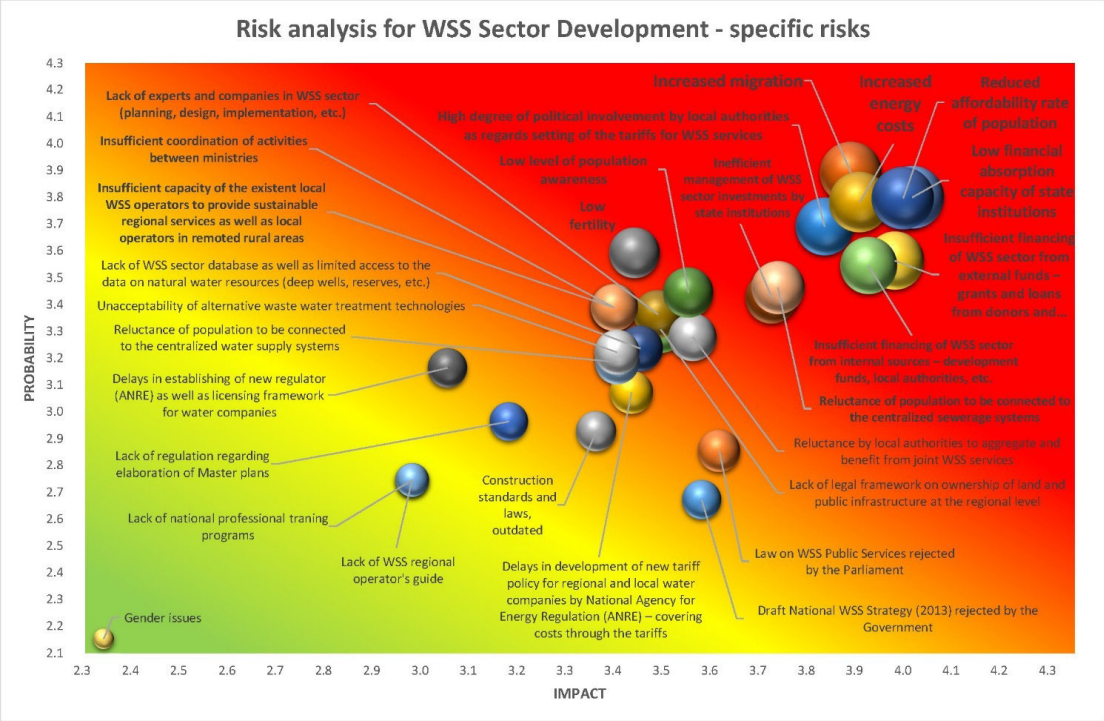
The outdated design and construction norms will require a revision and update to provide the most efficient technical and economical solutions for water supply and wastewater services.

The degree of political influence on tariff-setting is expected to be addressed with the passage of the new Law on Public WSS Services.

At the local level, household awareness of the benefits of improved WSS services is low. A comprehensive awareness campaign will be addressed in the Action Plan.

A summary sector risk assessment chart is shown in the Figure below. The detailed results of risk assessment are presented in Annex 8.

Figure 2-14: Summary of the WSS sector development risk assessment



Source: GIZ/MLPS, Workshop results, 2013

3 Desired level of sector development and service by 2020

3.1 Future policy directions

The EU is developing an increasingly close relationship with Moldova, going beyond cooperation, to gradual economic integration and a deepening of political cooperation. Moldova is a partner country within the European Neighbourhood Policy (ENP) and a joint EU-Moldova ENP Action Plan lays out the strategic objectives based on commitments to shared values and effective implementation of political, economic and institutional reforms. In November 2013, the EU and Moldova have initialled Association Agreement and its principal objective is to draw Moldova closer to the EU through a commitment to approximate EU laws and standards in a number of areas. Adequate water supply and sanitation infrastructure is an important domain of the EU Acquis that Moldova is committed to approximate under this new Association Agreement.

Approximation is a process of achieving compliance with the requirements of the Acquis Communautaire in the context of taking on the obligations of Membership of the European Union by the means of “Transposition”, “Implementation” and “Enforcement”. Still, the Moldovan WSS sector legal framework is only in the first phase of this process and needs serious steps in development of legal framework to ensure the “Implementation” and “Enforcement” of the transposed EU directives. According to the National Plan on Harmonization of Legislation for 2013[20] (derived from the Association Agreement), Moldova is committed to approximate the following WSS sector related Directives:

- The Water Framework Directive (WFD) 2000/60/EC;
- Directive 91/271/EEC on urban waste water treatment (UWWTD) as amended by Directive 98/15/EC and Regulation (EC) 1882/2003;
- Directive 2008/105/EC on environmental quality standards in the field of water policy.

Additionally, the Ministry of Health has committed to approximate the legislation to the Directive 98/83/EC on quality of water intended for human consumption (DWD) as amended by Regulation (EC) 1882/2003. The Directive 91/676/EC concerning the protection of waters against pollution caused by nitrates from agricultural sources as amended by Regulation (EC) 1882/2003 is also included in the Association Agreement.

Some harmonization with the EU Acquis has already been advanced, notably through the adoption of the Water Law no. 272/2011, in December 2011. However, this and other primary and secondary legislation will have to be amended/ adopted to further approximate the EU WSS regulatory framework. Some requirements of the UWWTD and DWD have been transposed in the National legislation, but still need legal tools for implementation and enforcement.

[20] Government Decision No1026 of 28.12.2012

Moldova, which is poor both in terms of infrastructure and economic wealth, will require lengthy transitional periods in respect to a number of items in the acquis. According to the Association Agreement, implementation of the selected provisions of the mentioned WSS sector relevant directives will take from 3 to 8 years, which will be followed by further implementation and the enforcement phase.

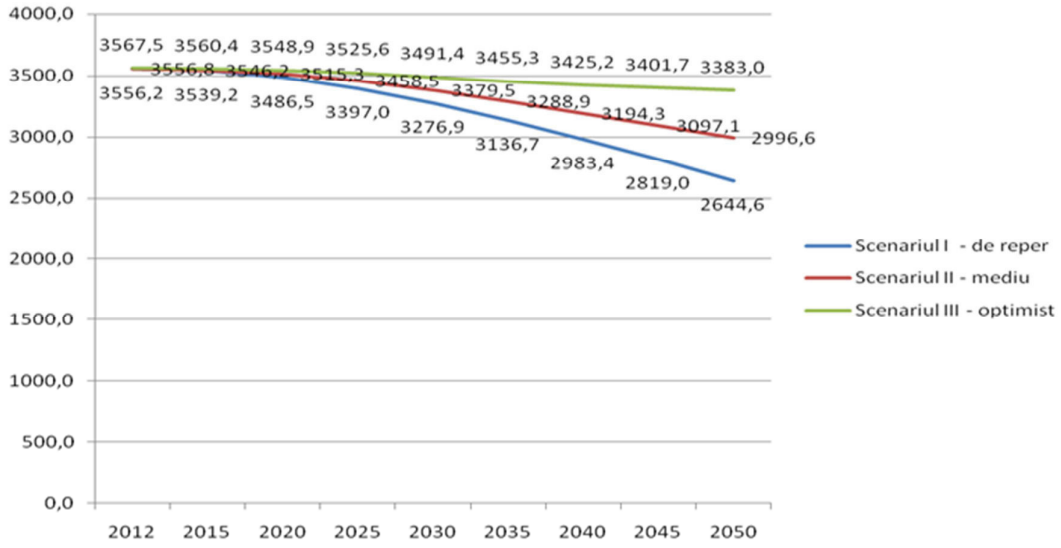
In the context of regional planning of WSS services, the provisions of the mentioned directives are taken into consideration. However, requirements associated with heavy infrastructure investments (e.g. UWWTD) are considered to a certain extent, with a preference to the mid-term transitional less costly scenarios, still ensuring the required level of the environmental protection.

3.2 Population and water demand forecast

All population growth projections were made based on the official statistical data provided by the National Bureau of Statistics of Moldova and the National Committee for Population and Development[21].

According to all scenarios provided by the official population projections, a slight population decrease is expected for RSP horizon (2020). More dramatic decrease is forecasted for the later period (2020-2050).

Figure 3-1: Official population forecast for Moldova for 2012-2050[22]



Source: National Committee for Population and Development, Social Report, Demographic profile of Moldova, 2011, Population forecast 2012-2050

The following water demands have been recommended in the revised National WSS Strategy and used as general direction towards improvement of the current demands.

[21] http://www.demografie.md/

[22] National Committee for Population and Development, Social Report, Demographic Profile of the Republic of Moldova, 2011

Table 3-1: Summary of water demand planning criteria

Specific water demand [l/pers./day]			
Code	**Demand Type**	**Urban**	**Rural**
1.1	Residential	110	50
1.2	Public institutions demand	20	10
1.3	Industrial demand	30	15

Source: Moldova WSS Strategy, 2014, referred to Technical Report No.19 (TRC19-C4), EU-WSPSP TA, 2012

In order to estimate the water and wastewater services demand, the following assumptions were considered:

- Moldova will have a continuous slight population decrease of less than 2% until 2020 (most optimistic demographic scenario);
- The ratio urban/rural population will increase slightly by about 1.7%;
- The water demand for residential consumers will reach 110 l/pers./day for urban population and 80 l/pers./day for rural population. The increase in residential water demand was considered linear. For 2012, the residential demand was calculated using reported data for urban settlements. For rural settlements, 30 l/pers./day was assumed due to a lack of data;
- According to the 2012 WSS Strategy, the demand for industrial water will reach 30 l/day/per for urban settlements (which will be added to residential demand) and 15 l/day/per for rural settlements. Additionally, the model developed considers the GDP increase adjusted with a 0.8 correlation factor as affecting the industrial demand (per strategy is 5% per year for the country, and 2.5% increase for the region, Chisinau being excluded), thus an additional increase of 2% per year was considered. Since currently there are no data on industrial demand at the rural level, for 2012 it was considered that the specific demand is 50% of the reported current urban industrial demand (considered per capita). The industrial water demand increase was considered linear;
- According to the 2012 WSS Strategy, the demand for water from institutions will reach 20 l/day/per (which will be added to residential and industrial demand) for urban settlements and 10 l/day/per for rural settlements. Since currently there are no existing data on institutional demand in rural areas, for 2012 it was considered that the specific demand is 50% of the reported current urban institutional demand (considered per capita). The institutional water demand increase was considered linear.

3.3 Objectives and targets

3.3.1 International commitments and country goals

In terms of strategic commitments in the WSS sector, in 2000 Moldova signed the Millennium Declaration and later adopted a number of national targets for development of water and sanitation services in the country. Being overambitious, the Millennium De-

velopment Goals are the direct and authorized expression of the national development priorities.

The national targets for the Millennium Development Goals (MDGs) are as follows:

- Increase the share of people with permanent access to safe water from 38.5 percent in 2002 to 59 percent in 2010 and 65 percent in 2015;
- Halve the number of people without access to improved sewage and sanitation systems. Increase the share of people with permanent access to sewage systems from 31.3 percent in 2002 to 50.3 percent in 2010 and 65 percent in 2015.

Moldova has also committed to complying with the provisions of the United Nations Economic Commission for Europe (UNECE) and the World Health Organization (WHO) Protocol on Water and Health, to the 1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes.

The targets set in the Protocol represent a logical, but still rather ambitious, extension of the MDGs for up to 2020. Among others, the following indicators are of note:

- Provide access of the population to improved water supply sources:
  - 2015: For 68% of the total population and 35% of the rural population;
  - 2020: For 80% of the total population and 45% of the rural population.
- Provide access of the population to improved sanitation systems:
  - 2015: 85% of the urban population and 45% of the rural population;
  - 2020: about 90% of the urban population and about 70% of the rural population.

Currently, the share of people with access to safe water is estimated at 54%[23], while only 35-45%[24] of population benefit from access to the improved sanitation systems.

Taking into consideration current levels of sector financing and pace of sector development, there is a long way to achieving the National targets for MDGs and the Protocol.

The Protocol also sets targets for implementation of small-scale (individual and/or collective) systems of improved sanitation (e.g. dry ECOSAN toilets, constructed wetlands, septic tanks, or other technologies) in about 50 settlements by 2015 and about 100 settlements by 2020. These technical solutions are considered in this WSS RSP as an appropriate scenario for small-scale sewerage systems.

The mentioned international commitments were found overambitious by the TA-WSPSP and therefore the revised National WSSP (2014) included more realistic WSS sector goals for:

[23] Technical Assistance for the Implementation of Sector Policy Support Programme in the Water Sector, The Final Draft Revised WSS Strategy 2013

[24] MDG Country Report 2010, Ministry of Environment of Moldova

- The achievement of the targets of the 2015 MDGs for good wastewater system for 65 % of the population latest by 2025;
- The achievement of the targets of the 2015 MDGs for safe water supply for 65 % of the population latest by the year 2020.

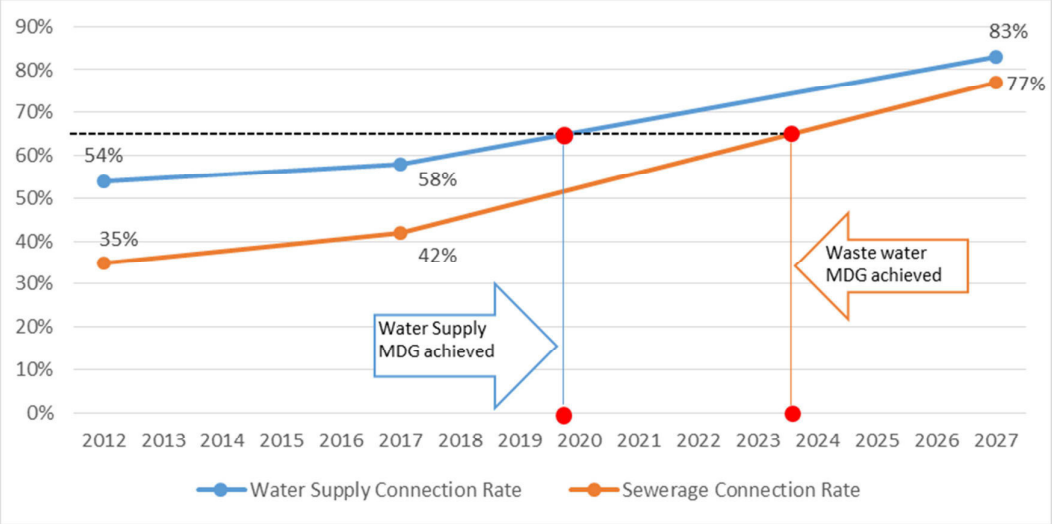
The main country goals of this plan are applied from the National WSS Strategy (2014). This Regional Sector Plan is intending to contribute to achievement of the national targets.

3.3.2 Targets for sector development

The models were built based on the revised National Water Supply and Sanitation Strategy (2012), which considers the National Development Goals (MDGs) and sets the main targets for water and wastewater services in terms of population access until the year of 2020, as follows:

- Overall population access to water service: 65%;
- Population access to wastewater service: 51% (per graphic reproduced below from the National WSS Strategy).

Figure 3-2: Connection rate and MDGs achievement[25]



Source: Technical Report No.19 (TRC19-C4), EU-WSPSP TA, 2012

The Millennium Development Goals and the strategy for water and wastewater services establish the targets relative to the entire population of the country. Because Chisinau represents a significant part of the total population (approx. 22%) and the access to water and wastewater services in Chisinau exceeds the target for the country, the following additional assumptions were made:

[25] TA EU WSPSP, Revised National WSS Strategy, 2012

- The water supply and wastewater supply service will expand in terms of population coverage in Chisinau by only 5% added to current population. If 1-2% population increase trend is also considered for Chisinau, this will result in the following values: water supply access will increase from 90% to 94% (in 2020), respectively 86% to 90% (in 2020) for wastewater service access of the residential population of Chisinau. In order to achieve the 65% access for water service and 51% access to waste water services for the country, it is implied that the rest of the country (Centre, North, South Regions and Gagauzia) will need to reach 55% for water, respectively 39% for wastewater service access;
- It is expected that the resources for improving the water and wastewater services will be distributed among regions equally per capita. This implies that the model must assume that each region will have an equal percentage of improvement of the water and wastewater services access relative to the population of 2020. It results that each region must increase the access to water and wastewater services, as follows: for water services by approx. 11% of total population of each region respectively and for wastewater services by 26% of total population of each region respectively relative to the population of 2020;
- For each region individually, it was considered that the development of water and wastewater services will occur most likely first in the urban areas which is already significant higher than for rural population, due to the concentration of capital and higher population density. The targets considered for urban areas for 2020 were considered very close in relative values to those currently found for Chisinau municipality, that is, 90% urban population of 2020 will have access to water supply service and 85% of the urban population will have access to wastewater systems. The rural population will reach lower numbers in terms of relative values, but in terms of absolute numbers, most of the population with increased access to water and wastewater services must occur in the rural areas;
- The model assumes that in 2020 all industrial and institutional wastewater is properly collected by the municipal systems. The relative current low numbers for the volume of industrial water may be misleading due to the fact that currently plenty of industrial establishments choose to deal independently with the wastewater produced. Since better quality control of the process is needed, this practice needs to be properly regulated, and most likely, the wastewater will be collected 100% by municipal wastewater systems.

Water supply service access 2020 projection:

Table 3-2: Water supply service coverage projections, %

	Chisinau	DRN	DRS	DRC
Water access 2012 (%)	90.65	35.23	56.20	46.00
Water access 2020 (%)	94.40	47.04	68.42	57.99
Urban 2012 (%)		73.31	85.38	73.55
Urban 2020 (%)		90.00	92.00	93.00
Rural 2012 (%)		14.26	46.36	39.40
Rural 2020 (%)		23.38	60.44	49.59

Source: GIZ/MLPS, Workshop results, 2013

Wastewater service access 2020 projection:

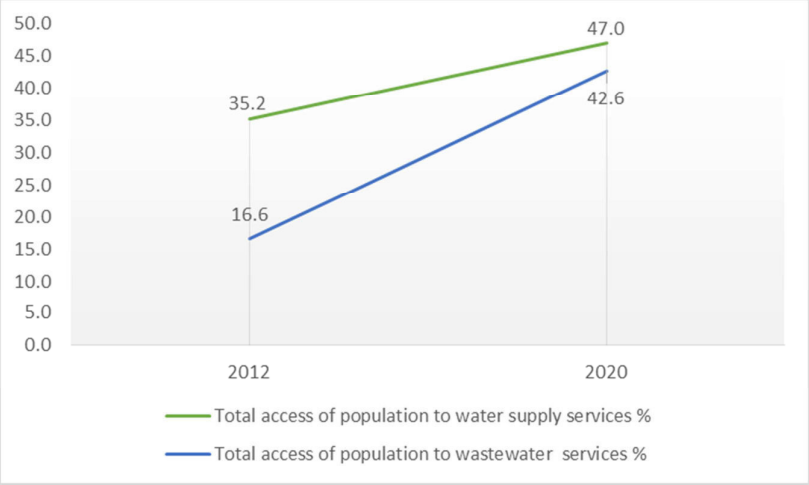
Table 3-3: Wastewater service coverage projections, %

	Chisinau	DRN	DRS	DRC
WW access 2012 (%)	86.37	16.61	13.91	10.47
WW access 2020 (%)	90.18	42.64	39.91	36.40
Urban 2012 (%)		46.00	52.30	41.73
Urban 2020 (%)		80.00	85.00	76.00
Rural 2012 (%)		0.43	0.96	2.98
Rural 2020 (%)		22.07	24.65	26.91

Source: GIZ/MLPS, Workshop results, 2013

For the Development Region North, the following projections resulted from the model:

Figure 3-3: Projected population access to water supply and sanitation services in DRN



Source: GIZ/MLPS, Workshop results, 2013

The detailed description of main directions toward achievement of the proposed WSS services development goals is presented in the Sections below.

3.4 Objectives and vision of DRN

The working group in Region North that participated in the development of this WSS regional plan has developed a vision statement for sector. The vision statement is:

By the year of 2020, in the Development Region North 47% of the population is connected to improved water supply systems and 43% of the population is connected to improved wastewater systems, both systems being organized in logical clusters, providing an affordable, sustainable and environmental friendly service.

During the Workshop 4, held on 29-31 October 2013 in all three development regions, the region visions until the year of 2020 as well as the following objectives to be achieved were commonly agreed:

Development Region North objectives:

- 47% - connection rate to the improved water supply systems, out of which:
  - 90% at the urban level;
  - 23% at the rural level.
- 43% - connection rate to the improved sewerage systems (waste water collection and transportation), out of which:
  - 80% at the urban level;
  - 22% at the rural level.

The region visions/goals have been commonly agreed by the WGs and adjusted to be in line with the national strategic goals.

4 WSS Sector development directions in DRN

4.1 Future levels of WSS Sector financing

Estimates show that the current level of public expenditure in the WSS sector from internal sources in Moldova ranges from 1.0% to 1.1% of the State Budget revenue, which is a relatively low level of investment for a developing country (usually these rates range from 1-3%). According to the OECD Action Plan, fully 2% of the public budget should be allocated to the WSS Sector[26] to successfully implement the National WSS Strategy, meaning that current level of financing may be insufficient to achieve the primary goals.

The donor community is seen as the main contributor to covering the financing gap and the total amount of internal and external investments in WSS in 2012 is estimated at 2.6% of the state budget revenue, which may be sufficient to achieve the required level of financing to successfully implement to WSS Strategy (2014)[27].

Still, the absorption capacity of the external investments is rather limited and no considerable improvement is expected without significant changes in the WSS sector institutional setup related to clear distribution of responsibilities of state institutions, coherent WSS investment planning and coordination of donors' activities. Therefore, the projection for the external financing for the period of 2013-2020 is rather conservative, being in range of 19-21 million Euro per year.

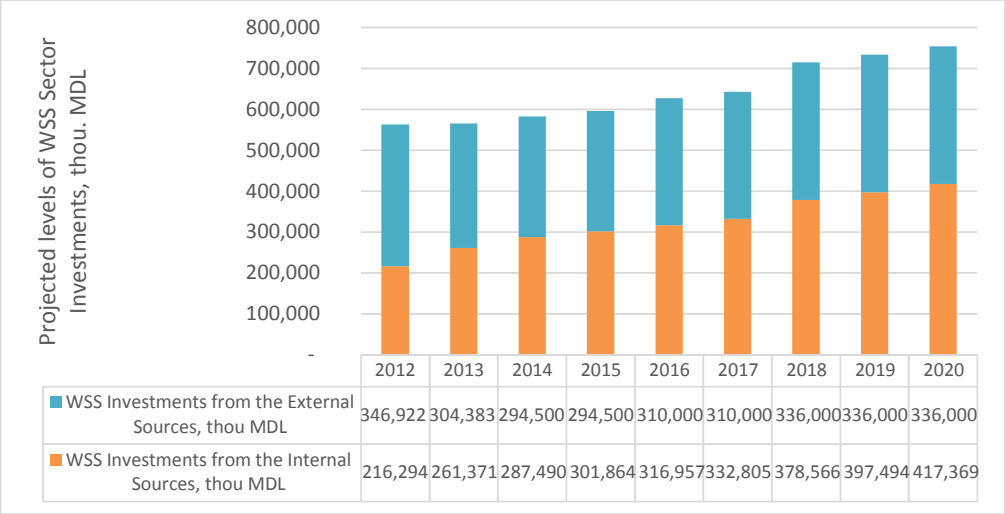
The levels of financing from the internal sources are expected to get an increase from 1.1% (2013) to 1.3% (2020) of the consolidated State Budget[28]. The projections for future level of investment for 2013-2020 are developed in consultation with the revised WSS Strategy (2013) and are shown in the Figure below:

[26] OECD, Action Plan 2010-2015 for the implementation of strategic documents and policies in the water supply and sanitation sector in the Republic of Moldova

[27] EU TA Water SPSP, Republic of Moldova's Water Supply & Sanitation Strategy (Revised Version 2012) – 2nd Draft October 2012 http://ta-water-spsp.eu

[28] TA WSPSP - Revised WSS Strategy (2012) – financial projections

Figure 4-1: The projected levels of the WSS Sector Investments, 2013-2020



Source: GIZ/MLPS, experts estimates, 2013

The projected amounts of future sector financing are estimated to be sufficient to cover construction works for new water and wastewater connections and further achievement of the National Sector Goals, as described in the sections above. Also, some 20% of the total investment are expected to be spent on rehabilitation works for the existing infrastructure, capacity development and improvement of the operational efficiency. The values for average investments per capita were taken from the revised National WSS Strategy. The results are shown in the following Table:

Table 4-1: Projected values of future levels of financing for 2013-2020

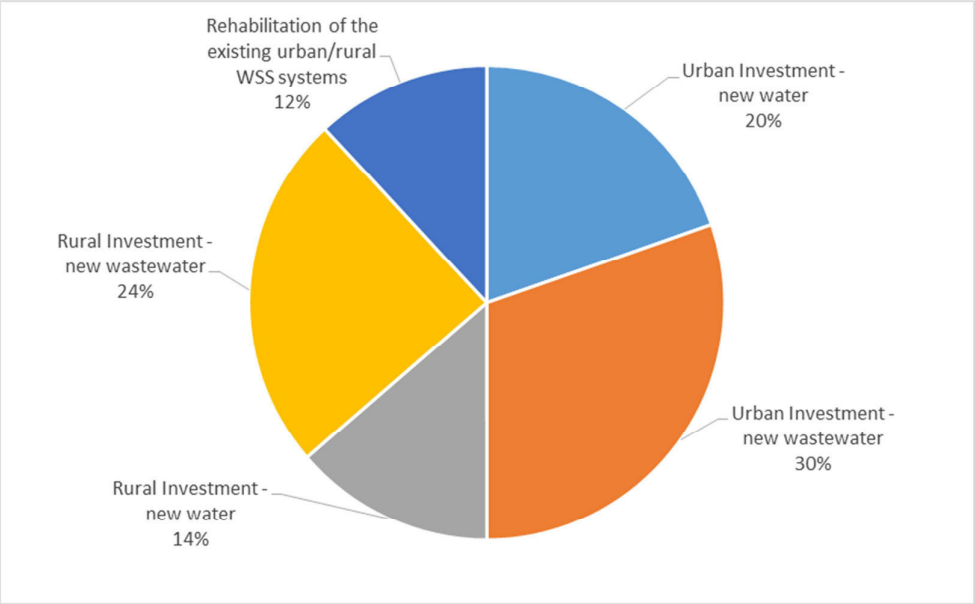
2013-2020		RDC	RDN	RDS	Total 3 Regions
Projected new population connected to water - urban	pers.	36,897	54,326	7,212	98,435
Projected new population connected to wastewater - urban	pers.	67,877	116,515	42,791	227,183
Per capita Investment - New Water Construction	MDL/ pers.	7,650	7,650	7,650	7,650
Per capita Investment - New Wastewater connection and WWTP rehabilitation	MDL/ pers.	5,505	5,505	5,505	5,505
New population connected to water - rural	pers.	80,584	56,585	52,328	189,497
New population connected to wastewater – rural	pers.	201,364	137,667	93,662	432,693
Per capita Investment - New Water Construction	MDL/ pers.	5,100	5,100	5,100	5,100
Per capita Investment - New decentralized sanitation solutions	MDL/ pers.	3,750	3,750	3,750	3,750
Total Required Investment in new WSS systems	thou MDL	1,822,022	1,861,840	908,843	4,592,706

2013-2020		RDC	RDN	RDS	Total 3 Regions
Total Investment for rehabilitation of the existing WSS systems	thou MDL	246,996	252,394	123,204	622,594
Total projected sector financing for 2013-2020	thou MDL	2,069,019	2,114,234	1,032,048	5,215,300

Source: GIZ/MLPS, experts estimates, 2013

The projected split between the future WSS investments in the DRN is shown in the Figure below.

Figure 4-2: The projected split between future WSS infrastructure investments in DRN



Source: GIZ/MLPS, experts estimates, 2013

4.2 Main directions towards achievement of the sector development targets

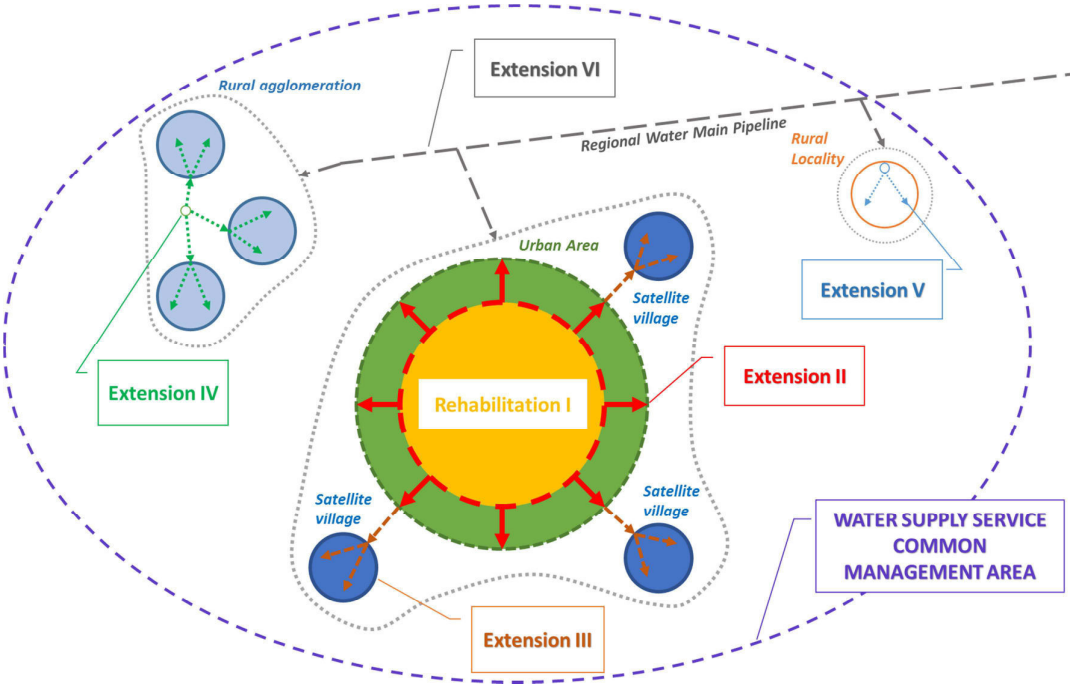
The revised WSS Strategy foresees a more structured programmatic approach through development of WSS Plans in the next years and these plans will serve as main tool for WSS services planning at the rayon level. Still, in absence of the WSS Plans, this Regional Sector Programme has to develop a reasonable plan for immediate contribution to achievement of the national sector targets within mid-term period (up until 2020) in the 3 Regions (North, Centre and South).

RSP comes before a WSS Plan and contains some elements of a WSS Plan – such as an investment component. Since this RSP has been considered with close attention to national and regional priorities, it will not conflict with a future WSS Plans for the rayons.

4.2.1 Water supply

The proposed approach to development of water supply services was based on provisions of the WSS Strategy (2014), discussed and commonly agreed with the representatives of the Working Groups during the fourth WSS Regional Planning Workshop (29-31 October, 2013) and is represented in the figure below:

Figure 4-3: General approach to development of water supply services



Source: GIZ/MLPS, Workshop results, 2013

This approach is believed to serve as a solid base for development of a least cost affordable investment programme with an immediate result in increased number of population with access to improved water supply services. The detailed description and argumentation are provided in the sections below:

4.2.1.1 Approach to water supply service improvement

The urban areas and agglomerations have the highest population densities and therefore present good potential for increase in the share of population with access to piped water systems with the least investment costs. All urban areas in Moldova have operating piped water supply systems designed to supply 100% of urban population at high specific consumption rates, while the current coverage rate of urban population in the three regions is only 76% (74% in the Centre Region, 73% in the North Region, 85% in South Region) and the consumption rates have considerably decreased, which allows for a quick and relatively cheap increase in number of urban connections (up to 93% in the DRC, 90% in the DRN, 92% in SDR) through extension of the existing urban distribution networks. Chisinau urban area has already reached a rather high connection rate (93%), which practically does not leave room for considerable extension of water

supply services. Therefore, the main focus shall be made on the urban areas from all the three Regions.

Still, covering all remaining urban population will not be sufficient to achieve the national targets and substantial development of rural water systems will be required. Physical extension of the existing urban networks is seen as a potentially feasible solution for neighbouring rural localities, contributing to the natural urbanization of the agglomerations (e.g. Falesti Town and villages of Falestii Noi and Calugar). For rural localities with their own water sources, rehabilitation and extension of the existing water systems shall be accompanied by construction of new water supply systems in the villages without water service.

Considering all mentioned above, the main directions for the least cost and relatively quick development of service coverage by 2020 are:

- Renovation/rehabilitation and extension of the existing water supply systems, as well as new construction) in urban areas to increase the system efficiency, improve quality of service and achieve urban coverage of 91% per country (incl. Chisinau) and 93% in the Development Region Centre shall be done in first place;
- Extension of the existing urban networks over the neighbouring rural localities;
- Renovation and extension of the existing water supply systems in rural areas to increase the system efficiency, improve quality of service; and
- Construction of new water supply systems in the uncovered rural areas and achieve the total rural coverage of 50% in the DRC.

The regional development of the services envisages the creation of logical agglomerations. Integrated approach will require development of both water supply and sanitation services. According to the Association Agreement between the EU and Moldova, the Republic of Moldova is obliged to harmonize national legislation and implement the EU Directives, including Council Directive #91/271/EEC on urban wastewater treatment, which requires the implementation of wastewater collection services as well as wastewater treatment primarily in localities with over 15,000 inhabitants (10,000 in sensitive areas). Applying logics of the integrated services, this condition for the wastewater systems could be extended to water supply services as well.

The proposed approach is in general compliance with provisions of the revised WSS Strategy (2014).

4.2.1.2 4.2.1.2Water abstraction

Currently, the existing surface and groundwater intakes in urban areas are currently used at some 36% of their design capacity (514,600 m^3/day) and the total production capacity of the existing water abstraction facilities in urban areas is some 185,200 m^3/day. Piped water supply in rural areas mainly relies on groundwater sources. The total country groundwater reserves explored and approved by AGRM are estimated at 1,428,360 m^3/day.

The projected total drinking water demand for 2020, as compared to the existing water production facilities, is shown in the Table below:

Table 4-2: Resource coverage of the projected future water demands

Parameter	Value
Projected South Region demand in 2020, m^3/day	38,906
Projected North Region demand in 2020, m^3/day	63,616
Projected Centre Region demand in 2020, m^3/day	63,467
Total projected demand in 3 regions, excl. Chisinau and Gagauzia, m^3/day	165,989
Estimated Gagauzia and Chisinau Demand in 2020, m^3/day	130,890
Estimated total country drinking water production, m^3/day (including 25% of non-revenue water)	371,099
Design capacity of the existing surface water intakes, m^3/day	514,600
Approved ground water reserves, m^3/day	1,506,620
Estimated surface water resource use, %	72%
Estimated groundwater resource use, %	25%

Source: GIZ/MLPS, experts estimates, 2013

In the mid-term, building of additional water intakes shall be done with the following considerations:

- The main sources of surface water, the Nistru and the Prut Rivers, are trans-boundary rivers and building of additional water intakes will require development of Environmental Impact Assessment (EIA) studies and coordination with the main transboundary stakeholders (Ukraine for the Nistru River and Romania for the Prut River);
- The groundwater sources are considered as the main state reserve of drinking water and further development of groundwater abstraction is against the provisions of the main sector policy documents;
- Construction of new water intakes will require high capital costs, which are not affordable at the current levels of sector financing.

Considering all mentioned above, the main directions for development of drinking water abstraction are:

- Using of the existing surface water intakes with necessary renovation and adjustment of capacities to the current and projected water demands shall be considered first;
- In the absence of available surface water sources, renovation of the existing groundwater intakes according to the current and future demands;
- Selection of new facilities only on the basis of strong arguments for building of new water intakes instead of renovation of the existing ones.

4.2.1.3 Treatment facilities and water main pipelines

Selection of surface water treatment facilities shall be made together with water sources and therefore common considerations shall be applied. The ultimate goal is to ensure the provision of drinking water compliant to the National Standards and EU Drinking Water Directive.

The existing surface WTPs currently have sufficient capacity to cover the entire country's demand. The existing regional pipelines are largely oversized and allow relatively

easy connection of additional consumers. However, the current condition of most regional facilities is poor and requires significant renovation. The current number of connected consumers is very limited (e.g. Soroca-Balti) and consumption rates do not allow for a sustainable operation of the water main. In order to reduce the specific operating costs, a certain minimum number of additional consumers shall be provided in the near future.

Still, variable relief and significant distances between the localities in many cases make impossible the extension of regional pipelines to cover all remote rural localities by treated surface water. High capital, operation and maintenance costs of branches from regional pipelines ultimately have a negative impact on tariff levels, which is one of the crucial criteria for low-income consumers to connect to the system. As a result, the extension of the regional pipelines shall be based on a feasibility study, with cost-option analysis of use of local groundwater sources with an appropriate treatment.

For rural localities with local groundwater of drinking quality, the cheapest and fastest solution is seen as the renovation/use of the available local sources.

The revised WSS Strategy allows for the possibility of implementing local groundwater treatment in order to avoid expensive construction of long regional pipelines. Still, there is very limited expertise on implementation and O&M of groundwater treatment in Moldova and application of such technologies shall be done together with transfer of operation know-how.

Considering all mentioned above, the main directions for the least cost and relatively quick development of service coverage are:

- Extension of service area boundaries for the existing surface WTPs and regional pipe-lines on the basis of cost-option analysis (feasibility study), ensuring affordable tariff levels. For implementation of water treatment, a certain minimum population (locality or group of connected localities) ensuring water demand for sustainable operation of WTP shall be secured;
- Renovation/use of the existing local groundwater sources of drinking quality to supply remotely located villages or groups of localities;
- Application of local groundwater treatment technologies in case of remotely located villages or groups of localities.

4.2.1.4 Distribution networks

One of the main sector targets outlined in the revised WSS Strategy in not only increase of water service coverage, but also ensuring the quality of service provided. The lessons learnt from different donor financed projects in Moldova have clearly shown that prior to network extension, the main parts of the existing distribution networks shall be fixed and optimized, in order to obtain the overall system efficiency and the required level of service. Otherwise, simple network extension may contribute to increasing the leakage rate through the existing networks, general decrease in service quality and tariff increase. This is ultimately limited by relatively low affordability rate of water consumers.

Also, existing pumping stations shall be adjusted/renovated to the new operating modes in order to provide energy efficiency for the extended water systems.

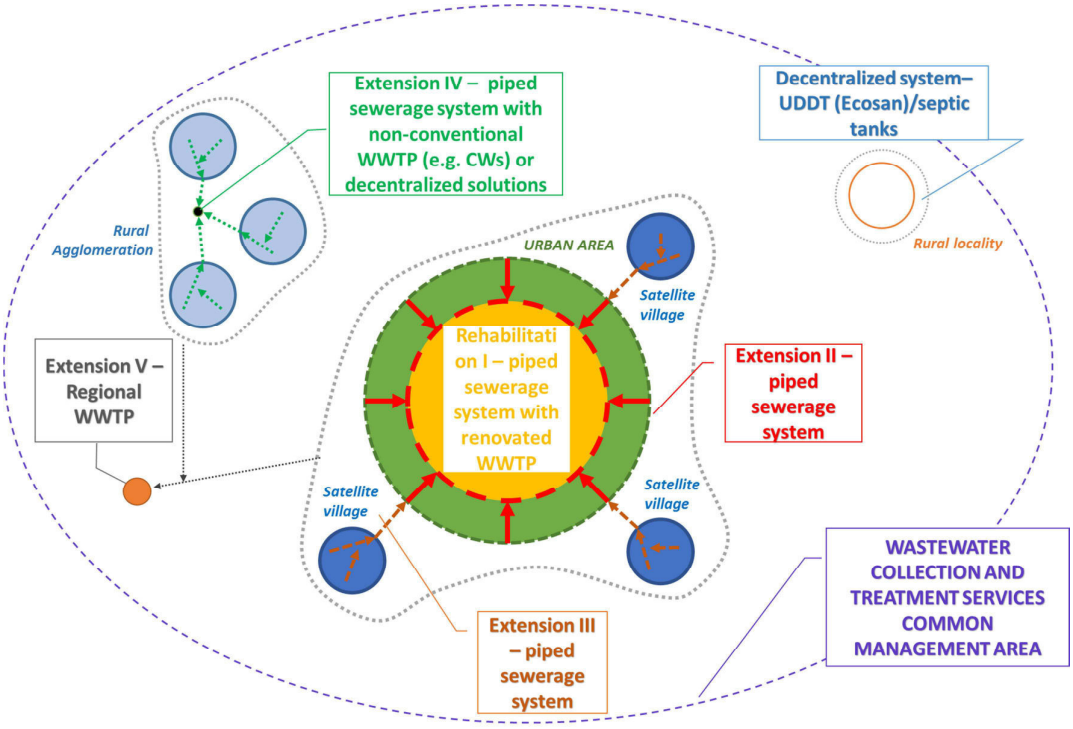
Therefore, the following main directions shall be considered in the WSS RSP:

- Along with the network extension, improvement of quality of the current service shall be done through renovation and hydraulic optimization of the existing networks;
- Implementation of network zoning for pressure regulation and improved operational control shall be done to reduce the physical losses from water networks;
- Optimization of pumping stations shall be done by conducting energy audits, identifying the most efficient operating modes and adjustment/replacement of pumps;
- Metering of all consumers shall be a compulsory condition for investment.

4.2.2 Wastewater

The proposed approach to development of wastewater services was discussed and commonly agreed with Working Groups during the fourth WSS Regional Planning Workshop (29-31 October, 2013) and is represented in the figure below:

Figure 4-4: General approach to development of wastewater services



Source: GIZ/MLPS, Workshop results, 2013

The details are provided in the sections below:

4.2.2.1 Wastewater service development

Wastewater services have obtained much lower development level as compared to water supply systems and therefore will require considerable investments for achievement

of the national targets. Development of wastewater systems is dictated by the extension of water supply services, and the National WSS Strategy demands implementation of the wastewater systems (in urban areas) and any adequate sanitation solutions (in rural areas) in parallel with water services. Still, there is a big gap between these two services, especially in rural localities, and in order to achieve the national targets the wastewater systems shall be developed at a higher pace.

Similar to water supply services, the urban areas and agglomerations have the highest population densities and therefore present a good potential for increase of share of population with access to piped wastewater systems with the least investment costs. As shown in the Section 2.4, all urban areas in Moldova have operating piped wastewater systems designed to supply 100% of urban population at high specific wastewater generation rates, while current coverage rate of urban population in the 3 Regions is only 46% (42% in the Centre Region, 46% in the North Region, 52% in South Region) and the consumption rates have considerably decreased, which allows for a quick and relatively cheap increase of number of urban connections (up to 80% in North/ 76% Centre/ 85% South Region) through extension of the existing urban sewer collection networks. Chisinau urban area has already reached a rather high connection rate (93%), which practically does not leave room for considerable extension of wastewater services. Therefore, the main focus shall be made on the urban areas from the three Regions.

Still, covering all remaining urban population will not be sufficient to achieve the national targets, which requires a substantial level of development of rural wastewater systems. Physical extension of the existing urban networks is seen as potentially feasible solution for neighbouring rural localities, contributing to the natural urbanization of the agglomerations.

For the most of remaining rural localities the adequate sanitation solutions can be any centralized or decentralized solution, ensuring the provisions of the appropriate standards for environmental protection. The revised WSS Strategy foresees for localities below 3,000 inhabitants implementation of decentralized sanitation solutions. Using of urine diversion dry toilets (UDDT, also known in Moldova as Ecosan toilets), has proved to be a reliable decentralized solution. Implementation of septic tanks is generally allowed by the design and construction norm SNiP 2.04.03-85 (Wastewater external networks and facilities). Furthermore, the Protocol on Water and Health sets national targets, requiring an increase in the number of settlements and the share of their population which is served by small (individual and/or collective) systems of improved sanitation (e.g. dry ECOSAN toilets, septic tanks, or other technologies) for about 50 settlements by 2015 and 100 settlements by 2020.

Important to mention, that in certain cases (especially for poor rural areas) lack of sanitation system shall not be seen as the limiting factor for development of water supply services. Current national legislation in force still allows yard tap connections and standpipe distribution of water in areas uncovered by sanitation services. This will not contribute to achievement of wastewater development goals, but at least will help to improve the water coverage rate.

Considering all mentioned above, the main directions for the least cost and relatively quick development of wastewater service coverage by 2020 are:

- Renovation and extension of the existing wastewater systems in urban areas to increase the system efficiency, improve quality of service and achieve urban coverage of 86% per country (incl. Chisinau) and 80% in the Development Region North;
- Implementation of new decentralized systems in the uncovered rural areas in parallel with water systems;
- Extension of the existing urban collection networks over the neighbouring rural localities and construction of collection systems in large rural communities to achieve the total rural coverage of 22% in the DRN.

The proposed approach is in general compliance with provisions of the revised WSS Strategy (2014).

4.2.2.2 Wastewater treatment

The urban wastewater treatment plants are in rather poor condition. Most of the existing facilities provide only mechanical treatment, while high energy consuming biological installations were taken out of operation due to unaffordable operating costs. In most cases, the existing treatment technology and even location of the facilities shall be reconsidered, in order to provide the required level of system efficiency and to cover a larger number of consumers. Some urban areas (e.g. Soroca) do not have a WWTP and discharge untreated municipal wastewater directly into transboundary rivers, requiring some urgent solutions by the State.

In rural areas, centralized wastewater treatment is mostly missing. Decentralized wastewater treatment for individual households (e.g. Ecosan toliets), as well as implementation of compact WWTPs for community buildings (e.g. MSIF - healthcare centres, schools, etc.), have proven effective in practice.

Since the Republic of Moldova is a part of the Danube River Basin District, the obligations under the Convention on the Protection of the Danube River for the implementation of the Water Framework Directive (WFD) should have also been taken into account. In this context, all Danube Basin countries, including Moldova, are required for all agglomerations of more than 10,000 residents to be provided with water treatment plants with advanced treatment or tertiary treatment (removal of nitrogen and phosphorus).

Although the main national policy direction is towards implementation of the EC Urban Wastewater Treatment Directive, there is still a long way to full transposition and compliance with the Directive's requirements. Most of the EU countries are still not fully compliant with the Directive's requirements, associated with heavy infrastructure investments. The recently approved Regulation on Wastewater Treatment of Urban and Rural Wastewater (2013) allows a transitional period with temporarily reduced requirements for wastewater treatment efficiency.

The WW treatment process shall be foreseen with sludge treatment, in accordance with the legislation in force. For decentralized solutions proper sludge transportation to the authorized treatment facilities shall be done.

Considering all mentioned above, the main directions for the least cost improvement of wastewater treatment services, are:

- Renovation/extension of the existing urban WWTP facilities to cover larger number of wastewater clients from neighbouring localities;
- Implementation of low-cost non-conventional treatment technologies (e.g. subsurface flow reed bed constructed wetlands) in rural areas;
- In small-size rural communities, using of decentralized treatment solutions (septic tanks, Ecosan toilets, compact WWTPs for public/commercial buildings);
- Construction of new regional conventional WWTPs to cover aggregated urban and rural areas.

4.2.3 Institutional considerations and operational efficiency

Besides direct infrastructure development, strengthening of water operators shall be considered to provide the required level of service reliability and sustainability. The main considerations regarding possible aggregation of localities are provided in Section 4.3.

The recent donors projects (e.g. EBRD MWUDP) have revealed weak operating capacity and low efficiency of the existing municipal enterprises, tending to become regional operators in the near future. The diagnostic analysis[29] of six future Regional Operating Companies showed that all companies are in considerable need for improvement of institutional, financial and operational performances. Similar statements can be found in Diagnostic Study Reports carried out by the USAID LGSP Project in 7 towns: Causeni, Rezina, Soldanesti, Straseni, Taraclia, Telenesti and Drochia[30].

The rural systems are also affected by lack of technical expertise and they are generally run by water user associations. These systems continue to benefit from assistance and technical expertise from their original donors (such as SDC) or face the risk of collapse (the case of donors and programs which stopped their activity). The new rural systems have the advantage of being made of new materials (high density polyethylene (HDPE), have simple level of automation and do not require high level expertise, but the sustainability is still at risk because the local operators are not ready to deal with the variety of technical, institutional and financial challenges.

The future sector policy direction is to introduce a new WSS sector regulator (ANRE) and implement a common licensing system for all water operators in Moldova. The defined strong service quality requirements, as well as performance indicators set for each operator, are expected to result in natural reduction of small-size rural operators and extension of service coverage by urban WSS service providers.

A strong inter-municipal cooperation is required for regionalization of WSS services. The revised WSS Strategy requires an agreement of all project stakeholders including LPAs and regional operator, as primary condition for state budget financing of future project.

[29] EBRD, SWECO, FOPIP Diagnostic Report, 2012

[30] USAID Local Government Support Project (LGSP) – Diagnostic Reports, 2013

Therefore, in order to strengthen the regional operators' capacities, the following main directions shall be followed:

- Extension of management of WSS services from the existing urban areas to the neighbouring rural localities, regardless physical connection to the town water supply systems;
- Improvement of service quality through licensing and monitoring of regional WSS operators;
- Development and implementation a Financial and Operational Performance Improvement Programme for water service provider;
- Implementation of the Supervisory Control and Data Acquisition (SCADA) system for monitoring and control of technological WSS processes and improvement of operator's staff efficiency.

4.2.4 Financial considerations

Currently, approval of tariffs for WSS services in Moldovan localities is a responsibility of the respective local public authorities, making the tariff setting process highly politicised and resulting in tariff levels below the operating cost recovery. The revised WSS Strategy, as well as the draft Public WSS Service Law, introduce a new sector regulatory body (ANRE), expected to be the main responsible entity for tariff regulation. This WSS RSP assumes that the future tariff policy will consider both WSS service cost recovery and consumers' affordability limits.

Main directions are as follows:

- Tariff policy and possibilities for subsidies shall be developed by ANRE, while this Plan envisages that all WSS service associated costs will be covered by the tariffs;
- The acceptable affordability rate for water and sanitation services shall not exceed the commonly internationally acceptable levels of 3.5-4.0% of the household disposable income.

4.3 Assessment of water utility aggregation

A significant effort to identify alternatives and the most convenient path for service aggregation was undertaken through technical support provided by Eptisa (in cooperation with Royal Haskoning and Seureca) as Technical Report No 12 (TR12-C2), Feasibility Study for the Aggregation of Regional Water Utilities (TA Water SPSP - EuropeAid/ 130872/C/SER/MD Contract 2011/270-593).

The aforementioned report investigated the possibilities of aggregating the Water Operating Companies into large and efficient Regional Operating Companies (ROCs) that are able to manage the entire implementation process of WSS projects and to operate WSS infrastructure in an efficient manner at affordable prices for the public.

It is not the scope of the current document to establish the integration method that the Government of Moldova shall use in the process of regionalization of water and wastewater services, but rather acknowledges that the conclusions of the report on which this chapter is based upon are still valid. This chapter intends to identify the most plausible scenario and the possible areas of interventions, at such that any subsequent

projects implemented based on the sector plan will contribute to and the overall effort of service aggregation.

From the report and from other direct observations, it appears that the most likely aggregation approach will be similar to the one applied in Romania and supported by European Union, which is to rehabilitate and extend the WSS infrastructure by merging and strengthening existing large operators into Regional Operating Companies.

Accompanying measures shall be necessary to mitigate the risks which are reproduced from the report:

- Local governments will not embrace the concept (general or specific). Experience elsewhere has shown that local governments tend to resist aggregation. A Communication Plan should be developed to inform the sector and to clarify the concept and to highlight the advantages of aggregation. Local interests may also obstruct aggregation. This risk should be mitigated by documenting the process in detail (Manual for Best Practices). The process shall highlight consultation and public hearings;
- The population will not accept tariff increases as a condition for aggregation.

Tariff increases are complicated as they are usually upfront before investments have been made. Full transparency shall need to be observed to convince the population of the need and fairness of tariff increases (public hearings). The Water Regulator will contribute to the resolution of this problem by an appropriate tariff methodology and transparency. Tariff increases should be agreed upon prior to the decision to proceed.

- Aggregation will stop at district level. Experience in Romania indicated that aggregation stopped at the district level (with some exceptions). In Moldova, where districts (rayons) are much smaller, this is a particular complication. This should be addressed by regional planning promoted through the RDAs and by prioritizing regional projects (through the proposed WSS infrastructure pipeline);
- Implementation will be slow (limited absorption capacity). Limited absorption capacity is a problem in Moldova and aggregation is one of the measures designed to overcome these problems. Aggregation aims at promoting professional operators that are able to manage the necessary investments. Only operators that meet the minimum requirements for a ROC and are subsequently licensed by the Water Regulator shall qualify for external funding (through the national budget and/or donors/IFIs). Access to funding could be eased by raising the credibility of ROCs (licensing and transparency and “easy” loans through a special Moldovan Fund. The proposed WSS infrastructure pipeline shall facilitate the Government to programme projects in advance;
- ROCs may default. It is not entire unrealistic to assume the case in which a ROC will be unable to meet its financial obligations. The Water Regulator shall monitor the financial performance of ROCs and could withdraw the license in case of serious underperformance. It is a precautionary measure to prevent that Operators will find themselves in such a situation.

The approach to rehabilitate and extend the WSS infrastructure by merging and strengthening Regional Operating Companies has been demonstrated to work in Romania and all indications are that it could work in Moldova. Accompanying measures shall be necessary to accelerate the process and to mitigate the risks.

The main difference is that in Moldova, it is planned that the Water Regulator will become the ANRE. The report for services aggregation prepared by Eptisa also establishes an action plan for three years for the Government of Moldova, of which main points are reproduced bellow:

- Aggregation should be driven by local governments that recognise that inter-communal cooperation will provide the opportunity to improve and extend WSS services for their constituencies:
  - Launch a comprehensive information programme for all stakeholders at national, regional, and local level on the concept of Aggregation and the expected benefits;
  - Elaboration of a Communication Plan targeted at the major stakeholders;
  - Implementation of the Communication Plan with a mid-term review after a year.
- Operators should satisfy minimal requirements before they qualify as a Regional Operating Company:
  - Define the minimal requirements for a ROC that should be conditional for a license by the Water Regulator: requirements should at least include (i) full compliance with legal requirements for a JSC endorsed by all partners, (ii) full cost recovery, (iii) satisfies minimum managerial, financial and operational targets set by the regulator, and (iv) has at its disposal a master plan for its service area and a mid-term Capital Investment Plan (5 years);
  - Create an independent National Water Regulator with the necessary legal mandate;
  - Establish a clear licensing procedure for ROCs with clearly defined minimal requirements; Assist candidate ROCs with an upfront FOPIP programme and corresponding investments aimed at increasing the efficiency of the Operator, i.e. energy conservation, NRW reduction, and labour efficiency;
  - Create a national FOPIP programme that will support ROC in a mix of Technical Assistance, Capacity Building and high-yield investments, all aimed at increasing the efficiency of Operators;
  - License qualified Operators by the National Water Regulator; the condition that ROCs should satisfy minimal requirements before they qualify for funding may be perceived as an additional obstacle but it is not. International financers (e.g. the EBRD) already apply very strict conditions and a license signifies that conditions are met and implementation can start immediately, hence accelerating implementation and avoiding that allocated funds are not utilized. The rationale for these requirements is that a thorough preparation of Operators will greatly enhance the success rate of projects and reduce its throughput time.
- Identify feasible multi-regional solutions:

  - Agree to programme the “strong” Operators such as Chisinau, Balti, the 6 MUDP (Municipal Utilities Development Program) Operators, and probably Cahul as core for the “first-generation” ROCs; Identify and prioritize investments projects in larger urban agglomerates (District Capitals) and launch a “matching programme” between adjoining Regions;
  - Develop WSS Infrastructure Projects for the larger urban agglomerates (District Capitals) of good quality (based on at least a Feasibility Study and preferably a Master Plan);
  - Launch a “matching programme” between adjoining Regions for the joint implementation of the approved WSS projects in their area;
  - Start to implement at least 3 multi-rayonal projects during the first 3 years; Proceed with the Feasibility Study for the Moldovan Northern Water PPP Project for the service area of the Soroca-Balti Transmission Line and follow-through on the conclusions of the Feasibility Study. Investigate the possibility to create a “conventional” ROC in case PPP is not feasible;
  - Execute the Feasibility Study for the Moldovan Northern Water PPP Structuring Project with the necessary follow-up.
- Roll-out aggregation to smaller agglomerates (minimum size 2,500 inhabitants):
  - Preferably realized when the “first” generation ROC has stabilized;
  - Larger financially attractive schemes to be financed through loans while smaller and financially unattractive schemes funded under favourable conditions (or grant money);
  - Investigate the possibility of creating a Revolving Fund for WSS Infrastructure.
- Implement as soon as possible the Water Regulator Implementation is contingent on the approval of the draft law on WSS services and the agreed-upon scope of the Regulator:
  - Priorities of the new Water Regulator should be commensurate with the Aggregation Strategy, i.e. licensing on a voluntary basis, benchmarking, and a revised tariff methodology that addresses the issue of affordability;
  - Establish upon the approval of the Public WSS Services Law a comprehensive Plan for rolling out regulation in the WSS Sector (i) defining in detail the expected outputs, involved institutions, assigned responsibilities and the timeframe and (ii) addressing at least (a) the regulatory framework, (b) tariff methodology, (c) benchmarking, (d) Capacity Building, (e) rollout strategy, and (f) financing of the Regulator;
  - Establish a pragmatic benchmarking system in place, preferably aligned with the European Benchmarking Cooperation (EBC) programme; “Matching” between regions is critical: it will test the will of local government but it will be essential to create the “critical” mass that will enable ROCs to take off. It is important to start with the larger agglomerations first to accelerate the implementation process while we may also assume that negotiations between partners of commensurable strength will be easier than in case of large disparities. It is also at this phase that central government could chip in by providing a financial incentive per region joined to be provided as part of the investment package of the new ROC. The smaller agglomerates should be covered by the se-

cond Sector Operational Plan (SOP) envisaged by the revised WSS Strategy and shall not be covered by this Plan. Qualified ROCs should be encouraged to propose to submit their proposals for this SOP.

- Document the Best Practices of a Water Operator in a comprehensive manual:
  - Develop a precise roadmap for aggregation with a complete set of documentation to establish a ROC, including consultation of all stakeholders;
  - Provide guidelines for Standard Operating Procedures for managing a Water Operator, such as corporate planning (business, capital investment), finance & administration, Human Resources Management, O&M (drinking water and sanitation), commercial management, public awareness, etc.;
  - Evaluate the ROC Model as applied in the MUDP Project.
- Launch capacity building for the Sector Establish a National Training Delivery System that addresses the immediate priorities in the sector but is light and combines ongoing activities in Moldova and Romania. High priority needs that are not covered shall be addressed separately. The system shall be managed by the sector on a sustainable basis:
  - Design a National Training Delivery System with a corresponding Crash Training Programme;
  - Implementation Crash Training Programme (through the National Training Delivery System).
- A Management Structure shall be created to manage the entire process during the coming years Create a Standing Commission chaired by the Ministry of Environment with representatives of involved Ministries, the Chancellery, the Water Regulator, Local Government, and the Sector to monitor progress and to take the necessary corrective actions. The proposed Water Investment Unit could provide support to the Commission:
  - Create a Standing Commission for Aggregation chaired by the Ministry of Environment with representatives of involved Ministries, the Chancellery, the Water Regulator, Local Government, and the Sector Strengthening the existing Project Management Unit and extend its scope for all donors/IFIs dealing with Aggregation projects that are not (yet) managed by the local authorities. Once this achieved, the tasks of coordination, monitoring, and reporting could be transferred in due time to the Water Investment Unit;
  - Strengthen the existing Project Management Unit and extend its scope for all Aggregation projects; ensure the credibility of the process and the ROCs by empowering the Regulator to exercise its duties in an objective manner without undue interference.

Any measure that will be undertaken as part of this sector plan should contribute to the goals of the national strategy, and to result into a regional cooperation between communities and/or districts in order to achieve the advantages of size and efficiency for the reasons summarized below (extracted from the report prepared by Eptisa):

4.3.1.1 Quality of management

Size will not only permit an Operator to attract higher qualified staff but will also facilitate access to state-of-the-art technologies to improve its operations. These technologies shall permit the Operator to consolidate its operations and to improve the quality of its service as well as its efficiency.

4.3.1.2 Capacity to attract external financing

Water Supply and Sanitation is a capital-intensive industry that shall always require external funding. Larger Operators are in a better position to command more favourable terms for external financing and have the experience and resources to deal with (international) financers.

4.3.1.3 Economies of scale

A large Operator shall be able to streamline its overhead while at the same time improve the efficiency of its operation. We note in this respect business planning, accounting, billing and collection, maintenance, etc.

4.3.1.4 Regional solutions

The specific groundwater conditions in Moldova and existing overcapacity of production facilities both point to regional systems. A ROC is the appropriate entity to manage such a system. Additionally, aggregation of services will permit the use of primarily surface water and conservation of groundwater.

4.3.1.5 Compliance

Recent legislation in the EU has resulted in very strict requirements for drinking water and sanitation dealing with quality, quantity, and reliability that are about the strictest in the world. Compliance with these requirements will require very large investments that can only be managed by large Operators.

4.3.1.6 Gains in efficiency

Significant gains in efficiency could be achieved by a combination of modern technology, good management, and adequate supervision. The WSS Sector in Moldova provides ample opportunity for significant efficiency gains in Non-Revenue Water, Energy Conservation, and Labour Efficiency. These gains in efficiency shall (partially) offset the tariff increases required to service the acquired loans necessary to finance the planned investments.

4.3.1.7 Conclusion

The advantages of following the regionalization method applied in Romania, customized to the specific of Moldova as needed, are multiple for technical and pragmatic reasons which may result in a smooth and natural transfer of know-how across the Prut River.

4.3.2 Inter-Municipal Cooperation

Under MLPS, a paper was developed with the aim of integrating the tool of inter municipal cooperation (IMC) into the Regional Sectorial Plans (RSPs). The focus of the anal-

yses was around the 5 conceptual questions that were highlighted by the regional planning and programming experts as the entry points for integrating IMC in RSPs, as follows:

- Is government policy actively encouraging IMC and if so according to what rationale (e.g. how does this link to specific policy areas or to wider decentralization issues)?
- Is there a clear legal form for IMC cooperation? Is it identical or are there different vehicles for different purposes?
- Is there a clear vehicle for joint ownership of assets?
- Is there a vehicle for operation of services? Are iii and iv the same?
- There may be other issues related to IMC, and important.

The Inter Municipal Cooperation (IMC) is a relationship between two or several local authorities (i.e. entities in the first level of territorial administration) having a status of legal persons and enjoying political, legal and financial autonomy (in accordance with the European Charter of Local Self-Government).

The conclusions of this study are:

- Local public authorities do not perceive intercommunity as a primary possible solution for solving the community problems. This option is probably dictated either by convenience related to the decision-making autonomy regarding their own resources and those received from the state budget, or by previous unsuccessful experiences of inter-communal cooperation;
- The LPAs has not enough knowledge on IMC (Source: CALM report, 2012);
- According to the existent legislation, the IMC association does not have the delegated power from the LPAs. Also, no “in house” rules are defined by the national law on tendering out the service by the formed IMC association. Thus, certain amendments to the existent legislation may be needed;
- There are not sufficient financial incentives for IMC promoted by the Government of Moldova;
- The legal framework shows that the existing legal provisions do not represent an obstacle for the establishment of effective local partnerships in various institutionalized (Joint Stock Company, Limited Liability Company, Public Institution, Financial and Industrial Group, Industrial Parks) and non-institutionalized (Partnership Agreement) legal forms of organization. Consequently, there is no need to develop a draft Law on inter-communal cooperation since it would not provide added value to the existing norms and there is a risk that it would only contribute to legislative inflation of the normative framework governing the activity of local public authorities.

5 Short to Medium term planning: possible projects

Consistent with the orientations of Chapter 3, a start needs to be made with regard to identifying suitable project ideas (concepts) which can then be developed over time and constitute a first pipeline of projects that over time may be funded in support of sector objectives and targets as identified in this Plan.

A process of identification of project ideas (possible project concepts, PPCs) has already been initiated following a participatory approach based on the decisions of the representatives of the WGs and representatives of the MRDC and MoEn, with technical assistance from the AoI2 WSS planning experts.

The main directions for sector development (discussed and agreed during Workshop IV, October 29-31, 2013) provide a general orientation and rationale and contribute to generation of ideas for possible project concepts (see Section 4.2). These considerations together with the agreed threshold criteria form solid boundaries for identification of an initial preliminary list of possible project concepts that are subject to expert desk review.

The preliminarily agreed rationale for identification of PPCs was presented in the Workshop V (February 2014) and some 45 initial Possible Project Concepts were identified and received by the RDAs (Feb 2014 - Mar 2014). Promoting the equity among the participants, RDAs supported by the expert team received and reviewed some 1-2 PPCs from each rayon.

The initial Possible Project Concepts cover the entire cycle of water use – from abstraction and treatment of raw water to distribution, effluent collection and discharge of treated wastewater into the natural water body, as well as all issues associated with provision of sustainable regional WSS services, as shown below. Such integrated water management approach is in full compliance with the current national legislation in force, as well as satisfies provisions of the most WSS sector relevant EU Directives.

Figure 5-1: Integrated water management approach to development of regional PPCs

It is well understood that such integrated approach is associated with high investment costs, which will be further prioritized and developed in several implementation phases, depending on the financial resources available. It is also understood that if such integrated projects move forward, they may also involve high operating costs, which need to be taken into account when estimating the affordability of the proposed schemes for households. However, this approach prevents from the start unsustainable projects without required level of integration, continuity and environmental compliance. Depending on the budget available, the mostly prioritized components of the integrated PPC will be further developed at later stages.

In order to organize sustainable WSS services in the aggregated service area, a preliminary agreement between the local public authorities in the beneficiary localities was reached prior to PPC submittal to the expert team. The voluntary inter-municipal cooperation between all local public authorities involved in the project is seen as the main key to the project success. The preliminary PPCs were accompanied by a memorandum of understanding, signed by all project decision-makers (i.e. mayors/local councils and WSS operator).

After a preliminary checking and desk review carried out by RDAs and expert team, a number of 33 PPCs was further identified and the list of some 33 PPCs was submitted for information and consultation with MRDC and other relevant sector bodies (e.g. Ministry of Environment) (Workshop VI in April 2014). The list of the agreed PPCs, as well as project profiles will be provided in the Annex 9 and Annex 10 respectively.

Subsequent to approval, agreed PPCs will enter a project pipeline and their project teams will be assisted by the MLPS experts to move through four stages of development that make what will be termed the Project Development Pathway, which is a method and process to develop projects. This will be the project preparation stage and will start in May-June 2014.

It is expected, that in the future, the project identification process will be an integral part of sectorial WSS Plan in the region.

The approach adopted has ensured that:

- As far as possible only projects that are conceptually relevant to policy and to needs and are coherent in themselves are promoted;
- As far as possible, projects to be developed are part of a wider, coherent intervention which may need to be planned, elaborated and implemented in phases;
- That the key principle of sustainability including financial sustainability is respected;
- That the interventions assist water companies to become more robust and hence, over time, will put them in a position to undertaken more problematic, risky but necessary investments.

That service provision considerations and institutional and capacity development progresses in tandem with investment project development.

6 Action Plan

In order to achieve the objectives of the WSS RSP, an Action Plan has been prepared, including activities and measures that have been identified by all regional partners as being necessary to further facilitate the implementation of projects in the WSS sector, as well as ensure sustainable development of the WSS services at regional level.

The Action Plan is to be understood as a list of essential and urgent “to do” tasks which, if not done, will lead to real problems in progressing this Programme and the project concepts associated with it. As such it is complementary to the future work of developing projects. Its fulfilment is a task for local, regional and above all national actors. The Action Plan will be subject to future monitoring as part of the monitoring and management of the overall WSS RSP.

The proposed actions and measures vary from local and regional levels to national level. All actions proposed are expected to contribute and facilitate the conditions for easy development and implementation of projects under this RSP, providing sustainability of the water and wastewater operations. At national level, only the most crucial actions have been taken up from the revised National WSS Strategy (2014): the detailed list of activities at national level can be found in the Action Plan to the revised Strategy.

The deadlines and indicators, set to monitor the implementation level of the proposed actions, are presented in the table below. It is recommended that the progress of implementation of the RSP is done continuously, with regular assessment on a biannual basis.

The responsibility for the implementation of the WSS RSP belongs to all relevant institutions, as identified in the document.

A formal Risk Assessment Exercise was developed during by stakeholders in the course of the Regional WSS Planning and many of the actions relating to the WSS sector development have been identified by the members of the working group.

The RSP is a living document and is subject to ongoing review and monitoring to ensure its implementation continues to advance the intent of the WSS RSP, and annual status updates are therefore foreseen.

6.1 Regional level

Currently, a large number of WSS projects and initiatives has been implemented by state institutions (MRDC, MoEn, etc.) as well as various donors, namely: modernization of Soroca-Balti water main, Prut-Leova-Cimislia-Basarabeasca-Ceadir Lunga water main, Chisinau-Straseni-Calarasi (all financed by EBRD) grouped main to supply water to 12 localities in Ungheni, Prut-Falesti water main (National Regional Development Fund - NRDF), Prut-Nisporeni water main (funded by NRDF, National Environmental Fund (NEF), Austrian Agency ADA and the EU), Leova-Iargara water main (NEF and German Agency GIZ), study of Cahul district (GIZ), etc. In order to achieve regional objectives provided in Sections 3.4 and 1.1, the LPAs, as the main authorities responsible for provision of the WSS services should make significant efforts. Besides the ongoing investment programmes described above, a series of measures for identifying project concepts in developing regions will be initiated (Table 6-1):

Table 6-1: Action Plan at regional/local level

No	Action	Time Frame	Responsible Entities	Indicator	Status (as of Dec-13)
Infrastructure planning					
1.	Identification and development of regional projects for rehabilitation, extension and construction of water supply sand wastewater systems (incl. wastewater treatment plants, WWTPs) in the Development Region to increase the WSS service coverage and improve systems efficiency and quality of service, including:	2014-2015	LPAs, Water Companies RDAs	Number of regional projects identified and developed	In process
1.1	Identification and development of possible project concepts in compliance with RSP and regional development context	Identification: Feb 2014 – Apr 2014; PPC Development: May 2014 – Oct 2014			
1.2	Development of viable project concepts (feasibility studies)	Oct 2014 – Apr 2015			
1.3	Finalization of project documentation (detailed design and tender documents)	May 2015 – Dec 2015			
Institutional development					
2.	Organization of inter-municipal cooperation between the beneficiary communities for improved regional WSS services	2014-2020	LPAs, WSS Operators	Common agreements signed and grouped WSS services provided	To be organized
3.	Improvement of the operating efficiency of the regional/local WSS operators through development and implementation of performance improvement programs	2014-2020	WSS Operators, LPAs	Performance Improvement Programs developed and implemented	To be developed
4.	Implementation of cost-recovery principle in local tariff setting policies	2014-2020	LPAs, WSS Operators	Operating costs covered by tariffs	To be respected
5.	Strengthening of the regional WSS Operators capacities through staff training	2014-2020	WSS Operators, LPAs	Training programs developed and staff trained	To be developed
Public awareness and social issues					
6.	Organization of regular public awareness campaigns on the following topics: Benefits of regionalization of WSS services and solidarity principles Inter-Municipal Cooperation Improved sanitary conditions through public wastewater systems Gender Issues	2014-2020	RDA, LPAs, WSS Operators	Public awareness campaigns developed and conducted	To be developed

No	Action	Time Frame	Responsible Entities	Indicator	Status (as of Dec-13)
Implementation, Monitoring and Evaluation					
7.	Ensuring continuity of the RSP through elaboration of WSS chapter for Social Economic Development Strategies (SEDS) of rayons	Starting in 2014	LPAs RDA	WSS chapters for SEDS developed	In process
8.	Organization of regular monitoring sessions and reporting on RSP implementation	2014-2020 (bi-annually)	RDA, MRDC	By-annual monitoring and evaluation sessions organized	
9.	Regular revision and update of the RSP	2014-2020 (annually)	RDA, Regional Development Council (RDC), MRDC	RSP updated	Under development

6.2 National level

As described in Chapter 2.1, the regulatory framework of the WSS sector is in transitional period and significant changes are expected to happen in the near future, which will contribute to creation of favourable conditions for further sustainable development of the WSS services. Also, the risk analysis conducted revealed that the existing regulatory framework presents serious risks to the projects sustainability (e.g. cost recovery principles, outdated construction standards, etc. – see Chapter 2). Therefore, certain activities to ensure smooth project identification, development and implementation shall be taken at the National level:

Table 6-2: Action Plan at national level

No	Action	Time Frame	Responsible Entities	Indicator	Status (as of Dec-13)
Policy and legal framework					
1.	Adoption of Law on WSS Public Services	Dec 2013 – Jun 2014	Parliament of Moldova (PoM)	Law adopted and entered into force	Adopted
2.	Amendment of the WSS relevant construction standards and norms (incl. introduction of modern technologies and individual sanitation solutions)	2014-2020	MRDC	Standards and norms revised and approved	Outdated
3.	Improvement/revision of legal framework to clarify approach to gradual implementation of water supply and sanitation systems	2014-2015	MoEn, MRDC	Laws/regulations revised	Outdated – no clear statement
4.	Development and approval of new WSS tariff policy for regional and local water companies (including affordability and social aspects)	2014-2015	National Agency for Energy Regulation (ANRE), MoEn	Tariff Setting Methodology approved	Outdated

No	Action	Time Frame	Responsible Entities	Indicator	Status (as of Dec-13)
5.	Development and approval of licensing regulation and performance indicators for regional and local water companies	2014-2015	ANRE, MoEn	Regulation on licensing of WSS operators developed and key performance indicators set	Non-existing
6.	Development of regulations on elaboration of WSS Plans (WSSP) and Feasibility Studies (FS)	2014	MoEn, MRDC	Guidance for MP and FS documentation approved	First drafts prepared for MP
Institutional arrangements					
7.	Establishment of new WSS Sector regulator	2014	GoM, ANRE, MoEn	ANRE enacted as WSS sector regulator	Law on WSS Public Service adopted by the PoM
8.	Improve access to WSS sector database and data on natural water resources (deep wells, reserves, etc.)	2014-2015	MoEn, Agency Apele Moldovei (AAM), Association Moldova Apa-Canal (AMAC)	New and updated database	Water cadaster initiated, WSS sector database absent
9.	Development and implementation of national professional training programs and best practice guidelines, manuals, etc.	2014-2015	MoEn, AAM, AMAC, MRDC	Number of professional training programs conducted Number of manuals and guidelines edited	Initial training programs drafted
10.	Development of the WSS Regional Operators Manual (handbook)	2014-2015	MoEn, ANRE	Handbook approved and published	Handbook initiated

Annexes

Annex 1	Summary of provisions of the main policy documents in WSS sector
Annex 2	WSS Sector institutional arrangements
Annex 3	WSS Rayon and Region Profiles
Annex 4	WSS Sector Indicators in North Region
Annex 5	Water Resources Report
Annex 6	WSS Donor Mapping
Annex 7	Population and WSS Demand Forecasts
Annex 8	WSS Sector Development Risk Analysis
Annex 9	Possible Project Concepts Identification Reports - Long List
Annex 10	Possible Project Concepts Rapid Appraisal Reports – Short list
Annex 11	Workshop Reports
Annex 12	List of projects financed from national funds in 2013

Annex 1

Summary of provisions of the main policy documents in WSS sector

Annex 1: Summary of provisions of the main policy documents in WSS sector

Name	National Develop. Strategy 2008 / MDG	Government Action Plans	National WSS Strategy 2014	Draft National WSS Strategy 2012	OECD WSS Action Plan 2010	National WSS Plan up to 2015	Protocol on Water and Health	Regional Development Strategies (North, Centre, South)
Planning Horizon	NDS 2008-2011 Moldova 2020 MDG 2015	Gov AP 2012-2015 EU-MD Action Plan 2004-onwards Gov EU Legal Harmonisation AP 2013	Mid-term 2008-2012 Long-term up to 2025	2014-2028	2010-2015	2005-2015	2011-2020	Operating Plans 2013-2015
Relevant WSS Sector Objectives	**NDS and MDG:** Increase the percentage of population with access to safe water sources from 38.5% in 2002 to 59% in 2010 and to 65% in 2015. Halve the number of people with no access to improved sanitation.	**EU-MD Action Plan:** Support, including technical assistance and twinning to meet the EU standards and rules as well as advice and targeted support for legislative adjustment through a mechanism such as Technical Assistance and Information Exchange (TAIEX). **Gov AP 2012-2015** Promote at all appropriate national levels, as well as in the cross-border and international con-	Decentralisation of Public Water Supply and Sanitation Services in the Republic of Moldova Local governments are responsible for the organisation and functioning of public water supply and sanitation services Promotion of the Market Economy Compulsory tender of services, licensing, ensure transparency of the administration process Extension of the centralised Water	The overall objective of the Strategy consists in ensuring a gradual access to safe water and adequate sanitation for all the localities and population of the Republic of Moldova,, therefore helping improve the health, dignity and quality of life and supporting the economic development of the country. Specific objectives: • Decentralization of water supply and sanitation public services; • Extension of the water supply	2010-2015: MTSO-0: Create a favourable legal and institutional network in the WSS Sector, based on market principles. MTSO-1: Increase the efficiency and cost-effectiveness of WSS Sector, as well as improve its environmental performance and health indicators. MTSO-2: Increase the capacity of the WSS Sector to absorb financial and technical assistance. MTSO-3: Mobilise wide domestic	The main goals of the Programme are the following: • Help increasing public wealth and health care; • Rational water use; • Environmental protection; • Protection against pollution and depletion of water supply sources; • Rational management of capital investments; • Improve the quality of services provided to consumers;		South: Rehabilitate, modernise and extend the water supply and sanitation systems - use the ground water sources (for DRS - Prut and Nistru rivers); Promote the market economy principles in water supply and sanitation services; Extend the centralised water supply and sanitation systems and increase the level of population's access to such services; O.S.1 Rehabilitate

Name	National Develop. Strategy 2008 / MDG	Government Action Plans	National WSS Strategy 2014	Draft National WSS Strategy 2012	OECD WSS Action Plan 2010	National WSS Plan up to 2015	Protocol on Water and Health	Regional Development Strategies (North, Centre, South)
	Increase the percentage of population with access to improved sanitation from 31.3% in 2002 to 50.3% in 2010 and to 65% in 2015.	text, the protection of human health and well-being, both individual and collective, as part of sustainable development by improving water management, including protection of the aquatic ecosystems, and by preventing, controlling and reducing water-borne diseases.	Supply and Sanitation Systems and Increase of the Level of Access for Population to these Services Reduce by 50% the number of population without access to safe sources of potable water and to the improved sanitation system by 2015 Promotion of Sustainable Development and Environment Protection Measures Institutional and legislative correlation with the European Union Urban waste water treatment in compliance with the provisions of the EU Directive 91/271/EEC Promotion of the Social Partner-	and sanitation centralized services and increasing the population's access to these services; • Promoting the principles of market economy and attracting ing private capital.	and international support for implementing the WSS sector policy and development strategy. MTSO-4: Implement medium-term investment plans for WSS Sector to extend the centralised water supply and sewerage systems to increase the access of population to these services. 2015-2020: LTO-1: Halve the percentage of the population without sustainable access to safe water supply and improved sanitation. (MDG7 target 10) LTO-2: Reduce by 50% the morbidity caused by poor quality potable water, as well as the rate of chronic diseases,	• Increase the economic efficiency in the operations of enterprises in the water supply and sanitation sector; • Reduce by 50% the number of population (about 1.0 million inhabitants), who have no access to safe water sources, by 2015.		and develop the public infrastructure to increase the level of investment attractiveness and provide better living conditions to the population of the DRS; O.S.7 Encourage the regionalisation of public utility services by supporting the inter-community cooperation and create partnerships to provide quality services in the region; North: Extend and rehabilitate the water supply and sanitation systems, the wastewater treatment plants, and the irrigation systems; Develop water systems supplying water from the

Name	National Develop. Strategy 2008 / MDG	Government Action Plans	National WSS Strategy 2014	Draft National WSS Strategy 2012	OECD WSS Action Plan 2010	National WSS Plan up to 2015	Protocol on Water and Health	Regional Development Strategies (North, Centre, South)
			ship		and the incidence of acute waterborne diseases. LTO-3: Ensure universal access to piped water supply, through in-house or yard tap, or street posts located no farther than 100 meters from the dwelling, supplying water that meets quality standards at affordable prices. LTO-4: Ensure provision of 24-hour water supply by improving efficiency, ensure safety, increase resilience to climate change and reliability of the existing systems. LTO-5: Reduce critical discharges of pollutants to international waters from urban and rural sanitation systems. LTO-6: Implement			river basins of Prut and Nistru rivers; Improve the access to the WSS services for about 50,000 inhabitants of the NDR; Modernise and regionalise the public water supply and sanitation services; Promote the environment protection measures through the reconstruction and modernisation of the wastewater treatment plants;

Name	National Develop. Strategy 2008 / MDG	Government Action Plans	National WSS Strategy 2014	Draft National WSS Strategy 2012	OECD WSS Action Plan 2010	National WSS Plan up to 2015	Protocol on Water and Health	Regional Development Strategies (North, Centre, South)
					the EC Directives on WSS and the Water Framework Directive.			
Key Statements			The key sources of water supply for communities will be the surface water (for most communities) and common water pipelines (for groups of communities). At the same time, the groundwater will preserve its value as a source of water for the communities in the areas remote from the surface sources of water and from the grouped water pipelines or as provisional and reserve sources in case of exceptional situations. The current legal framework does	In order to boost water supply and sanitation field, the emphasis in improving the regulatory framework will be placed on the harmonization of Water Framework Directive 2000/60 / EC, Directive 91/271/EEC concerning urban waste-water treatment and Directive 98/83/EC on the quality of water intended for human consumption. The infrastructure planning process will be supported by a general planning at regional / rayon level through a regional / rayon level master plan to be approved by the central body of the				South: a regional operator needs to be created for both water and sanitation service management, and for waste management, needed for more efficient accessibility of funds and with advanced credibility for external donors. With regard to potable water sources, it is recommended that the investments target the use of ground water and the water of Prut and Nistru rivers. Centre: The supply of quality potable water is an imperative of the region where 80% of the population

Name	National Develop. Strategy 2008 / MDG	Government Action Plans	National WSS Strategy 2014	Draft National WSS Strategy 2012	OECD WSS Action Plan 2010	National WSS Plan up to 2015	Protocol on Water and Health	Regional Development Strategies (North, Centre, South)
			not fully include the provisions of international legal acts, to which the Republic of Moldova adhered, as well as the provisions of the EU legislation, which the Republic of Moldova intends to integrate to. In this context, the objectives of the strategy are also pivoted on the transposition of these provisions into the national legislation according to the Moldova – EU Action Plan. The European legislation that needs to be transposed in the national legislation: Directive 98/83/CEE On Quality of Water Intended for Human Consump-	public administration central body in the environmental field. The medium term investments included in this Strategy focuses on both urban and rural areas. Due to limited financial resources, the investments will be allocated by priorities to the large urban communities where there are already networks that need to be renovated and extended, thereby covering in a relatively short period of time a bigger number of population that will have access to quality services. In the rural communities with less than 2,000 inhabitants which can not afford operation of				uses water from shallow wells and springs. The water and sanitation systems must be built firstly in the underdeveloped districts such as: Dubasari, Șoldanesti and Rezina. Those measures should include the projects on the construction of water supply and sanitation systems in urban and rural communities. North: The future trend is the regionalisation of the water and sanitation services with the purpose to secure the public health and increase the living standards in the region. The water and sanitation systems

Name	National Develop. Strategy 2008 / MDG	Government Action Plans	National WSS Strategy 2014	Draft National WSS Strategy 2012	OECD WSS Action Plan 2010	National WSS Plan up to 2015	Protocol on Water and Health	Regional Development Strategies (North, Centre, South)
			tion – envisaged to be transposed as much as possible in the draft Law on Potable Water. Council Directive 91/271/EEC concerning Urban Wastewater Treatment – needs to be entirely transposed in the national legislation to approve the norms on the requirements for wastewater discharge into the water environment. Council Directive no. 91/676/EEC concerning the Protection of Waters Against Pollution Caused by Nitrates from Agricultural Sources – needs to be transposed to protect waters against the pollution caused by ni-	a centralized system, individual decentralized sanitation systems shall be constructed. Facilitation and acceleration of the Apa Canal companies' development process lies in: a) regionalization of the water supply and sanitation service provision; b) existence of an operating license issued by the regulatory body.				should be built firstly in the most underdeveloped districts and in the localities which can be connected to the Soroca-Balti, Prut-Falesti, Prut-Glodeni, Prut-Edinet, Prut-Briceni, etc. water pipelines.

Name	National Develop. Strategy 2008 / MDG	Government Action Plans	National WSS Strategy 2014	Draft National WSS Strategy 2012	OECD WSS Action Plan 2010	National WSS Plan up to 2015	Protocol on Water and Health	Regional Development Strategies (North, Centre, South)
			trates from agricultural sources.					
Mid-Term Outputs		Gov EU Legal Harm AP 2013: Harmonisation to: Directive 91/271/EEC of 21 May 1991 on urban waste water treatment. Directive 2000/60/EC of the European Parliament and Council of 23 October 2000 establishing a framework for Community action in the field of water policy (CELEX: 32000L0060). Directive 2008/105/EC - on environmental quality standards in the field of water policy. Gov AP: Regionalisation of Apa-Canal utili-	Rehabilitated water supply and sanitation systems in urban communities. Improved water supply and sanitation situation in the most disadvantaged communities. Built networks of grouped water supply and sanitation pipelines, which will provide access for rural population to potable water. For long-term water supply and sanitation, further development of the communal infrastructure within the rural communities will be predominant.	An estimate of the water supply and sanitation infrastructure includes the following actions: drinking water 2018 - a) Connection of 61,957 new people; b) Rehabilitation of a number of 42 water treatment plants for the purpose of drinking water abstraction; c) Construction of 9 new water treatment plants; d) Rehabilitation of 890 km network; e) Construction of 508 km of new network; drinking water 2018 – a) connection of 652,892 new people; b) construction of 344 new water treatment plants;	Mid-Term: A-4.2: Extend the centralised water supply system and implement priority medium-term water supply capital investments. A-4.2.1: Build new water supply systems in rural areas. A-4.2.2: Build new water supply systems in urban areas (cities with more than 10,000 inhabitants). A-4.2.3: Install mini-water-treatment stations in educational institutions in rural areas. A-4.3: Extend the centralised sanitation system. A-4.3.1: Build new sanitation systems (pit latrines, septic	Given the economic situation of the Republic of Moldova, the proposed works on the modernisation and development of the water supply and sanitation systems would be carried out in three stages: stage one - low cost works on renovation of the existing systems based on the arguments of the feasibility studies, by 2008; stage two - modernisation and development by 2009; stage three - modernisation and development by 2015. At the first stage (2006-2009), to improve the cur-		South: Potable water supply and sanitation for the inhabitants of 7 localities in Leova district by building the main Leova – Iargara and Leova – Hanasenii Noi – Filipeni – Romanovca water pipelines; WWTP Taraclia; Build the sanitation network in Sadaclia, Carabetovca, Iordanovca villages of Basarabeasca district. Build and extend the sanitation system in Manta and Pascani villages of Cahul district. Potable water supply for the inhabitants of 7 localities in Cahul district. North:

Name	National Develop. Strategy 2008 / MDG	Government Action Plans	National WSS Strategy 2014	Draft National WSS Strategy 2012	OECD WSS Action Plan 2010	National WSS Plan up to 2015	Protocol on Water and Health	Regional Development Strategies (North, Centre, South)
		ties in districts of Floresti, Soroca, Hancesti, Orhei, Leova Ceadir-Lunga. Water supply to Cahul, Ungheni, Orhei towns and to Drepcauti, Pohrebeni, Zahorna, Chetrosu, Navirnet, Sanatauca, Dubasarii Vechi, Niscani, Seliste, Serpeni, Calfa and Gura Bicului villages. Renovation of the sanitation system and installation of mini-water-treatment stations in schools. Change the equipment at the potable and waste water pumping stations. Creating a WSS database.		wastewater 2018 – a) connection of 101,077 new people; b) rehabilitation of 29 wastewater treatment plants; c) construction of 20 new wastewater treatment plants; d) rehabilitation of 511 km of sewerage network; e) construction of 566 km of new sewerage network; Wastewater 2028 – a) Connection of 652,892 new people; b) Construction of 1,959 km of new sewerage network. The intermediary target is to create a number of companies that shall provide water supply and sewerage services to at least 100,000 inhabit-	tanks, simple sewer systems) in rural areas. A-4.3.2: Build new sanitation systems in urban areas (cities with more than 10,000 inhabitants). A-4.3.3: Improve the water sanitation standards in educational institutions in rural areas.	rent situation in the sanitation sector, the following issues need to be resolved: Organise the discharge of the wastewater through the centralised sanitation systems and its treatment at the waste water treatment plants in the rural localities with more than 4,500 inhabitants and for localities located in the protection zone of Prut and Nistru rivers' water by building such plants where they are missing, modernising and reconstructing the existing ones; Collect the wastewater in special tanks and its subsequent transportation to the existing		Potable water supply and sanitation for the inhabitants of Risipeni and Bocsa villages; Create conditions for potable water supply and sanitation for the inhabitants of Parcani, Ocolina and Redi-Ceresnovat villages of Soroca district; Potable water supply and sanitation to Balatina and Cuhnesti communes, Cobani village, Camenca commune, Cajba village, Viisoara commune, and Ciuciulea village. Completion of the construction of Prut-Falesti water pipeline – a prerequisite for potable water supply

Name	National Develop. Strategy 2008 / MDG	Government Action Plans	National WSS Strategy 2014	Draft National WSS Strategy 2012	OECD WSS Action Plan 2010	National WSS Plan up to 2015	Protocol on Water and Health	Regional Development Strategies (North, Centre, South)
				ants, excluding the communities having less than 5,000 persons for sewerage and 500 persons for drinking water supply. The ultimate goal of regionalization is to create 3-5 regional companies that shall provide water supply and sewerage services to the entire population of the Republic of Moldova, with the exception of small villages.		wastewater treatment plants in localities with wastewater discharge volume of 10-50 m3/24 h		for 76 localities in the North Region. Construction of the branch toward Drochia town to Soroca-Balti water pipeline. Centre: • Reconstruction of the wastewater treatment plant, reconstruction and extension of the water and sanitation networks in Calarasi; • Construction of sanitation and wastewater treatment systems in Nisporeni; • Water and sanitation networks - 20 localities.
Targets/ Indicators	Increase the per-		Reduce by 50% the water-borne	The target for the first five years is to		The target for the first five years is	Provide access for	South: 70,653 inhabitants with ac-

Name	National Develop. Strategy 2008 / MDG	Government Action Plans	National WSS Strategy 2014	Draft National WSS Strategy 2012	OECD WSS Action Plan 2010	National WSS Plan up to 2015	Protocol on Water and Health	Regional Development Strategies (North, Centre, South)
	centage of population with access to safe water sources from 38.5% in 2002 to 59% in 2010 and to 65% in 2015. Halve the number of people with no access to improved sanitation. Increase the percentage of population with access to improved sanitation from 31.3% in 2002 to 50.3% in 2010 and		diseases. Reduce by 50% the number of population with no access to safe sources of potable water and to improved sanitation system by 2015.	achieve 30% coverage with WSS infrastructure of the unconnected population in urban areas and 20%-25% coverage of the unconnected population in rural areas.		to achieve 30% coverage with WSS infrastructure of the unconnected population in urban areas and 20%-25% coverage of the unconnected population in rural areas. An estimate of the WSS infrastructure planned for Moldova includes: potable water 2017 - (i) connection of 61,957 new people; (ii) rehabilitation of 42 water treatment plants for potabilization purpose; (iii) construction of 9 new water treatment plants; (iv) rehabilitation of 890 km of network; (v) construction of 508 km of new network; Potable water 2027 - (i) connection of	population to improved water supply sources 2015: For 68% of the total population 2020: For 80% of the total population 2015: For 35% of the rural population 2020: For 45% of the rural population Increase the access of children in schools and pre-school institutions to improved water supply sources 2015: In 95% of schools and pre-school insti-	cess to improved water supply service in Leova, Cahul, Taraclia and Basarabeasca districts; 9 wastewater treatment plants in Basarabeasca district and rehabilitation of 1 wastewater treatment plant in Taraclia district. North: - 162.67 km of water pipeline rehabilitated and built. 12,227 km of sanitation system rehabilitated and built. About 14,000 households and about 200 economic operators connected to the WSS pipe in the NDR. About 55,000 inhabitants with ac-

Name	National Develop. Strategy 2008 / MDG	Government Action Plans	National WSS Strategy 2014	Draft National WSS Strategy 2012	OECD WSS Action Plan 2010	National WSS Plan up to 2015	Protocol on Water and Health	Regional Development Strategies (North, Centre, South)
	to 65% in 2015.					652,892 new people; (ii) construction of 344 new water treatment plants; Wastewater 2017 - (i) connection of 101,077 new people, (ii) rehabilitation of 29 wastewater treatment plants; (iii) construction of 20 wastewater treatment plants; (iv) rehabilitation of 511 km of sanitation network; (v) construction of 566 km of new sanitation network; Wastewater 2027 - (i) connection of 652,892 new people; (ii) construction of 1,959 km of new sanitation network.	tutions 2020: In 100% of schools and preschool institutions Provide access for the population to improved sanitation systems 2015: 85% of the urban population 2020: About 90% of the urban population 2015: 45% of the rural population 2020: About 70% of the rural population Provide access for children in schools and preschool institutions to	cess to water and sanitation services. 2 wastewater treatment plants, 2 water treatment plants and 2 pumping stations built/rehabilitated. 1 regional WSS service created (Soroca-Balti).

Name	National Develop. Strategy 2008 / MDG	Government Action Plans	National WSS Strategy 2014	Draft National WSS Strategy 2012	OECD WSS Action Plan 2010	National WSS Plan up to 2015	Protocol on Water and Health	Regional Development Strategies (North, Centre, South)
							improved sanitation systems 2015: About 90% of all schools and pre-school institutions 2020: About 100% of all schools and pre-school institutions Increase the number of settlements and the share of their population which is served by small (individual and/or collective) systems of improved sanitation (e.g. dry ECOSAN toilets, constructed wetlands, septic tanks, or other	

Name	National Develop. Strategy 2008 / MDG	Government Action Plans	National WSS Strategy 2014	Draft National WSS Strategy 2012	OECD WSS Action Plan 2010	National WSS Plan up to 2015	Protocol on Water and Health	Regional Development Strategies (North, Centre, South)
							technologies) 2015: About 50 settlements 2020: About 100 settlements	

Annex 2

WSS Sector institutional arrangements

Annex 2: WSS Sector institutional arrangements[1]

Stakeholder	Roles and Responsibilities
1. Ministry of Environment (MoEn)	Lead ministry in the water sector. Responsible for policy, planning and monitoring of various aspects of environment, including whole water sector. The following departments/units cover the range of responsibilities the MoEn has for the WSS sector:
• Water Management Department (WMD)	Responsible for policy and regulation of water sector, including water supply and sanitation sector.
• National Environmental Fund (NEF)	A mechanism for financing of different environmental projects, including WSS projects.
• Projects Implementation/Management Units (PIU/PMU)	A number of donor financed WSS projects is implemented through several Projects Implementation Units subordinated to the MoEn - World Bank PIU (2 WB projects, 1 EC project); Centralized MoEn PIU (various environmental projects, including WSS); Project Management Unit - responsible for overall implementation of 1 WSS project financed by EBRD, EIB and NIF
• State Environmental Inspectorate (SEI)	Institution responsible for authorization, monitoring and enforcement in environmental sector, including WSS. Responsible for Environmental Impact Assessment
• Hydrogeological Expedition (EHGeoM)	Responsible for exploration of groundwater sources
• Agency Apele Moldovei (AAM):	Agency, currently subordinated to the MoEn responsible for water resources management (including River Basin Management), planning, implementation, operation and monitoring of irrigation and WSS infrastructure. The Agency is also responsible for authorization of water use.
o Drinking water supply and irrigation service providers;	As service operator, AAM runs 11 technological stations for irrigation and 1 regional water pipeline (Soroca-Balti - State Company Acva-Nord). AAM also provides services for rehabilitation/drilling of deep wells (specialized department).
o Design Institutes.	AAM also manages 2 design institutes - Iprocom and Acvaproiect, focusing their activities mainly on preparation of feasibility studies and detailed designs for flood protection, irrigation, water supply and sanitation projects
2. Ministry of Regional Development and Construction (MoRDC)	Responsible for policy, planning and monitoring on various aspects of regional development and construction sector. The following specific responsibilities for WSS sector may be outlined:
• National Regional Development Fund (NDRF)	Development of WSS sector is also funded through this ministry. MoRDC manages the National Regional Development Fund (NDRF).
• Regional Development Agencies (RDA)	3 Subordinated agencies to MoRDC, covering re-

[1] Source: The Swiss Agency for Development and Cooperation, Water Sector Assessment of Moldova, 2013

	gions of Moldova (North, Central, South). Responsible for developing regional economy, providing assistance to local governments and implementation of Regional Development Strategies, including WSS-related projects.
• Scientific Research Institute INCERCOM	Responsible for development of technical rules and norms for construction projects (including WSS)
• State Service for Verification and Expertize of Construction Projects	Responsible for verification of feasibility studies and designs for construction projects (including WSS)
• State Construction Inspection	Enforcement institution responsible for implementation of construction legislation, including quality of construction projects (including WSS projects)
• Design Institutes	MoRDC also runs 3 design institutes – Industrial project, Rural project and Urban project, which deal also with WSS projects
3. Ministry of Health (MoH)	Responsible for policy, planning and monitoring on various aspects of health sector, including drinking water quality. Main counterpart of the MoEn for implementation of Protocol on Water and Health.
• National Centre of Public Health (NCPH)	MoH through its National Centre of Public Health is responsible for public health aspects of WSS sector, including monitoring of water quality
4. Ministry of finance (MoF)	Responsible for allocation of national budgets, including for WSS sector
5. National agency for regulation of energy sector (ANRE)	National Regulator for the energy sector (electricity, gas, heating) Responsible for advice and approval on energy tariffs but final tariff decisions are approved at the local level. Issued a methodology on drinking water and wastewater tariffs (2004). Is included in the draft WSS Strategy (2012) and draft Law on Public WSS Services as national tariff and license regulator for WSS sector.
6. National Bureau of Statistics (NBS)	Statistical data on population, services etc. Collects and publishes data on WSS facilities and coverage
7. Rayon, district administration	Second tier of government Moldova has 32 Rayons. Responsible for guidance to and coordinating the Local Government Units in its rayon, including coordination of the development of WSS sector. In Gagauzia, Rayon administration owns WSS infrastructure in selected localities and is responsible for management and operations of water supply and wastewater services at the local level.
8. Local public administration (LPA)	Lowest level of public administration. Responsible for the provision of water supply and sanitation services to their inhabitants. All WSS infrastructure is owned by LPA (except for Gagauzia autonomous region). Also currently responsible for

	approval of WSS tariffs at the local level.
9. WSS Operators (APA CANALS)	WSS service providers/operators responsible for management and operations of water supply and wastewater services at local or regional level. The operators can be organized as water users associations (WUA), municipal enterprises, joint-stock companies or other private operators.
10. International financial institutions(IFIS), agencies:	Notably active in the WSS sector: SDC, European Union, EBRD, IBRD, ADA, GIZ, MCA, CzDA, OECD, EIB, KFAED, TIKA, USAID etc. Various modalities of support: sector budget support, loans, grants. Play important role in whole water sector development at all levels - from policy setting (EU WSPSP-TA, SDC, MCA) to direct infrastructure investments (IBRD, EBRD, ADA etc.). Since 2010, WSS donors meet regularly in Sector Coordination Council and donors meeting to coordinate activities and share experience.
11. NGO's	A yet hardly mapped or developed landscape of e.g. customer organizations, environmental NGOs. Some NGOs (e.g. EcoTiras) actively participate in policy development. Some small-scale WSS projects are implemented through NGOs.
• Association of Moldovan Apa Canals (AMAC)	Privately organized association of water utilities in Moldova. All city Apa Canals are members, while rural operators are not members. Represents interests of Apa Canals. Provides technical and non-technical support and guidance to its members Responsible for collecting and reporting data on member associations and their performance. Maintains database on members associations with data covering more than 10 years but these data are not readily available to the MoEn.

Annex 3

WSS Rayon and Region Profiles

BALTI MUNICIPALITY

Geographical position and water resources

The Balti Municipality, capital of the North Development Region of Moldova, lies in the middle of the Balti steppe and has a fragmented low relief. It is located at a distance of 138 km north from Chisinau, 65 km from the Romanian border and 120 km from the Ukrainian border. The city borders Falesti, Glodeni, Riscani, and Singerei cities, all of them are situated 20-40 km far from Balti. The communes Sadovoe and Elizaveta are part of the Balti municipality. The city's main water sources are the two rivers: Raut and Rautel which cross the city on a length of 17 km, two creeks: Copaceanca and Flaminda – tributaries of the Raut River, as well as 7 lakes.

Regional data			
	Urban	Rural	Total
General information			
Area [km^2]	41.43	36.58	78.01
Population [people] (NBS data)	144,000	4,900	148,900
Number of communes/localities	1	2	3
Approved ground water resources			
Drinking water [m^3/day]			49,800
Technical water [m^3/day]			-
Degree of pollution			
Water supply system infrastructure			
Operational water supply systems	1	1	2
Coverage rate [%]	75	23	73
Production capacity of the abstraction facilities [m^3/day]	47,200		
Sewage and Wastewater purification systems infrastructure			
Sewage systems	1	-	1
Coverage rate [%]	63	61	63
Purification stations	1	-	1
The institutional and financial side			
Service operators	1	-	1
Average water tariff – population [lei/m^3]	12.59		
Average sewage tariff [lei/m^3]	7.80		

Water demand

Currently, the greatest water consumer is the Balti Municipality. Industrial consumers are situated around the municipality, and rural areas are characterized by domestic water use.

The existing water supply system

The Balti Municipality has a water supply system with a total length of 261.3 km of pipelines, including 31 pumping stations, 60 deep wells, with a total capacity of 47,200 m^3/day. The average specific consumption is 71 l/person/day; the unbilled water in the system is roughly 27.7%. The specific energy consumption is approximately 1.0 kWh/m^3. The rural localities are very poorly ensured with services.

The existing sewage system

The existing sewage system in the Balti Municipality consists of a sewage network with a total length of 150.0 km, including 6 pumping stations and 1 wastewater purification station. This station has a capacity of 60,000 m^3/day, of which only 32.4% are used. Some segments of the sewage system, including the pumping station, have recently been renewed, while the purification station is in a deploring condition. The specific energy consumption of the sewage system in the Balti Municipality is roughly 0.5 kWh/m^3.

Service providers

Currently, the water supply, sewage and wastewater purification services in Balti Municipality and Sadovoe village are provided by the ME Apa-Canal Balti, while the operating and maintenance of the existing systems in the in Elizaveta village is ensured by the local public authorities. The ME Apa-Canal Balti is a potential for extending WSS services in other localities in the municipality.

Key problems

The municipality needs to develop its WSS infrastructure and to stimulate the intercommunity cooperation. At the same time, another important problem is the need to stimulate consumers by means of the tariff policy, with a view to ensuring minimal water consumption and maintaining a sustainable level of services.

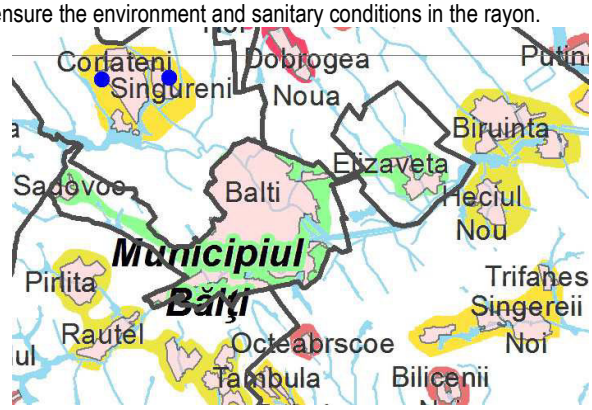
Development perspectives

The development perspectives are related to improving quality of WSS services in the Balti Municipality. Ground and surface water sources available in the rayon can be combined to enhance services efficiency and reliability.

The view on services' development

By 2020, the Balti Municipality will be ensured with access to safe, affordable and sustainable drinking water supply services for 95% of the urban population and 80% of the rural population. The service will be provided both in clusters of localities by means of aqueducts from surface water sources, from the Nistru River (Soroca- Balti), and by local solutions from ground water sources.

At the same time, 75% of the urban population and 30% of the rural population will be ensured with access to affordable and sustainable sewage services. The wastewater will be treated according to the norms in force at the municipal purification station, in order to ensure the environment and sanitary conditions in the rayon.



Areas with clustering potential:

high *medium* *low*

• *Existing water supply system* • *Existing sewage system*

BRICENI RAYON

Geographical position and water resources

Briceni rayon is situated in the extreme north-western point of Moldova, bordering Ukraine in the north, Edinet rayon in the south, Ocnita rayon in the east and Romania in the west. The rayon has its own explored ground water sources.

Regional data			
	Urban	Rural	Total
General information			
Area [km^2]	28	782	810
Population [people] (NBS data)	9,900 (Briceni)	65,400	75,300
Number of communes/localities	2	26/37	28/39
Approved ground water resources			
Drinking water [m^3/day]			12,300
Technical water [m^3/day]			-
Degree of pollution			low
Water supply system infrastructure			
Operational water supply systems	2	18	20
Coverage rate [%]	74	12	20
Production capacity of the abstraction facilities [m^3/day]	10,000		
Sewage and Wastewater purification systems infrastructure			
Sewage systems	2		2
Coverage rate [%]	29	0	4
Purification stations	2		2
The institutional and financial side			
Service operators	2		2
Average water tariff – population [lei/m^3]	11.57		
Average sewage tariff [lei/m^3]	13.34		

Water demand

Currently, the greatest water consumer is the Briceni city. Industrial consumers are situated around the Briceni city and rural areas are characterized by domestic water use.

The existing water supply system

The Briceni city has a water supply system with a total length of 49.8 km of pipelines, including 8 pumping stations, 6 deep wells with a total capacity of 10,000 m^3/day. The average specific consumption is 27 l/person/day, the unbilled water in the system is roughly 38.5%. The specific energy consumption is of approximately 2.0 kWh/m^3. The rural localities are very poorly ensured with services.

The existing sewage system

The existing sewage system in the Briceni city consists of sewage network with a total length of 30 km, including 2 pumping stations and 1 wastewater purification station. This station has a capacity of 10,000 m^3/day of which only 2.2% are used. Some segments of the sewage system, including the pumping station, have recently been renewed, while the purification station is in a deploring condition. The specific energy consumption of the sewage system in the Briceni city is roughly 1.6 kWh/m^3. Rural localities are not provided with centralized sewage systems.

Service providers

Currently, the water supply, sewage and purification services in the Briceni city are provided by the ME GCL Briceni, while the operating and maintenance of the existing systems in the rural areas is ensured by the local public authorities in the respective localities and/or by the consumer groups. The ME GCL Briceni is a potential for extending WSS services in other localities in the Briceni rayon.

Key problems

The rayon needs to develop its WSS infrastructure and to stimulate the intercommunity cooperation, as well as to enhance the Briceni city operator's institutional capacities with a view to extend gradually the WSS services to the neighbour localities. At the same time, another important problem is the need to stimulate consumers by means of the tariff policy, with a view to ensuring minimal water consumption and maintaining a sustainable level of services.

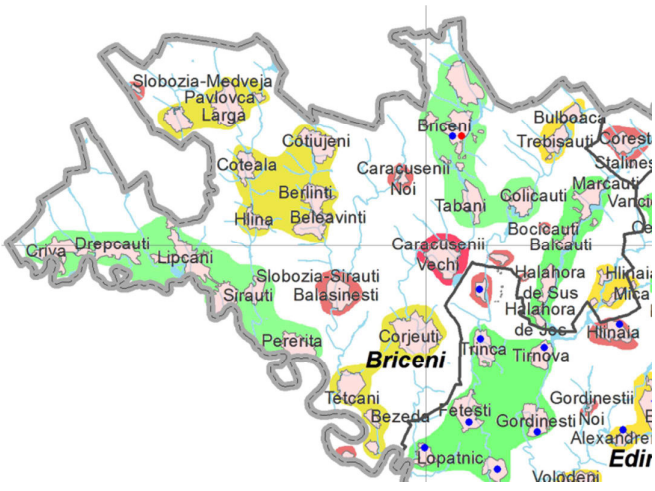
Development perspectives

The development perspectives are related to improving quality of WSS services in the Briceni city extending the sustainable and affordable services to neighbour localities. The localities with an increased clustering potential will develop group WSS systems, while the isolated localities will benefit from local solutions. Ground and surface water sources available in the rayon can be combined to enhance services efficiency and reliability.

The view on service development

After the development of the water supply and sanitation services, by the year 2020 the Briceni rayon will be ensured with access to safe, affordable and sustainable drinking water supply services for 90% of the urban population and 60% of the rural population. Of the total urban population, 40% of will provided water from of the ground sources (wells), other 40% will be provided water from the Prut River and 10 % will be provided from wells.

At the same time, 90% of the urban population and 60% of the rural population will be ensured with access to safe and sustainable sewage services.



Areas with clustering potential:

high *medium* *low*

● *Existing water supply system* ● *Existing sewage system*

DONDUSENI RAYON

Geographical position and water resources

Donduseni rayon borders Ocnita rayon in the north, Drochia rayon in the south, Riscani rayon in the south-west, Soroca rayon and Ukraine in the east and Edinet rayon in the west. The rayon has its own explored ground water sources.

Regional data			
	Urban	Rural	Total
General information			
Area [km^2]			645
Population [people] (NBS data)	10,700	34,400	45,100
Number of communes/localities	1	21/29	22/30
Approved ground water resources			
Drinking water [m^3/day]			-
Technical water [m^3/day]			-
Degree of pollution			
Water supply system infrastructure			
Operational water supply systems	2	3	5
Coverage rate [%]	41	4	13
Production capacity of the abstraction facilities [m^3/day]	1,200		
Sewage and Wastewater purification systems infrastructure			
Sewage systems	2		2
Coverage rate [%]	42	1	11
Purification stations	1		1
The institutional and financial side			
Service operators	4		4
Average water tariff – population [lei/m^3]	11.94		
Average sewage tariff [lei/m^3]	7.89		

Water demand

Currently, the greatest water consumer is the Donduseni city. Industrial consumers are situated around the Donduseni city, and rural areas are characterized by domestic water use only.

The existing water supply system

The Donduseni city has a water supply system with a total length of 40.5 km of pipelines, including 10 pumping stations, 7 deep wells, with a total capacity of 1,200 m^3/day. The average specific consumption is l/person/day; the unbilled water in the system is roughly 53.1%. The specific energy consumption is of approximately 1.4 kWh/m^3. The rural localities are very poorly ensured with services.

The existing sewage system

The existing sewage system in the Donduseni city consists of a sewage network with a total length of 15.5 km, including 2 pumping stations and 1 wastewater purification station. This station has a capacity of 2,400 m^3/day of which only 9.3% are used. Some segments of the sewage system, including the pumping station, have recently been renewed, while the purification station is in a deploring condition. The specific energy consumption of the sewage system in the in the Donduseni city is roughly 0.2 kWh/m^3. Rural localities are not provided with centralized sewage systems.

Service providers

Currently, the water supply, sewage and wastewater purification services in the Donduseni city are provided by the ME Apa-Canal Donduseni, while the operating and maintenance of the existing systems in the rural areas is ensured by the local public authorities in the respective localities and/or by the consumer groups. The ME Apa-Canal Donduseni is a potential for extending WSS services in other localities in the Donduseni rayon.

Key problems

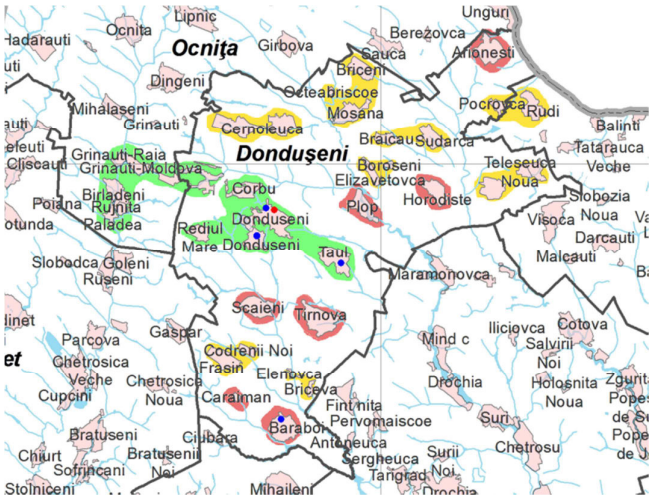
The rayon needs to develop its WSS infrastructure and to stimulate the intercommunity cooperation, as well as to enhance the Donduseni city operator's institutional capacities with a view to extend gradually the WSS services to the neighbour localities. At the same time, another important problem is the need to stimulate consumers by means of the tariff policy, with a view to ensuring minimal water consumption and maintaining a sustainable level of services.

Development perspectives

The development perspectives are related to improving quality of WSS services in the Donduseni city extending the sustainable and affordable services to neighbour localities. The localities with an increased clustering potential will develop group WSS systems, while the isolated localities will benefit from local solutions. Ground and surface water sources available in the rayon can be combined to enhance services efficiency and reliability.

The view on service development

By 2020, the Donduseni rayon will be ensured with access to safe, affordable and sustainable drinking water supply services for 70% of the urban population and 25% of the rural population. The service will be provided both in clusters of localities by means of regional aqueducts from surface water sources, mainly from the eastern and western parts of the rayon, and by local solutions from ground water sources in the central and northern parts. At the same time, 70% of the urban population and 15% of the rural population will be ensured with access to safe, affordable and sustainable sewage services. The wastewater will be treated according to the norms in force at the regional purification stations (of the Donduseni, Drochia and Soroca rayon capitals), as well as at local stations (in case of isolated localities) in order to ensure the environment and sanitary conditions in the rayon.



Areas with clustering potential:

high *medium* *low*

• *Existing water supply system* • *Existing sewage system*

DROCHIA RAYON

Geographical position and water resources

Drochia rayon is situated in the north of the country, 167 km far from the Chisinau Municipality – capital of the Republic of Moldova. The rayon has its own explored ground water sources.

Regional data			
	Urban	Rural	Total
General information			
Area [km^2]			1,000
Population [people] (NBS data)	20,400	69,700	90,100
Number of communes/localities	1	27/39	28/40
Approved ground water resources			
Drinking water [m^3/day]			19,300
Technical water [m^3/day]			-
Degree of pollution			low
Water supply system infrastructure			
Operational water supply systems	1		1
Coverage rate [%]	59	13	24
Production capacity of the abstraction facilities [m^3/day]	3,900		
Sewage and Wastewater purification systems infrastructure			
Sewage systems	1		1
Coverage rate [%]	20	0	5
Purification stations	1		1
The institutional and financial side			
Service operators	1		1
Average water tariff – population [lei/m^3]	13.55		
Average sewage tariff [lei/m^3]	10.08		

Water demand

Currently, the greatest water consumer is Drochia city. Industrial consumers are situated around the Drochia city and rural areas are characterized by domestic water use only.

The existing water supply system

Drochia city has a water supply system with a total length of 70.5 km of pipelines, including 9 pumping stations, 7 deep wells, with a total capacity of 3,900 m^3/day. The average specific consumption is 39 l/person/day, the unbilled water in the system is roughly 60.2%. The specific energy consumption is approximately 1.8 kWh/m^3. The rural localities are very poorly ensured with services.

The existing sewage system

The existing sewage system in the Drochia city consists of a sewage network with a total length of 45.5 km, including 4 pumping stations and 1 wastewater purification station. This station has a capacity of 3, 500 m^3/day, of which only 14.6% are used. Some segments of the sewage system, including the pumping station, have recently been renewed, while the purification station is in a deploring condition. The specific energy consumption of the sewage system in the Drochia city is roughly 0.4 kWh/m^3. Rural localities are not provided with centralized sewage systems.

Service providers

Currently, the water supply, sewage and purification services in the Drochia city are provided by the ME Apa-Canal Drochia, while the operating and maintenance of the existing systems in the rural areas is ensured by the local public authorities in the respective localities and/or by the consumer groups. The ME Apa-Canal Drochia is a potential for extending WSS services in other localities in the Drochia rayon.

Key problems

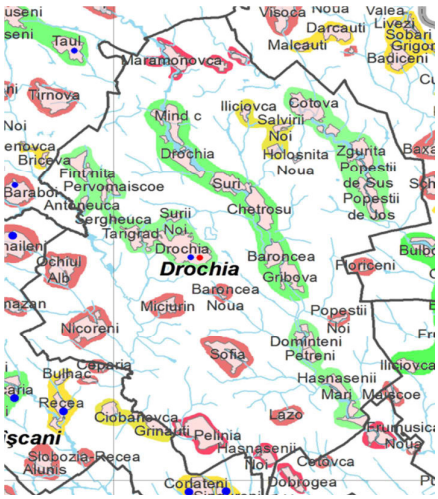
The rayon needs to develop its WSS infrastructure and to stimulate the intercommunity cooperation, as well as to enhance the Drochia city operator's institutional capacities with a view to extend gradually the WSS services to the neighbour localities. At the same time, another important problem is the need to stimulate consumers by means of the tariff policy, with a view to ensuring minimal water consumption and maintaining a sustainable level of services.

Development perspectives

The development perspectives are related to improving quality of WSS services in the Drochia city and extending the sustainable and affordable services to neighbour localities. The localities with an increased clustering potential will develop group WSS systems, while the isolated localities will benefit from local solutions. Ground and surface water sources available in the rayon can be combined to enhance services efficiency and reliability.

The view on service development

By 2020, the Drochia rayon will be ensured with access to safe, affordable and sustainable drinking water supply services for 90% of the urban population and 50% of the rural population. The service will be provided both in clusters of localities by means of regional aqueducts from surface water sources, and by local solutions from ground water sources. At the same time, 80% of the urban population and 30% of the rural population will be ensured with access to affordable and sustainable sewage services. The wastewater will be treated according to the norms in force at the regional purification stations, as well as at local stations, in case of isolated localities, in order to ensure the environment and sanitary conditions in the rayon.



Areas with clustering potential:

high *medium* *low*

• *Existing water supply system* • *Existing sewage system*

EDINET RAYON

Geographical position and water resources

The rayon is situated in the north-west of the country and borders Briceni rayon in the north, Riscani rayon in the south, Donduseni and Ocnita rayons in the eats and Romania in the west. The rayon has its own explored ground water sources.

Regional data			
	Urban	Rural	Total
General information			
Area [km^2]			933
Population [people] (NBS data)	26,000	56,900	82,900
Number of communes/localities	2	30/47	31/49
Approved ground water resources			
Drinking water [m^3/day]			4,500
Technical water [m^3/day]			8,700
Degree of pollution			high
Water supply system infrastructure			
Operational water supply systems	2	31	33
Coverage rate [%]	69	24	38
Production capacity of the abstraction facilities [m^3/day]	14,000		
Sewage and Wastewater purification systems infrastructure			
Sewage systems	2		2
Coverage rate [%]	43	0	13
Purification stations	2		2
The institutional and financial side			
Service operators	1		1
Average water tariff – population [lei/m^3]	17.39		
Average sewage tariff [lei/m^3]	16.32		

Water demand

Currently, the greatest water consumer is Edinet city. Industrial consumers are situated around the Edinet city and rural areas are characterized by domestic water use only.

The existing water supply system

Edinet city has a water supply system with a total length of 118, 8 km of pipelines, including 7 pumping stations, 2 deep wells with a total capacity of 14,000 m^3/day. The average specific consumption is 68.4%. The specific energy consumption is approximately 1.3 kWh/m^3.

The existing sewage system

The existing sewage system in the Edinet city consists of a sewage network with a total length of 52.7 km, including 7 pumping stations and 1 wastewater purification station. This station has a capacity of 5,500 m^3/day of which only 13.6% are used. Some segments of the sewage system, including the pumping station, have recently been renewed, while the purification station is in a deploring condition. The specific energy consumption of the sewage system in the Edinet city is roughly 1 kWh/m^3. Rural localities are not provided with centralized sewage systems.

Service providers

Currently, the water supply, sewage and purification services in the Edinet city are provided by the ME Apa-Canal Edinet, while the operating and maintenance of the existing systems in the rural areas is ensured by the local public authorities in the respective localities and/or by the consumer groups. The ME Apa-Canal Edinet is a potential for extending WSS services in other localities in the Edinet rayon.

Key problems

The rayon needs to develop its WSS infrastructure and to stimulate the intercommunity cooperation, as well as to enhance the Edinet operator's institutional capacities with a view to extend gradually the WSS services to the neighbour localities. At the same time, another important problem is the need to stimulate consumers by means of the tariff policy, with a view to ensuring minimal water consumption and maintaining a sustainable level of services.

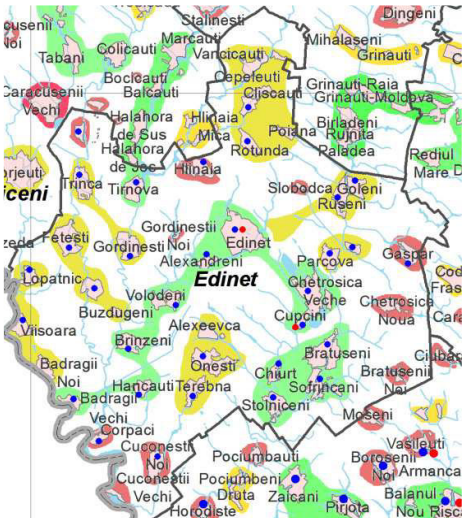
Development perspectives

The development perspectives are related to improving quality of WSS services in the Edinet city and extending the sustainable and affordable services to neighbour localities. The localities with an increased clustering potential will develop group WSS systems, while the isolated localities will benefit from local solutions. Ground and surface water sources available in the rayon can be combined to enhance services efficiency and reliability.

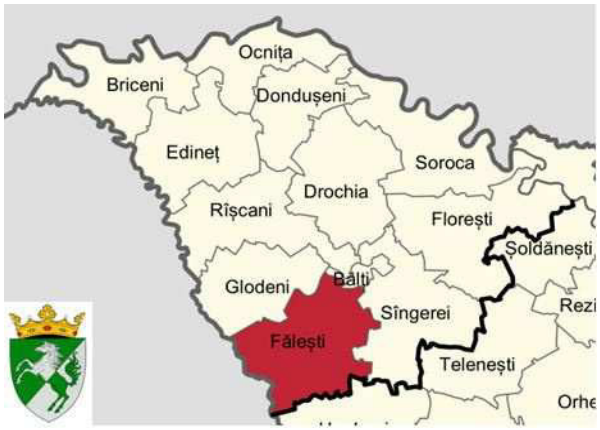
The view on service development

Within 10 years, the Edinet rayon will be ensured with access to safe, affordable and sustainable drinking water supply services for 90% of the urban population and 24% of the rural population. The service will be provided in clusters of localities in the centre, north-west and south-west by means of the rayon existing central aqueduct, and in the south-east from ground water sources (artesian wells) and surface water.

In 10 years, Edinet rayon will be insured with safe, affordable and sustainable access to sewage services: 85% of the urban population will have access to the existing centralized purification stations (the wastewater will be treated according to the norms in force) and 19% of the rural population will have access to local stations (for certain clustered localities, depending on the relief), ensuring environment and sanitary conditions in the rayon.



FALESTI RAYON



Geographical position and water resources

Falesti rayon borders Glodeni rayon in the north, the Balti municipality in the north-east, Ungheni rayon in the south, Singerei rayon in the east and Romania in the west. The rayon has its own explored ground water sources.

Regional data			
	Urban	Rural	Total
General information			
Area [km^2]			1073
Population [people] (NBS data)	16,800	75,800	92,600
Number of communes/localities	1	32/75	33/76
Approved ground water resources			
Drinking water [m^3/day]			28,100
Technical water [m^3/day]			-
Degree of pollution			low
Water supply system infrastructure			
Operational water supply systems	1	24	25
Coverage rate [%]	87	24	36
Production capacity of the abstraction facilities [m^3/day]	3,200		
Sewage and Wastewater purification systems infrastructure			
Sewage systems	1	2	3
Coverage rate [%]	36	0	7
Purification stations	1		1
The institutional and financial side			
Service operators	1		1
Average water tariff – population [lei/m^3]		12.44	
Average sewage tariff [lei/m^3]		13.39	

Water demand

Currently, the greatest water consumer is Falesti city. Industrial consumers are situated around the Falesti city and rural areas are characterized by domestic water use only.

The existing water supply system

Falesti city has a water supply system with a total length of 41.4 km of pipelines 569 in the rayon), including 23 pumping stations, 21 deep wells, with a total capacity of 3,200 m^3/day. The average specific consumption is 39 l/person/day, the unbilled water in the system is roughly 53.9%. The specific energy consumption is of approximately 1.7 kWh/m^3. The rural localities are very poorly ensured with services.

The existing sewage system

The existing sewage system in the Falesti city consists of sewage network with a total length of 31 km, including 3 pumping stations and 1 wastewater purification station. This station has a capacity of 10,000 m^3/day of which only 3.8% are used. Some segments of the sewage system, including the pumping station, have recently been renewed, while the purification station is in a deploring condition. The specific energy consumption of the sewage system in the Falesti city is roughly 0.5 kWh/m^3. Rural localities are not provided with centralized sewage systems.

Service providers

Currently, the water supply, sewage and purification services in the Falesti city are provided by the ME „DPGLC" Falesti, while the operating and maintenance of the existing systems in the rural areas is ensured by the local public authorities in the respective localities and/or by the consumer groups. The ME „DPGLC" Falesti is a potential for extending WSS services in other localities in the Falesti rayon.

Key problems

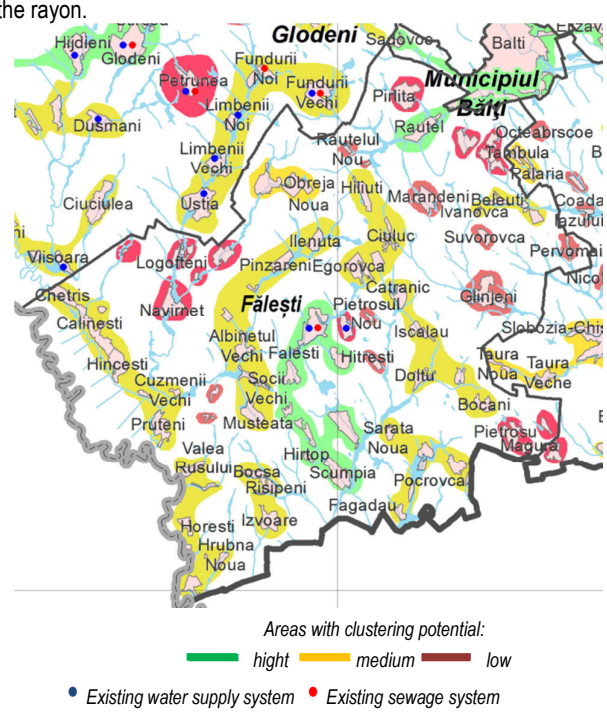
The rayon needs to develop its WSS infrastructure and to stimulate the intercommunity cooperation, as well as to enhance the Falesti city operator's institutional capacities with a view to extend gradually the WSS services to the neighbour localities. At the same time, another important problem is the need to stimulate consumers by means of the tariff policy, with a view to ensuring minimal water consumption and maintaining a sustainable level of services.

Development perspectives

The development perspectives are related to improving quality of WSS services in the Falesti city and extending the sustainable and affordable services to neighbour localities. The localities with an increased clustering potential will develop group WSS systems, while the isolated localities will benefit from local solutions. Ground and surface water sources available in the rayon can be combined to enhance services efficiency and reliability.

The view on service development

By 2020, the Falesti rayon will be ensured with access to safe, affordable and sustainable drinking water supply services for 90% of the urban population and 24% of the rural population. The service will be provided both in clusters of localities by means of aqueducts from surface water sources and by local solutions from ground water sources. At the same time, 85% of the urban population and 19% of the rural population will be ensured with access to affordable and sustainable sewage services. The wastewater will be treated at the regional and local purification stations, according to the norms in force, in order to ensure the environment and sanitary conditions in the rayon.



FLORESTI RAYON

Geographical position and water resources

Floresti rayon is situated in the north-east of Moldova and borers Soroca rayon in the north, Drochia rayon in the north-west, Telenesti rayon in the south, Transnistria in east, Soldanesti rayon in the south-east and Singerei Rayon in the west. The rayon has its own explored ground water sources.

Regional data			
	Urban	Rural	Total
General information			
Area [km^2]			1.108
Population [people] (NBS data)	19,300	70,700	90,000
Number of communes/localities	3	37/71	40/74
Approved ground water resources			
Drinking water [m^3/day]			23,900
Technical water [m^3/day]			-
Degree of pollution			Low
Water supply system infrastructure			
Operational water supply systems	3	8	11
Coverage rate [%]	90	9	26
Production capacity of the abstraction facilities [m^3/day]	6,000		
Sewage and Wastewater purification systems infrastructure			
Sewage systems	3	2	5
Coverage rate [%]	51	0	11
Purification stations	1		1
The institutional and financial side			
Service operators	3		3
Average water tariff – population [lei/m^3]	14.03		
Average sewage tariff [lei/m^3]	16.45		

Water demand

Currently, the greatest water consumer is the Floresti city. Industrial consumers are situated around Floresti city, and rural areas are characterized by domestic water use.

The existing water supply system

Floresti city has a water supply system with a total length of 141.2 km of pipelines, including 17 pumping stations, 13 deep wells, with a total capacity of 6,000 m^3/day. The average specific consumption is 39 l/person/day; the unbilled water in the system is roughly 38.1%. The specific energy consumption is approximately 1.2 kWh/m^3. The rural localities are very poorly ensured with services.

The existing sewage system

The existing sewage system in Floresti city consists of a sewage network with a total length of 33.3 km, including 3 pumping stations and 1 wastewater purification station. This station has a capacity of 5,300 m^3/day of which only 12.7% are used. Some segments of the sewage system, including the pumping station, have recently been renewed, while the purification station is in a deploring condition. The specific energy consumption of the sewage system from Floresti city is roughly 1.1 kWh/m^3. The rural localities do not have centralized sewage systems.

Service providers

Currently, the water supply, sewage and purification services in the Floresti city are provided by the ME Floresti Communal Services, while the operating and maintenance of the existing systems in the rural areas is ensured by the local public authorities in the respective localities and/or by the consumer groups. The ME Floresti Communal Services is a potential for extending WSS services in other localities in the Floresti rayon.

Key problems

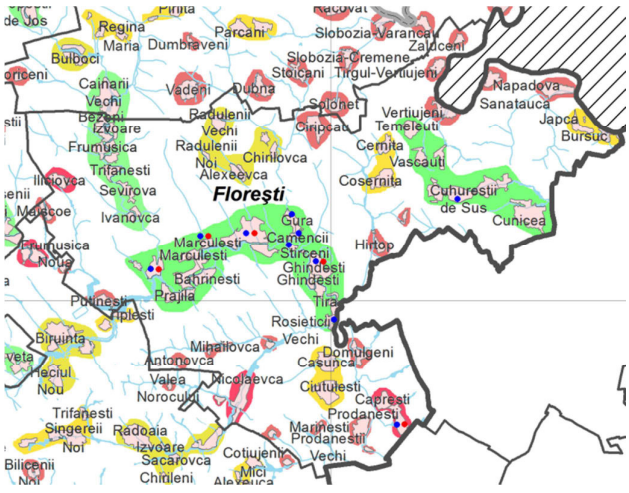
The rayon needs to develop its WSS infrastructure and to stimulate the intercommunity cooperation, as well as to enhance the Floresti city operator's institutional capacities with a view to extend gradually the WSS services to the neighbour localities. At the same time, another important problem is the need to stimulate consumers by means of the tariff policy, with a view to ensuring minimal water consumption and maintaining a sustainable level of services.

Development perspectives

The development perspectives are related to improving quality of WSS services in the Floresti city extending the sustainable and affordable services to neighbour localities. The localities with an increased clustering potential will develop group WSS systems, while the isolated localities will benefit from local solutions. Ground and surface water sources available in the rayon can be combined to enhance services efficiency and reliability.

The view on service development

By 2020, Floresti rayon will be ensured with access to safe, affordable and sustainable drinking water supply services for 90% of the urban population and 23% of the rural population. The service will be provided both in clusters of localities by means of regional aqueducts from surface water sources, and by local solutions from ground water sources. At the same time, 85% of the urban population and 19% of the rural population will be ensured with access to affordable and sustainable sewage services. The wastewater will be treated according to the norms in force at the regional, purification stations, as well as at local stations, in order to ensure the environment and sanitary conditions in the rayon.



GLODENI RAYON

Geographical position and water resources

Glodeni rayon lies in the north-west of the country, in the Prut River Valley. The distance from Glodeni to Chisinau, the capital city, is of 168 km. It borders Riscani rayon in the north-east, Falesti rayon in the south-east and Romania in the west. The rayon has its own explored ground water sources.

Regional data			
	Urban	Rural	Total
General information			
Area [km^2]			754
Population [people] (NBS data)	11,700	50,200	61,900
Number of communes/localities	1	18/34	19/35
Approved ground water resources			
Drinking water [m^3/day]			7,600
Technical water [m^3/day]			1,900
Degree of pollution			medium
Water supply system infrastructure			
Operational water supply systems	1	15	16
Coverage rate [%]	58	27	33
Production capacity of the abstraction facilities [m^3/day]	0		
Sewage and Wastewater purification systems infrastructure			
Sewage systems	1	3	4
Coverage rate [%]	51	0	10
Purification stations	1	2	3
The institutional and financial side			
Service operators	1		1
Average water tariff – population [lei/m^3]	21.92		
Average sewage tariff [lei/m^3]	24.68		

Water demand

Currently, the greatest water consumer is the Glodeni city. The industrial consumers are situated around the Glodeni city while rural areas are characterized by domestic water use.

The existing water supply system

The Glodeni city has a water supply system with a total length of 34.9 km of pipelines. The average specific consumption is 24 l/person/day, the unbilled water in the system being roughly 49.1%. The rural localities are very poorly ensured with services.

The existing sewage system

The existing sewage system in the Glodeni city consists of a sewage network with a total length of 18.2 km, including 3 pumping stations and 1 wastewater purification station. Some segments of the sewage system, including the pumping stations, have recently been renewed, while the purification station is in a deploring condition. The specific energy consumption of the Glodeni sewage system is 0.8 kWh/m^3. The rural localities are not provided with centralized sewage systems.

Service providers

Currently, the water supply, sewage and purification services in the Glodeni city are provided by the ME GC Glodeni, while the operating and maintenance of the existing systems in the rural areas is ensured by the local public authorities in the respective localities and/or by the consumer groups. The ME GC Glodeni is a potential for extending WSS services in other localities in the Glodeni rayon.

Key problems

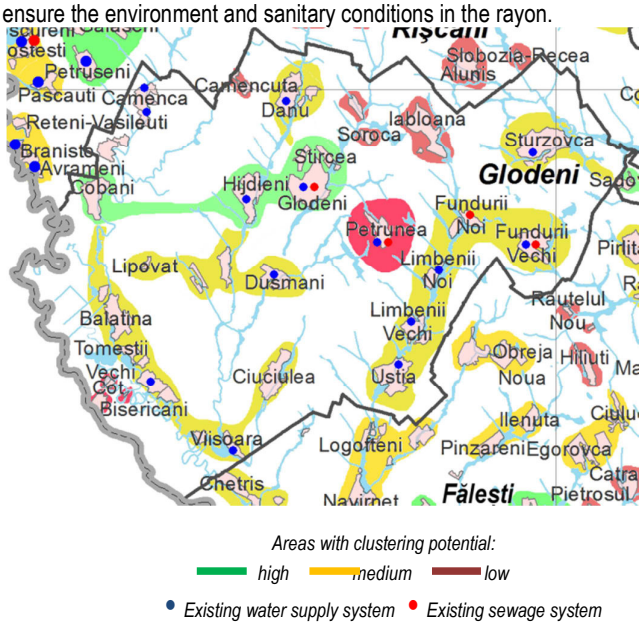
The rayon needs to develop its WSS infrastructure and to stimulate the intercommunity cooperation, as well as to enhance the Glodeni city operator's institutional capacities with a view to extend gradually the WSS services to the neighbour localities. At the same time, another important problem is the need to stimulate consumers by means of the tariff policy, with a view to ensuring minimal water consumption and maintaining a sustainable level of services.

Development perspective

The development perspectives are related to improving quality of WSS services in the Glodeni city extending the sustainable and affordable services to neighbour localities. The localities with an increased clustering potential will develop group WSS systems, while the isolated localities will benefit from local solutions. Ground and surface water sources available in the rayon can be combined to enhance services efficiency and reliability.

The view on service development

By 2020, the Glodeni rayon will be ensured with access to safe, affordable and sustainable drinking water supply services for 90% the urban population and 27% of the rural population. The service will be provided both in clusters of localities by means of regional aqueducts from surface water sources, and by local solutions from ground water sources. At the same time, 85% of the urban population and 19% of the rural population will be ensured with access to affordable and sustainable sewage services. The wastewater will be treated according to the norms in force at the regional purification stations, as well as at local stations in order to ensure the environment and sanitary conditions in the rayon.

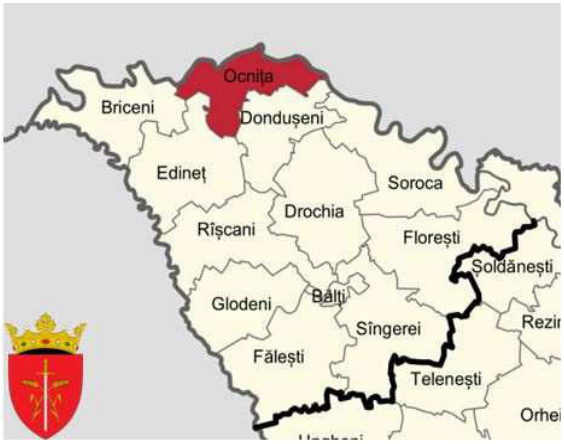


Areas with clustering potential:

high *medium* *low*

Existing water supply system *Existing sewage system*

OCNITA RAYON



Geographical position and water resources

Ocnita rayon is situated in the north-east of the country, at a distance of 236 km from Chisinau and borders Ukraine (Chernivtsi and Vinnitsa regions). In Ocnita rayon (at Naslavcea) is the northern extremity of the country. The rayon has its own explored ground water sources.

Regional data			
	Urban	Rural	Total
General information			
Area [km^2]			597
Population [people] (NBS data)	9,300 (Ocnita)	46,800	56,100
Number of communes/localities	3	18/30	21/33
Approved ground water resources			
Drinking water [m^3/day]			17,700
Technical water [m^3/day]			1,300
Degree of pollution			low
Water supply system infrastructure			
Operational water supply systems	6	7	13
Coverage rate [%]	56	1	12
Production capacity of the abstraction facilities [m^3/day]	2,500		
Sewage and Wastewater purification systems infrastructure			
Sewage systems	3		3
Coverage rate [%]	17	0	3
Purification stations	1		1
The institutional and financial side			
Service operators	5		5
Average water tariff – population [lei/m^3]	12.97		
Average sewage tariff [lei/m^3]	13.28		

Water demand

Currently, the greatest water consumer is the Ocnita city. Industrial consumers are situated around the Ocnita city and rural areas are characterized by domestic water use.

The existing water supply system

The Ocnita city has a water supply system with a total length of 35.9 km of pipelines, including 5 pumping stations and 3 deep wells, with a total capacity of 2,500 m^3 /day. The average specific consumption is 10 l/person/day, the unbilled water in the system being roughly 48.6%. The specific energy consumption is of approximately 3.1 kWh/m^3. The rural localities are very poorly ensured with services.

The existing sewage system

The existing sewage system in the Ocnita city consists of a sewage network with a total length of 4.1 km, including 1 pumping station and 1 wastewater purification station. This station has a capacity of 300 m^3/day of which only 36.3% are used. Some segments of the sewage system, including the pumping stations, have recently been renewed, while the purification station is in a deploring condition. The rural localities are not provided with centralized sewage systems.

Service providers

Currently, the water supply, sewage and purification services in the Ocnita city are provided by the ME IMDP GLC Ocnita, while the operating and maintenance of the existing systems in the rural areas is ensured by the local public authorities in the respective localities and/or by the consumer groups. The ME IMDP GLC Ocnita is a potential for extending WSS services in other localities in the Ocnita rayon.

Key problems

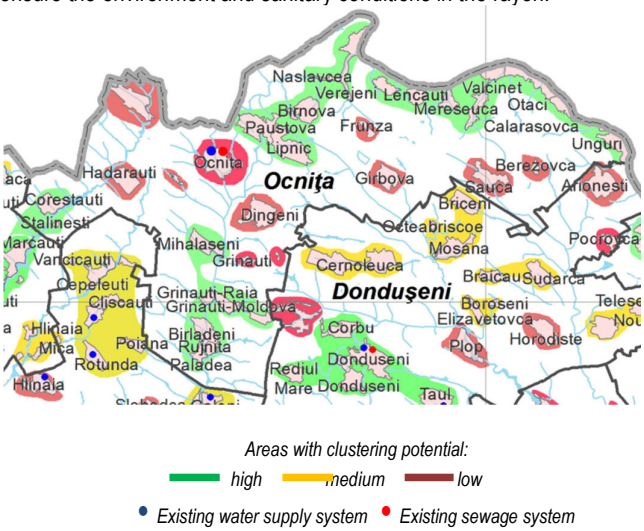
The rayon needs to develop its WSS infrastructure and to stimulate the intercommunity cooperation, as well as to enhance the Ocnita city operator's institutional capacities with a view to extend gradually the WSS services to the neighbour localities. At the same time, another important problem is the need to stimulate consumers by means of the tariff policy, with a view to ensuring minimal water consumption and maintaining a sustainable level of services.

Development perspective

The development perspectives are related to improving quality of WSS services in the Ocnita city extending the sustainable and affordable services to neighbour localities. The localities with an increased clustering potential will develop group WSS systems, while the isolated localities will benefit from local solutions. Ground and surface water sources available in the rayon can be combined to enhance services efficiency and reliability.

The view on service development

By 2020, the Ocnita rayon will be ensured with access to safe, affordable and sustainable drinking water supply services for 90% of the urban population and 23% of the rural population. The service will be provided both in clusters of localities by means of regional aqueducts from surface water sources, and by local solutions from ground water sources. At the same time, 85% of the urban population and 19% of the rural population will be ensured with access to affordable and sustainable sewage services. The wastewater will be treated according to the norms in force at the regional purification stations, as well as at local stations in order to ensure the environment and sanitary conditions in the rayon.

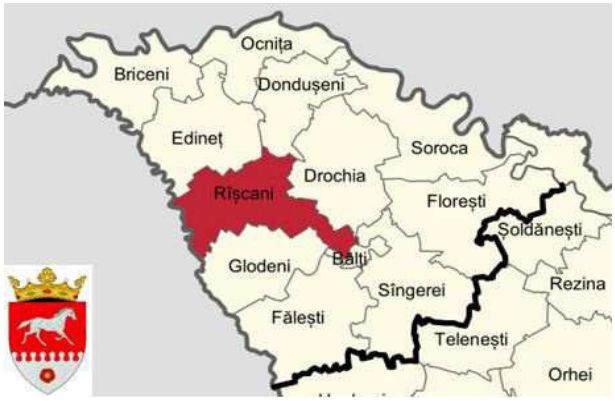


Areas with clustering potential:

high *medium* *low*

Existing water supply system *Existing sewage system*

RISCANI RAYON



Geographical position and water resources

Riscani rayon is situated in the north-western part of the Republic of Moldova, at a distance of 166 km from the capital city of Moldova - Chisinau. It borders Edinet rayon in the north, Drochia rayon and Balti Municipality in the east, Glodeni rayon in the south-east and Romania in the west. The rayon has its own explored ground water sources.

Regional data			
	Urban	Rural	Total
General information			
Area [km^2]			936
Population [people] (NBS data)	13,400	56,600	70,000
Number of communes/localities	2	26/53	28/55
Approved ground water resources			
Drinking water [m^3/day]			29,900
Technical water [m^3/day]			3,700
Degree of pollution			high
Water supply system infrastructure			
Operational water supply systems	2	23	25
Coverage rate [%]	80	28	38
Production capacity of the abstraction facilities [m^3/day]	2,000		
Sewage and Wastewater purification systems infrastructure			
Sewage systems	2	2	4
Coverage rate [%]	52	3	12
Purification stations	2	1	3
The institutional and financial side			
Service operators	2	16	18
Average water tariff – population [lei/m^3]	12	10	
Average sewage tariff [lei/m^3]	12	0	

Water demand

Currently, the greatest water consumer is the Riscani city. Industrial consumers are situated around the Riscani city and rural areas are characterized by domestic water use.

The existing water supply system

The Riscani city has a water supply system with a total length of 41.8 km of pipelines, including 10 pumping stations 10 deep wells, with a total capacity of 2,000 m^3 /day. The average specific consumption is 40l/person/day, the unbilled water in the system is roughly 30.3%. The specific energy consumption is of approximately 1.3 kWh/m^3. The rural localities are very poorly ensured with services.

The existing sewage system

The existing sewage system in the Riscani city consists of sewage network with a total length of 20.7 km, including 2 pumping stations and 1 wastewater purification station. This station has a capacity of 2, 400 m^3/day of which only 10.6% are used. Some segments of the sewage system, including the pumping stations, have recently been renewed, while the purification station is in a deploring condition. The specific energy consumption of Riscani sewer system is of approximately 0.5 kWh/m^3. The rural localities are not provided with centralized sewage systems.

Service providers

Currently, the water supply, sewage and purification services in the Riscani city are provided by the ME „Apa-Canal" Riscani, while the operating and maintenance of the existing systems in the rural areas is ensured by the local public authorities in the respective localities and/or by the consumer groups. The ME „Apa-Canal" Riscani is a potential for extending WSS services in other localities in the Riscani rayon.

Another development potential of the services in the concerned area is the ME, Apa-Canal Costesti providing WSS services to 5 localities situated in the western part of the Riscani rayon.

Some rural settlements from the rayon have organized water supply and sewage services in various forms and require a reestablishment and modernization of the respective operators' legal organization forms.

Key problems

The rayon needs to develop its WSS infrastructure and to stimulate the intercommunity cooperation, as well as to enhance the Riscani city operator's institutional capacities with a view to extend gradually the WSS services to the neighbour localities. At the same time, another important problem is the need to stimulate consumers by means of the tariff policy, with a view to ensuring minimal water consumption and maintaining a sustainable level of services.

Development perspective

The development perspectives are related to improving quality of WSS services in the Riscani city extending the sustainable and affordable services to neighbour localities. The localities with an increased clustering potential will develop group WSS systems, while the isolated localities will benefit from local solutions. Ground and surface water sources available in the rayon can be combined to enhance services efficiency and reliability.

The rayon water supply systems' development plans are based on the Prut and Raut rivers' drainage basin management.

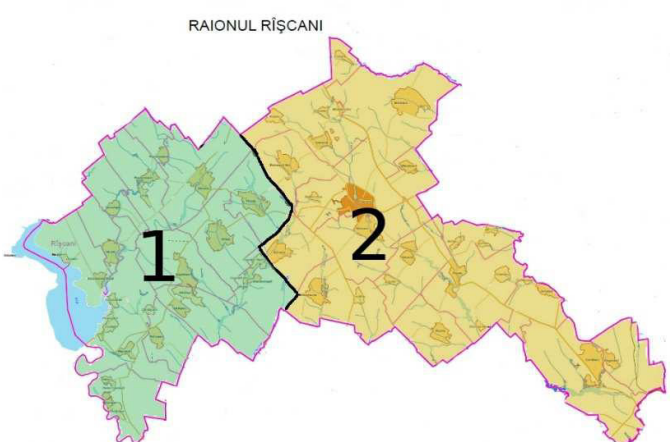
The developed strategy provides for localities' drinking water supply from 2 sources: Soroca – Balti penstock, ("Nistru" group) through Elizavetovca – Riscani adduction networks' construction and the Prut surface water source ("Prut" group) through the Varatic water treatment plant construction.

The "Prut" group will ensure water supply to the following localities: Costesti, Proscureni, Pascauti, Duruitoarea Veche, Damascani, Petruseni, Malaesti, Galaseni, Saptebani, Hiliuti, Sturzeni, Alexandresti, Ivanesti, Cucuietii Noi, Cucuietii Vechi, Horodiste, Zaicani, Varatic, Dumeni, Druta, Duruitoarea Noua, Pociumbeni, Pocimbauti and Pirjota.

The "Nistru" group will provide water supply from the Soroca – Balti penstock. The group will ensure supply of drinking water to: Riscani city, Nihoreni, Corlateni, Singureni, Grinauti, Sverdiac,

Ciobanovca, Racaria, Recea, Slobozia Recea, Alunis, Ciubara, Bulhac, Ceparia, Ramazan, Balanul Nou, Mihailenii Noi, Mihaileni, Borosenii Noi, Stiubeni, Usurei, Malinovscoie, Moseni, Luparia, and Sumna.

A separate development plan for the Braniste, Avrameni, Reteni and Reteni Vasileuti villages, taking into account that the water quality at the source corresponds to the norms in force, is envisaged. This needs to be confirmed by the hydrological studies on the reserves



Riscani water supply services' development

on the existing water sources.

The development of the sewage and wastewater treatment systems will foresee the use of a scheme of the drainage basins for each creek in the rayon. For this purpose, it is proposed to set up 5 groups with a view to ensuring provision of sewerage and wastewater treatment services. The following are stipulated:

1. Carrying out an opportunity study within each locality with a view to determining population's demand on sewerage services;
2. Mapping out the sewage pipeline network within the village;
3. Mapping out the collecting pipelines between the localities and the pumping stations, where appropriate;
4. Selecting the land to construct the wastewater treatment plant and the optimal technology.

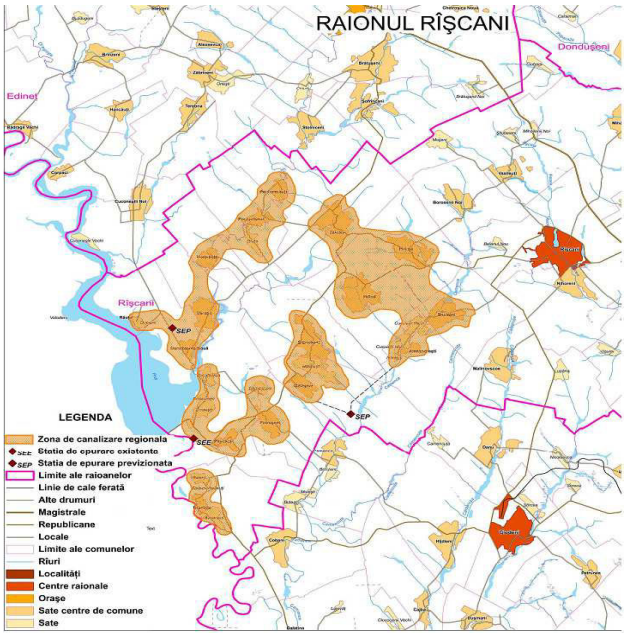
An optimal scheme for developing the sewage and wastewater treatment systems from the "Riscani" group would be to collect such water from the component localities and transport it to the Balti purification station. The effectiveness of this scheme can be stated in a study of opportunity. An appropriate option provides for the rehabilitation of the Riscani city station. The localities from the outskirts of the Balti city will transport the water into the Balti sewer system.

The other localities will foresee the construction of a number of purification stations for a group of villages or organization of wastewater transportation with specialized vehicles to other nearby stations.

The view on service development

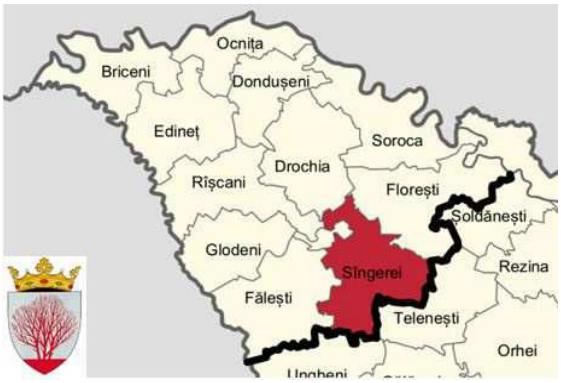
By 2020, the Riscani rayon will be ensured with access to safe, affordable and sustainable drinking water supply services for 90% of the urban population and 60% of the rural population. The service will be provided both in clusters of localities by means of regional aqueducts from surface water sources, from Nistru River (Soroca-Balti) and Prut River (Elizavetovca – Riscani), as well as through solutions from groundwater sources in the western part of the rayon.

At the same time, 60% of the urban population and 20% of the rural population will be ensured with access to affordable and sustainable sewage services. The wastewater will be treated according to the norms in force at the regional purification stations (2), as well as at local stations (5), in order to ensure the environment and sanitary conditions in the rayon.



Sewage and wastewater treatment in the "Nistru" group

SÎNGEREI RAYON



Geographical position and water resources

Singerei rayon is located in the northern part of Moldova, at a distance of 110 km from the capital city. It borders Drochia rayon in the north, Floresti rayon in the east, Telenesti rayon in the south and Ungheni rayon in the west. The rayon has its own explored ground water sources.

Regional data			
	Urban	Rural	Total
General information			
Area [km^2]			1.033
Population [people] (NBS data)	14,600	78,800	93,400
Number of communes/localities	2	24/68	26/70
Approved ground water resources			
Drinking water [m^3/day]			6,200
Technical water [m^3/day]			120
Degree of pollution			low
Water supply system infrastructure			
Operational water supply systems	1	11	12
Coverage rate [%]	88	8	20
Production capacity of the abstraction facilities [m^3/day]	2,300		
Sewage and Wastewater purification systems infrastructure			
Sewage systems	1		1
Coverage rate [%]	28	0	4
Purification stations	1		1
The institutional and financial side			
Service operators	1		1
Average water tariff – population [lei/m^3]	8.70		
Average sewage tariff [lei/m^3]	9.19		

Water demand

Currently, the greatest water consumer is the Singerei city. Industrial consumers are situated around the Singerei city and rural areas are characterized by domestic water use.

The existing water supply system

The Singerei city has a water supply system with a total length of 46.6 km of pipelines, including 15 pumping stations and 15 deep wells, with a total capacity of 2,300 m^3 /day. The average specific consumption is 50 l/person/day, the unbilled water in the system is roughly 43.1%. The specific energy consumption is of approximately 0.9 kWh/m^3. The rural localities are very poorly ensured with services.

The existing sewage system

The existing sewage system in the Singerei city consists of sewage network with a total length of 9.4 km, including 1 pumping station and 1 wastewater purification station. This station has a capacity of 600 m^3/day of which only 44.4% are used. Some segments of the sewage system, including the pumping station, have recently been renewed, while the purification station is in a deploring condition. The specific energy consumption of Singerei sewer system is 0.5 kWh/m^3. The rural localities are not provided with centralized sewage systems.

Service providers

Currently, the water supply, sewage and purification services in the Singerei city are provided by the ME Apa-Canal Singerei, while the operating and maintenance of the existing systems in the rural areas is ensured by the local public authorities in the respective localities and/or by the consumer groups. The ME Apa-Canal Singerei is a potential for extending WSS services in other localities in the Singerei rayon.

Key problems

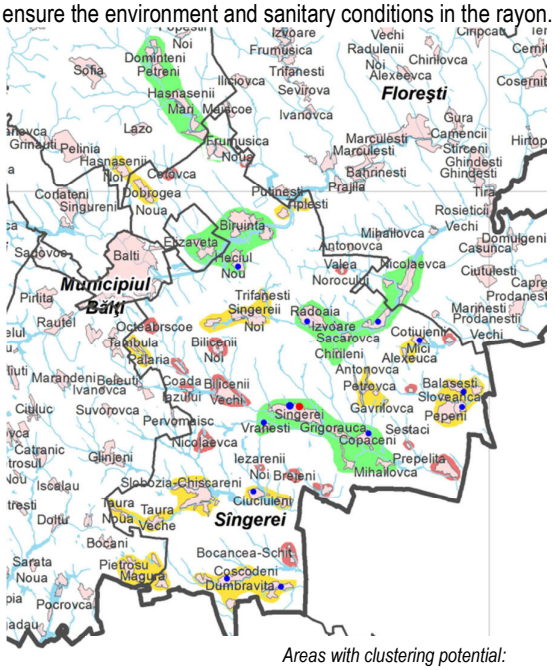
The rayon needs to develop its WSS infrastructure and to stimulate the intercommunity cooperation, as well as to enhance the Singerei city operator's institutional capacities with a view to extend gradually the WSS services to the neighbour localities. At the same time, another important problem is the need to stimulate consumers by means of the tariff policy, with a view to ensuring minimal water consumption and maintaining a sustainable level of services.

Development perspective

The development perspectives are related to improving quality of WSS services in the Singerei city extending the sustainable and affordable services to neighbour localities. The localities with an increased clustering potential will develop group WSS systems, while the isolated localities will benefit from local solutions. Ground and surface water sources available in the rayon can be combined to enhance services efficiency and reliability.

The view on service development

By 2020, the Singerei rayon will be ensured with access to safe, affordable and sustainable drinking water supply services for 90% of the urban population and 23% of the rural population. The service will be provided both in clusters of localities by means of regional aqueducts from surface water sources, and by local solutions from ground water sources. At the same time, 85% of the urban population and 19% of the rural population will be ensured with access to affordable and sustainable sewage services. The wastewater will be treated according to the norms in force at the regional purification stations, as well as at local stations in order to ensure the environment and sanitary conditions in the rayon.



SOROCA RAYON

Geographical position and water resources

Soroca rayon is situated in the north-eastern part of the Republic of Moldova. It borders Donduseni rayon in the north-west, Drochia rayon in the west, Floresti rayon in the south, Administrative-territorial unit from the left bank of Nistru in the south-east and Ukraine in the east. The rayon has its own explored ground water sources.

Regional data			
	Urban	Rural	Total
General information			
Area [km^2]			1,043
Population [people] (NBS data)	37,400	63,000	100,400
Number of communes/localities	1	34/67	35/68
Approved ground water resources			
Drinking water [m^3/day]			19,000
Technical water [m^3/day]			-
Degree of pollution			low
Water supply system infrastructure			
Operational water supply systems	1	5	6
Coverage rate [%]	75	2	29
Production capacity of the abstraction facilities [m^3/day]	10,600		
Sewage and Wastewater purification systems infrastructure			
Sewage systems	1	2	3
Coverage rate [%]	21	0	8
Purification stations	1		1
The institutional and financial side			
Service operators	1		1
Average water tariff – population [lei/m^3]	15.31		
Average sewage tariff [lei/m^3]	5.08		

Water demand

Currently, the greatest water consumer is the Soroca city. Industrial consumers are situated around the Soroca city and rural areas are characterized by domestic water use.

The existing water supply system

The Soroca city has a water supply system with a total length of 74.9 km of pipelines, including 13 pumping stations, 10 deep wells with a total capacity of 10,000 m^3 /day. The average specific consumption is 50 l/person/day, the unbilled water in the system is roughly 47.1%. The specific energy consumption is of approximately 0.1 kWh/m^3. The rural localities are very poorly ensured with services.

The existing sewage system

The existing sewage system in the Soroca city consists of sewage network with a total length of 53.4 km, including 10 pumping stations and 1 wastewater purification station. This station has a capacity of 10,300 m^3/day of which only 12.6% are used. Some segments of the sewage system, including the pumping station, have recently been renewed, while the purification station is in a deploring condition. The rural localities are not provided with centralized sewage systems.

Service providers

Currently, the water supply, sewage and purification services in the Soroca city are provided by the ME DAC Soroca, while the operating and maintenance of the existing systems in the rural areas is ensured by the local public authorities in the respective localities and/or by the consumer groups. The ME DAC Soroca is a potential for extending WSS services in other localities in the Soroca rayon.

Key problems

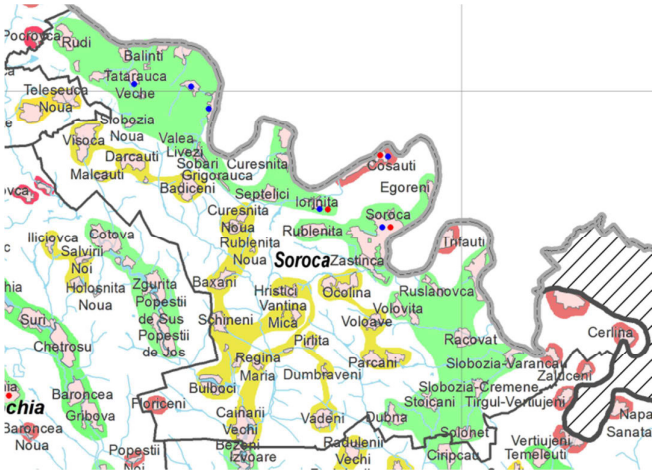
The rayon needs to develop its WSS infrastructure and to stimulate the intercommunity cooperation, as well as to enhance the Soroca city operator's institutional capacities with a view to extend gradually the WSS services to the neighbour localities. At the same time, another important problem is the need to stimulate consumers by means of the tariff policy, with a view to ensuring minimal water consumption and maintaining a sustainable level of services.

Development perspective

The development perspectives are related to improving quality of WSS services in the Soroca city extending the sustainable and affordable services to neighbour localities. The localities with an increased clustering potential will develop group WSS systems, while the isolated localities will benefit from local solutions. Ground and surface water sources available in the rayon can be combined to enhance services efficiency and reliability.

The view on service development

By 2020, the Soroca rayon will be ensured with access to safe, affordable and sustainable drinking water supply services for 90% of the urban population and 23% of the rural population. The service will be provided both in clusters of localities by means of regional aqueducts from surface water sources, and by local solutions from ground water sources. At the same time, 85% of the urban population and 19% of the rural population will be ensured with access to affordable and sustainable sewage services. The wastewater will be treated according to the norms in force at the regional purification stations, as well as at local stations in order to ensure the environment and sanitary conditions in the rayon.



Areas with clustering potential:

high *medium* *low*

● *Existing water supply system* ● *Existing sewage system*

NORTH DEVELOPMENT REGION PROFILE

WATER SUPPLY AND SANITATION SERVICES

The North Development Region of the Republic of Moldova includes the Balti Municipality and 11 rayons: Briceni, Edinet, Donduseni, Drochia, Falesti, Floresti, Glodeni, Ocnita, Riscani, Singerei, Soroca, with a surface area of approximately 10,014 km²

Rayon	Total Reserves of underground Water (m³/day)
Municipiul Balti	49,800
Briceni	12,300
Donduseni	-
Drochia	19,300
Edinet	13,200
Falesti	28,100
Floresti	23,900
Glodeni	9,500
Ocnita	19,000
Riscani	33,600
Singerei	6,320
Soroca	19,000
Total **RD North**	**234,020**
Total **3 Regions**	**1,492,620**

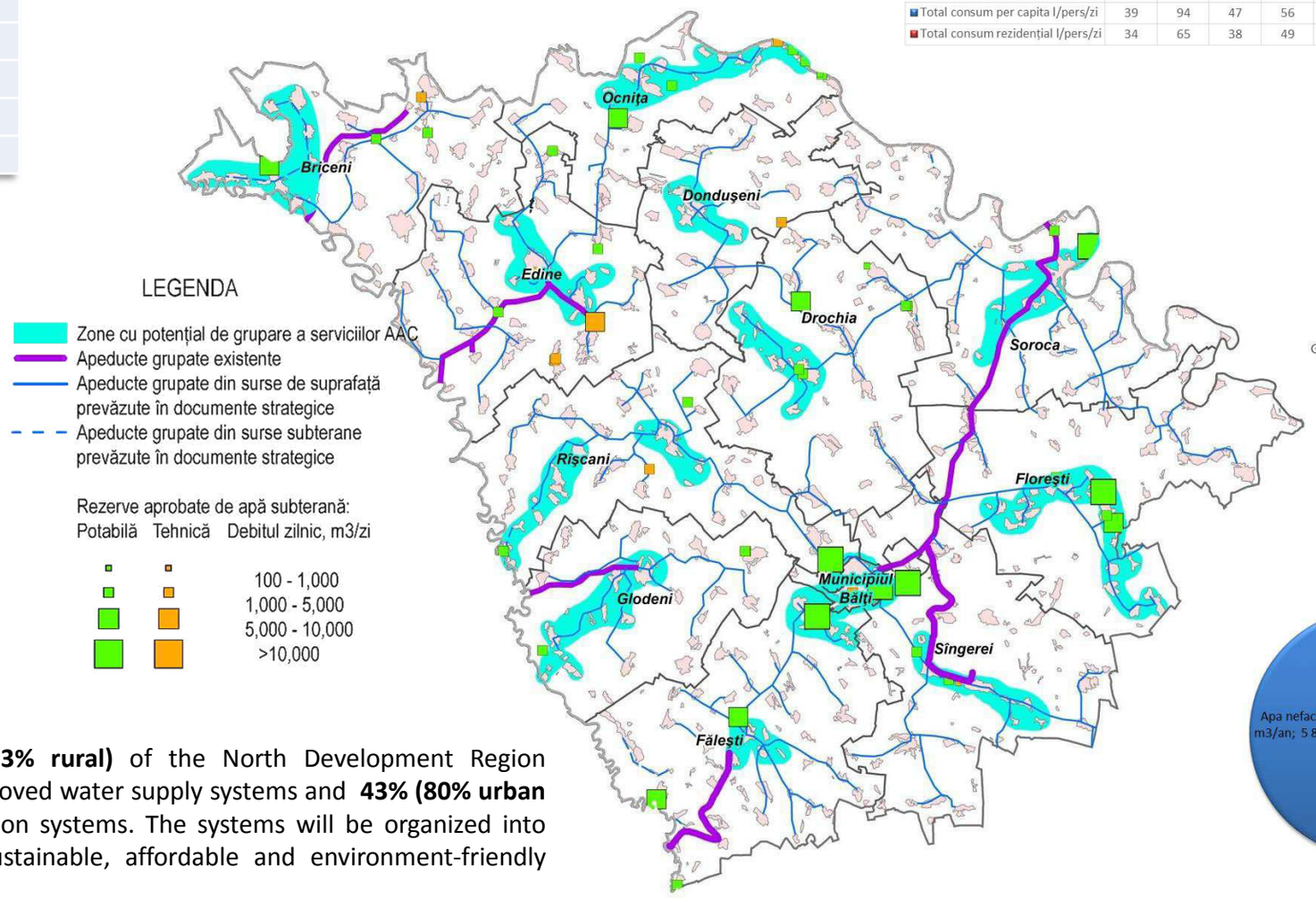
WATER SUPPLY SERVICES' COVERAGE

All (100%) urban localities and about 27% rural areas from the NDR have access to centralized water supply systems. These systems provide only 73% of the urban population and 14% of the rural population with water. The overall share of the population from NDR connected to water systems is estimated at approximately 34%, while the connection rate at country level is around 54%.

SANITATION SERVICES' COVERAGE

All (100%) urban localities and about 3% rural areas from the NDR have sewer centralized systems. Nevertheless, only 46% of the urban population and approximately 0-1% of the rural population have access to them. The overall share of the population from NDR connected to sewer systems is estimated at approximately 16%, while the connection rate at country level is around 30%.

LOCATION OF AREAS WITH CLUSTERING POTENTIAL IN THE FIELD OF WATER SUPPLY AND SANITATION SERVICES



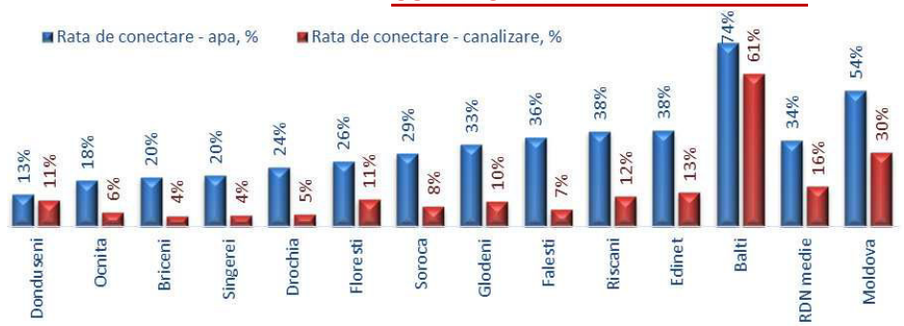
DEVELOPMENT PERSPECTIVES

The development perspectives are related to improving quality of WSS services in the NDR and extending sustainable and affordable services to the neighboring localities. The localities with an increased clustering potential will develop grouped WSS systems, while the isolated localities will benefit from local solutions. Ground and surface water sources available in the rayon can be combined as to enhance services' efficiency and reliability.

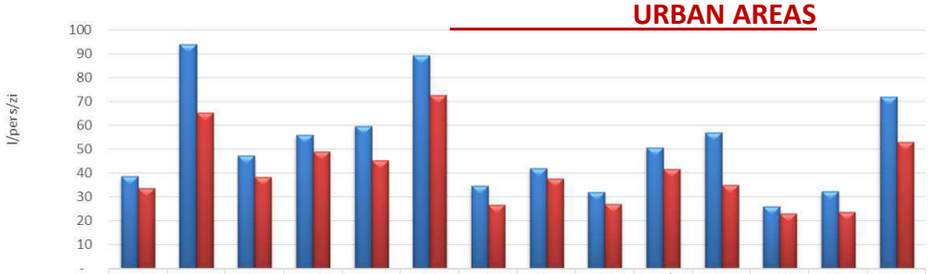
STRATEGIC VISION FOR 2020

By 2020, **47% (90% urban** and **23% rural)** of the North Development Region population will be connected to improved water supply systems and **43% (80% urban** and **22% rural)** to improved sanitation systems. The systems will be organized into logical clusters and will provide sustainable, affordable and environment-friendly services.

WATER SUPPLY AND SANITATION SERVICES' CONNECTIVITY RATE IN THE NDR

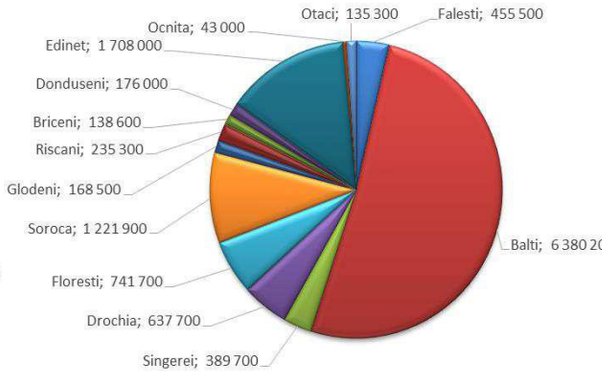


SPECIFIC WATER CONSUMPTION – URBAN AREAS

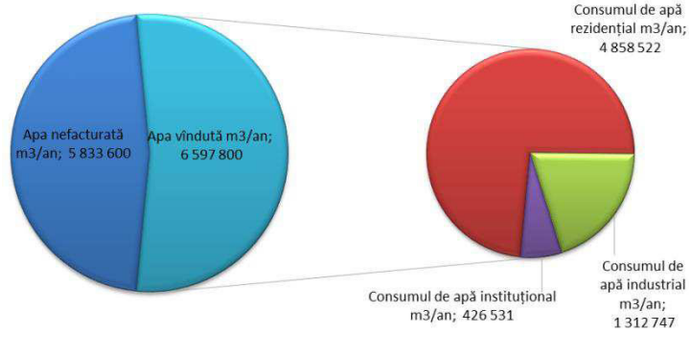


	Falesti	Balti	Singerei	Drochia	Floresti	Soroca	Glodeni	Riscani	Briceni	Donduseni	Edinet	Ocnita	Otaci	TOTAL RDN
Total consum per capita l/pers/zi	39	94	47	56	60	89	35	42	32	51	57	26	32	72
Total consum rezidențial l/pers/zi	34	65	38	49	45	73	27	38	27	42	35	23	24	53

WATER CONSUMPTION – URBAN AREAS



WATER BALANCE URBAN AREAS



Annex 4

WSS Sector Indicators in North Region

Annex 4: WSS Sector Indicators in North Region[1]

Indicator	Unit	Falesti	Balti	Singerei	Drochia	Floresti	Soroca	Glodeni	Riscani	Briceni	Donduseni	Edinet	Ocnita[2]	Otaci	Total North Region
WSS indicators															
No of WSS operators - total		1	1	1	1	3	1	1	18	2	4	1	5		39
• Urban		1	1	1	1	3	1	1	2	2	4	1	5		23
• Rural									16						16
Localities with water system - urban	No	1	1	2	1	3	1	1	2	2	1	2	3		20
Total no of localities - urban	No	1	1	2	1	3	1	1	2	2	1	2	3		20
Share of urban localities with piped water supply, %	%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		100%
Share of urban population connected to piped water supply, %	%	87%	75%	88%	59%	90%	75%	58%	80%	74%	41%	69%	56%		73%
Localities with water system - rural	No	24	2	11	5	8	5	15	24	19	3	31	2		149
Total no of localities - rural	No	75	2	68	39	71	67	34	53	37	29	47	30		552
Share of rural localities with piped water supply, %	%	32%	100%	16%	13%	11%	7%	44%	45%	51%	10%	66%	7%		27%
Share of rural population connected to piped water supply, %	%	24%	23%	8%	13%	9%	2%	27%	28%	12%	4%	24%	1%		14%
Localities with wastewater system - urban	No	1	1	2	1	3	1	1	2	2	1	2	3		20
Total no of localities - urban	No	1	1	2	1	3	1	1	2	2	1	2	3		20

[1] Data compiled based on the best estimates available for the period 2011/2013. Sources: National Bureau of Statistics, Ministry of Environment, TA Water Sector Policy Support Programme, GIZ MLPS questionnaires, Moldova Apa-Canal Association, International Benchmarking Network (IB-NET)

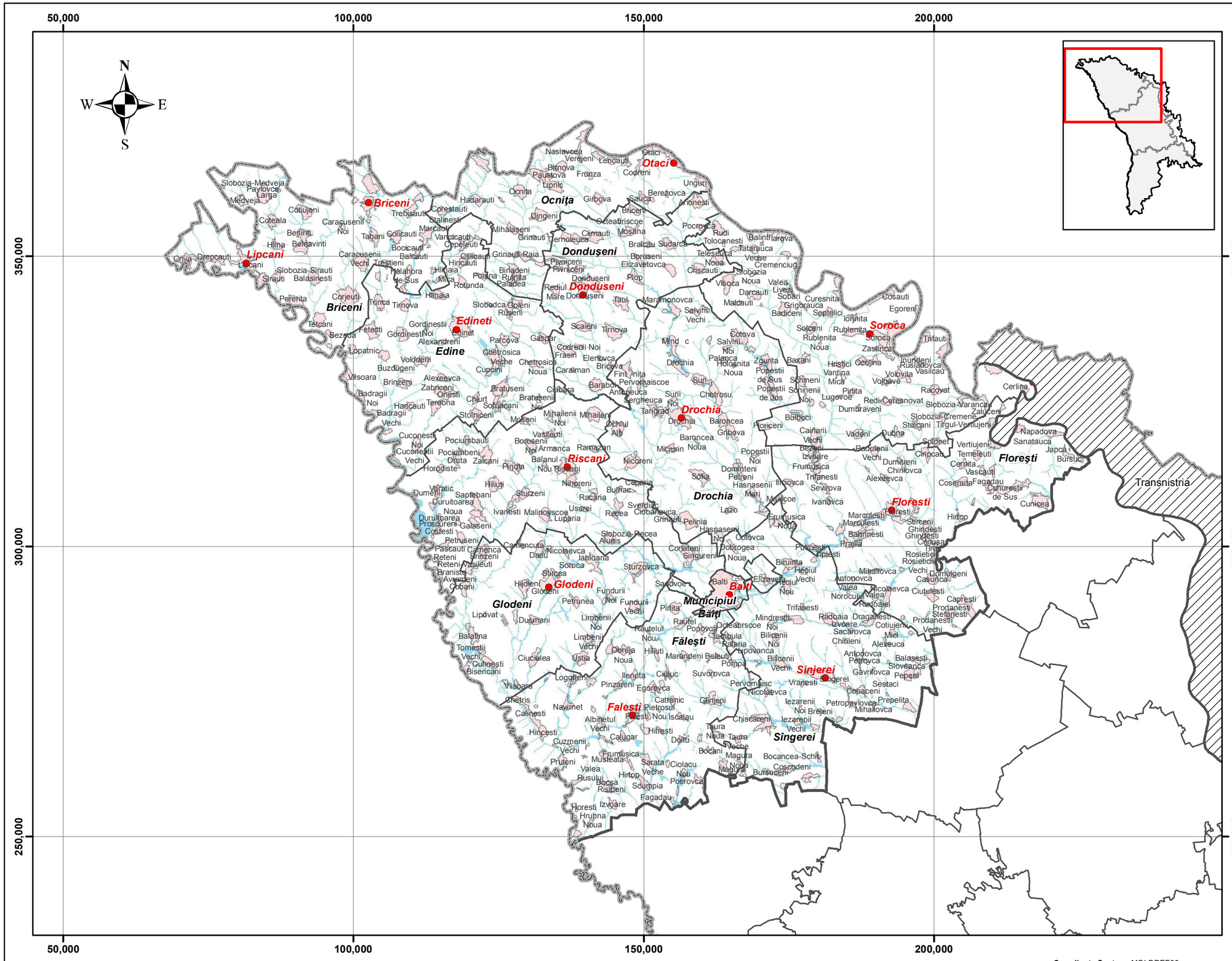
[2] Urban component does not cover Frunza and Lipcani

Share of urban localities with piped wastewater systems, %	%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		100%
Share of urban population connected to piped wastewater, %	%	36%	63%	28%	20%	51%	21%	51%	52%	29%	42%	43%	17%		46%
Localities with wastewater system - rural	No	2	1	0	0	2	2	3	3	1	1	0	0		15
Total no of localities - rural	No	75	2	68	39	71	67	34	53	37	29	47	30		552
Share of rural localities with piped wastewater systems, %	%	3%	50%	0%	0%	3%	3%	9%	6%	3%	3%	0%	0%		3%
Share of rural population connected to piped wastewater, %	%	0%	61%	0%	0%	0%	0%	0%	3%	0%	1%	0%	0%		0%
Continuity of service	h/day	24	24	24	9	24	24	12	24	24	24	24	20	12	
Specific energy consumption - water	kWh/m3	1.71	0.98	0.93	1.83	1.21	0.06	0.02	1.25	1.98	1.44	1.31	2.85		
Specific energy consumption - wastewater	kWh/m3	0.54	0.49	0.53	0.42	1.11	0.04	0.78	0.51	1.55	0.24	0.95	0		
Urban															
Total per capita consumption	l/pers./day	39	94	47	56	60	89	35	42	32	51	57	26	32	72
Total residential consumption	l/pers./ day	34	65	38	49	45	73	27	38	27	42	35	23	24	53
Total water produced	m3/year	455, 500	6,380,200	389,700	637,700	741,700	1,221,900	168,500	235,300	138,600	176,000	1,708,000	43,000	135,300	12,431,400
Non-Revenue Water	m3/year	250, 000	2,658,100	168,100	389,600	361,800	302,400	82,700	72,000	53,300	95,200	1,334,400	20,900	45,100	5,833,600
Total water sold`	m3/year	205, 500	3,722,100	221,600	248,100	379,900	919,500	85,800	163,300	85,300	80,800	373,600	22,100	90,200	6,597,800
Residential water demand	m3/year	179, 300	2,580,600	179,500	217,500	287,400	747,300	66,300	146,300	71,900	66,500	230,000	19,500	66,422	4,858,522
Industrial water demand	m3/year	15, 900	912,400	9,400	13,900	75,800	104,300	3,100	5,600	9,400	11,000	131,900	2,100	17,947	1,312,747
Institutional water demand	m3/year	10, 300	229,100	32,700	16,700	16,700	67,900	16,400	11,400	4,000	3,300	11,700	500	5,831	426,531
Non-Revenue Water	%	55%	42%	43%	61%	49%	25%	49%	31%	38%	54%	78%	49%	33%	47%
Total production capacity	m3/day	3,200	47,200	2,300	3,900	6,000	10,600	-	2,000	10,000	1,200	14,000	2,500		102,900
Total production capacity	m3/year	1,168,000	17,228,000	839,500	1,423,500	2,190,000	3,869,000	-	730,000	3,650,000	438,000	5,110,000	912,500		37,558,500

% resource use	%	39%	37%	46%	45%	34%	32%	0%	32%	4%	40%	33%	5%		33%
Length of water networks	km	41.4	261.3	46.6	70.5	141.2	74.9	34.9	41.8	49.8	40.5	118.2	35.9	24.1	981
Generated wastewater, incl.	m3/year	129,300	3,247,200	97,200	186,200	246,400	473,200	80,000	92,800	81,500	81,600	273,600	28,900	11,500	5,029,400
Residential	m3/year	93 100	2,227 800	60,600	137,600	122,000	333,500	56,900	51,500	56,000	67,200	125,600	19,500	7,680	3,358,980
Industrial +Institutional	m3/year	36,200	1,019,400	36,600	48,600	124,400	139,700	23,100	41,300	25,500	14,400	148,000	9,400	3,820	1,670,420
Length of WW networks	km	31	150	9.4	45.5	33.3	53.4	18.2	20.7	30	15.5	52.7	4.1	5.3	469
Wastewater Return Rate	%	63%	87%	44%	75%	65%	51%	93%	57%	96%	101%	73%	131%	13%	76%

Annex 5

Water Resources Report



Legend

- International Border
- Transnistria
- Region Border
- Raion Border
- Urban Areas
- Lakes
- Rivers
- Apa-Canal

DRAWING:

LOCATION MAP:
NORTH REGION

Drawn by:	Andreas de Jong	Date:	Apr 2013
Checked by:	Mihail Cojocaru	Date:	Apr 2013
Authorized by:	Colm McClements	Date:	Apr 2013
Drawing No:	001		
Version:	1		

PROJECT:

Modernisation of
Local Public Services
in the Republic of Moldova
Intervention Area II
Water and Sanitation

CLIENT:

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

GOPA WORLDWIDE CONSULTANTS

DISCLAIMER
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the authors cannot be held responsible for any loss or damage emanating from its use.
THIS MAP MUST NOT BE CONSIDERED AN AUTHORITY ON THE DELIMITATION
OF INTERNATIONAL AND OTHER BOUNDARIES.

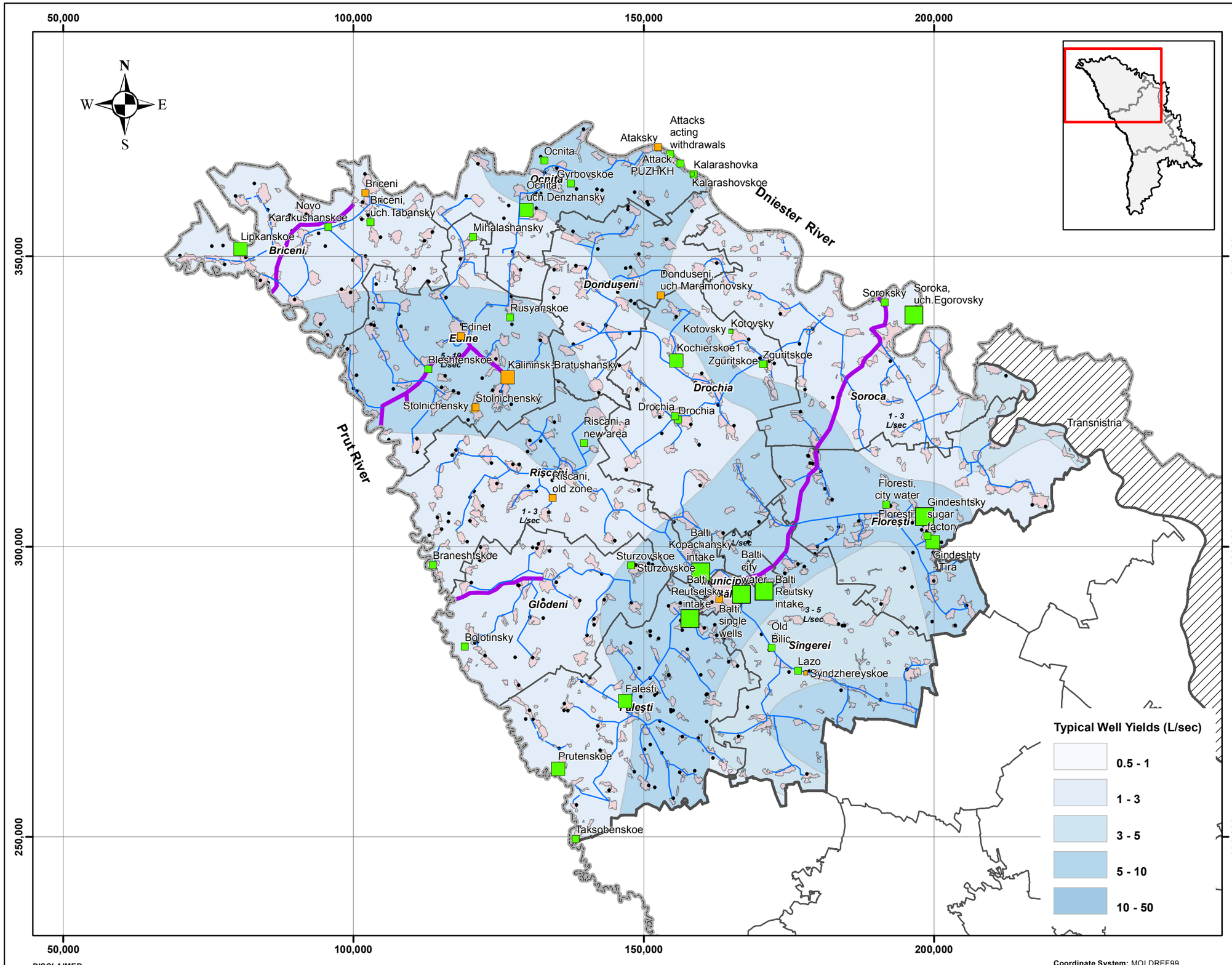
File Path: F:\Moldova\1_Maps\001_Location_Map_North.mxd

Scale 1:650,000 @ A3 paper slze

0 5 10 20 30 40 Kilometres

Data Sources:
1. Moldova Geoportal

Coordinate System: MOLDREF99
Projection: Transverse Mercator
Datum: ETRS 1989
False Easting: 200,000.0000
False Northing: -5,000,000.0000
Central Meridian: 28.4000
Scale Factor: 0.9999
Latitude Of Origin: 0.0000
Units: Meter



Legend

- International Border
- Transnistria
- Region Border
- Raion Border
- Urban Areas

Pipeline Status

- Existing
- Proposed
- Planned

Total Potable Reserves (m3/day)

- 100 - 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- >10,000

Total Technical Reserves (m3/day)

- 100 - 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- >10,000
- Existing Wells

Note: Potable and technical (non-potable) groundwater resources are based on historical Soviet studies & standards.

DRAWING:

WATER RESOURCES MAP: NORTH REGION

Drawn by:	Andreas de Jong	Date:	Apr 2013
Checked by:	Mihail Cojocaru	Date:	Apr 2013
Authorized by:	Colm McClements	Date:	Apr 2013
Drawing No:	004		
Version:	1		

PROJECT:

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CLIENT:

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File Path: F:\Moldova\1_Maps\004_Water_Resources_North.mxd

Scale 1:650,000 @ A3 paper slze

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Data Sources:
1. Moldova Geoportal
2. Hydrogeological Map of Moldova
3. Moldova WSS Strategy 2007
4. Soviet Studies on Groundwater Resources

Coordinate System: MOLDREF99
Projection: Transverse Mercator
Datum: ETRS 1989
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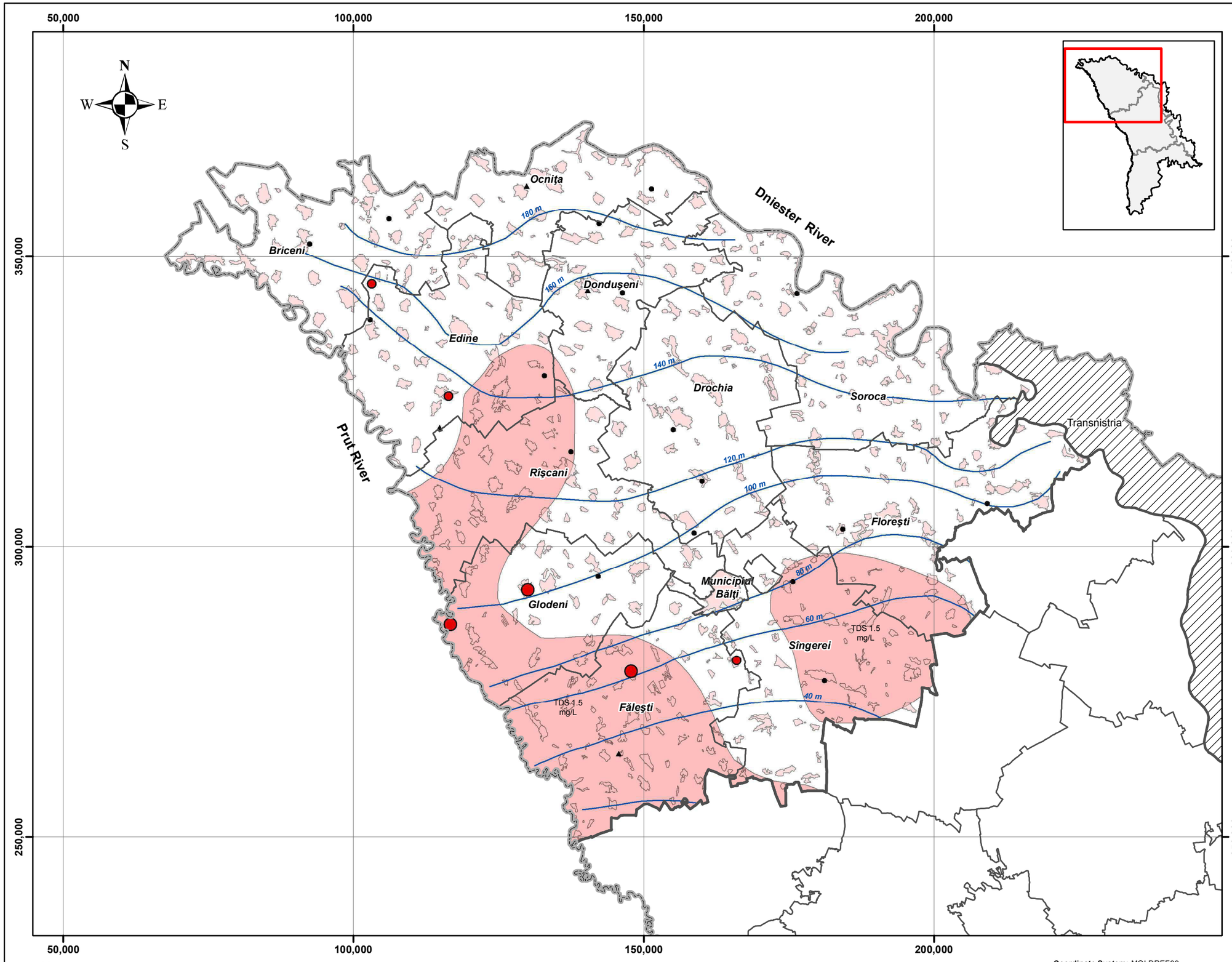
False Northing: -5,000,000.0000
Central Meridian: 28.4000
Scale Factor: 0.9999
Latitude Of Origin: 0.0000
Units: Meter



Legend

- International Border
- Transnistria
- Region Border
- Raion Border
- Urban Areas
- TDS >= 1.5 g/L
- Static Water Level (mamsl)

WellType

- Exploration
- Monitoring
- Production

Fluoride (F in mg/L)

- <=1.5
- 1.5 - 3.0
- 3.0 - 7.5
- >7.5

Note: This map is based on the national maps of the N1S1 aquifer, from historical soviet studies. It has not been cross checked with more recent water quality data.

DRAWING:

WATER QUALITY MAP OF THE MAIN AQUIFER (N1S1): NORTH REGION

Drawn by:	Andreas de Jong	Date: Apr 2013
Checked by:	Mihail Cojocaru	Date: Apr 2013
Authorized by:	Colm McClements	Date: Apr 2013
Drawing No:	007	
Version:	1	

PROJECT:

Modernisation of Local Public Services in the Republic of Moldova Intervention Area II Water and Sanitation

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Scale 1:650,000 @ A3 paper size

0 5 10 20 30 40 Kilometres

Coordinate System: MOLDREF99
Projection: Transverse Mercator
Datum: ETRS 1989
False Easting: 200,000.0000
False Northing: -5,000,000.0000
Central Meridian: 28.4000
Scale Factor: 0.9999
Latitude Of Origin: 0.0000
Units: Meter

Data Sources:
1. Moldova Geoportal
2. Soviet Studies on Groundwater Resources

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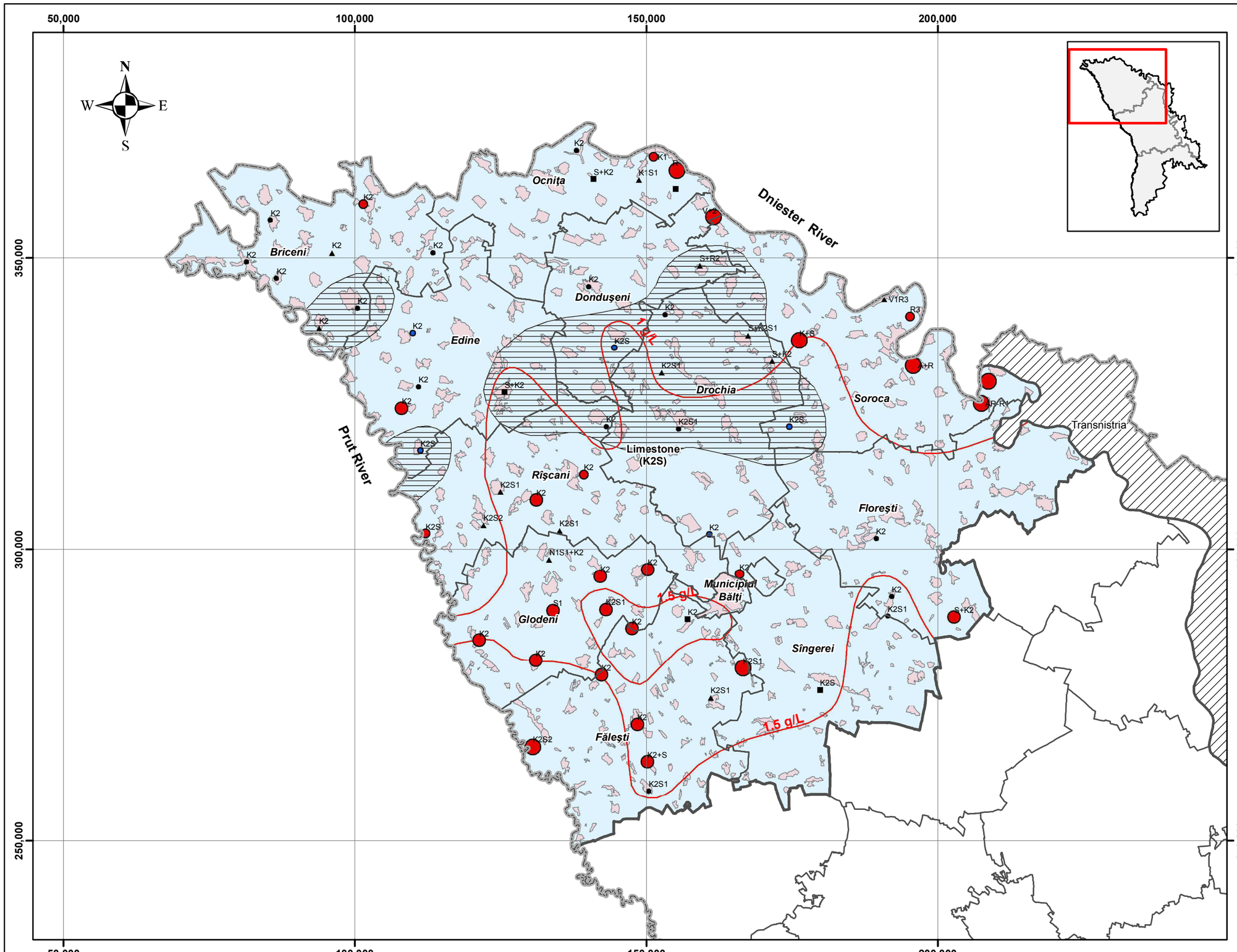

Legend

- International Border
- Transnistria
- Region Border
- Raion Border
- Urban Areas

Type

- Exploration
- Monitoring
- Production

Fluoride (F in mg/L)

- <1.5
- 1.5 - 3.0
- 3.0 - 7.5
- >7.5
- Mineralisation (g/L)
- OK for GOST 2874-82
- +/- OK for GOST 2874-82
- Not OK for GOST 2874-82

Note: This map is based on the national maps of the K2S aquifer, from historical soviet studies. It has not been cross checked with more recent water quality data.

DRAWING:

WATER QUALITY MAP OF THE SECOND AQUIFER (K2S): NORTH REGION

Drawn by:	Andreas de Jong	Date:	Apr 2013
Checked by:	Mihail Cojocaru	Date:	Apr 2013
Authorized by:	Colm McClements	Date:	Apr 2013
Drawing No:	010		
Version:	1		

PROJECT:

Modernisation of
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Intervention Area II
Water and Sanitation

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Scale 1:650,000 @ A3 paper size

0 5 10 20 30 40 Kilometres

Coordinate System: MOLDREF99
Projection: Transverse Mercator
Datum: ETRS 1989
False Easting: 200,000.0000
False Northing: -5,000,000.0000
Central Meridian: 28.4000
Scale Factor: 0.9999
Latitude Of Origin: 0.0000
Units: Meter

Data Sources:
1. Moldova Geoportal
2. Soviet Studies on Groundwater Resources

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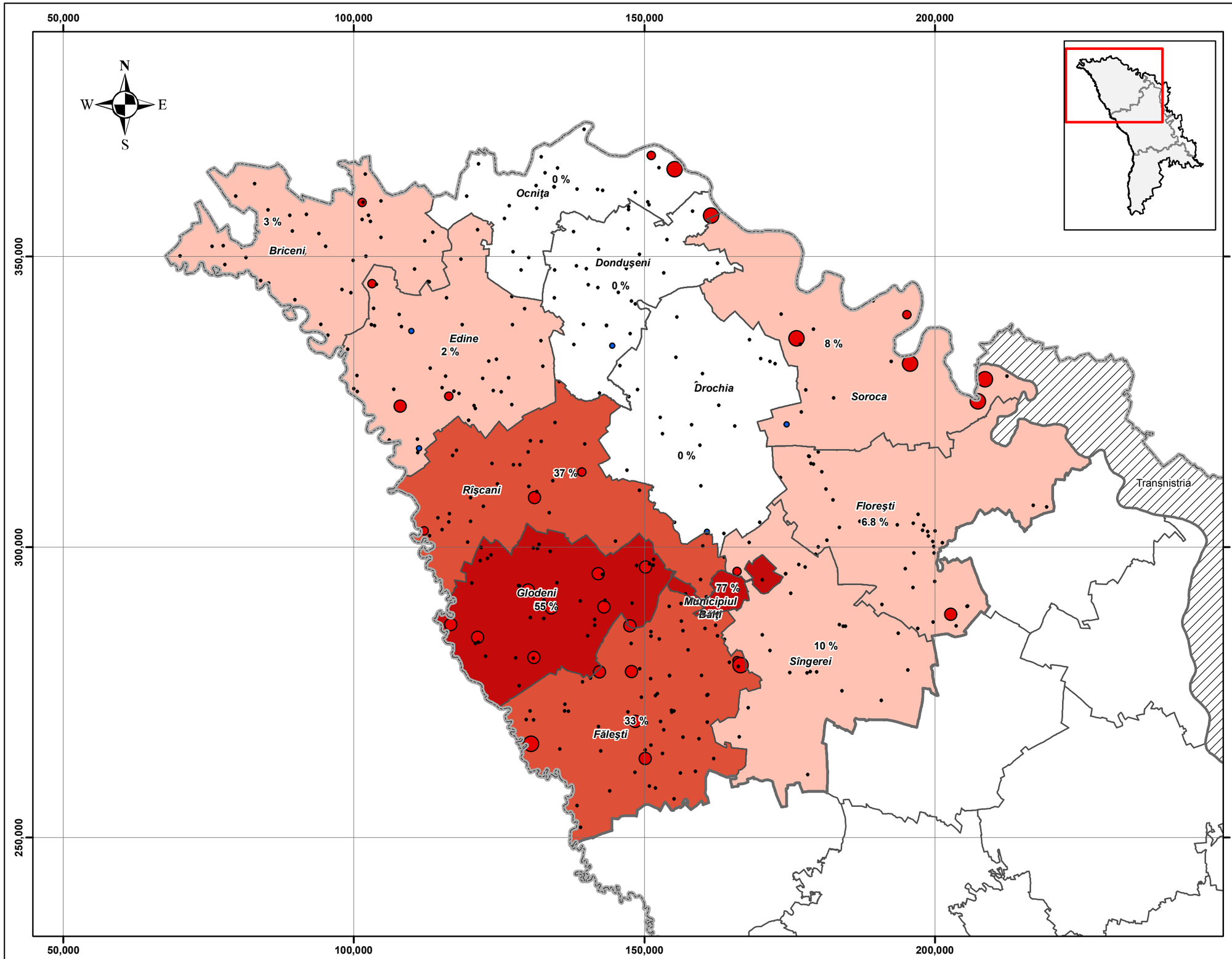

Legend

- International Border
- Transnistria
- Region Border
- Raion Border
- Location of Wells

Wells with Fluoride

F in mg/L

- <=1.5
- 1.5 - 3.0
- 3.0 - 7.5
- >7.5

UNICEF School Survey

% Water Sources with Fluoride

- 0
- 0 - 10
- 10 - 25
- 25 - 50
- >50

Note: This map is based on the UNICEF survey of school drinking water sources & historical Soviet studies, and therefore is indicative only. It has not been cross checked with more recent water quality data.

DRAWING:

GROUNDWATER FLUORIDE MAP OF THE NORTH REGION

Drawn by:	Andreas de Jong	Date: Apr 2013
Checked by:	Mihail Cojocaru	Date: Apr 2013
Authorized by:	Colm McClements	Date: Apr 2013
Drawing No:	014	
Version:	1	

PROJECT:

Modernisation of
Local Public Services
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Intervention Area II
Water and Sanitation

CLIENT:

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

GOPA WORLDWIDE CONSULTANTS

File Path: F:\Moldova\1_Maps\014_UNICEF_Fluoride_North.mxd

Scale 1:650,000 @ A3 paper size

0 5 10 20 30 40 Kilometres

Data Sources:
1. Moldova Geoportal
2. UNICEF
3. Soviet Studies

Coordinate System: MOLDREF99
Projection: Transverse Mercator
Datum: ETRS 1989
False Easting: 200,000.0000
False Northing: -5,000,000.0000
Central Meridian: 28.4000
Scale Factor: 0.9999
Latitude Of Origin: 0.0000
Units: Meter

50,000 100,000 150,000 200,000

350,000 300,000 250,000

N W E S

Ocniţa 0 %

Briceni 0 %

Donduşeni 0 %

Edine 6.2 %

Drochia 0 %

Soroca 0 %

Rîşcani 0 %

Floreşti 0 %

Transnistria

Glodeni 20 %

Municipiul Bălţi 0 %

Sîngerei 11.8 %

Făleşti 20 %

Legend

- International Border
- Transnistria
- Region Border
- Raion Border
- Location of Wells

UNICEF School Survey

% Water Sources with Boron

- 0
- 0 - 10
- 10 - 25
- 25 - 50
- >50

Note: This map is based on the UNICEF survey of school drinking water sources & historical Soviet studies, and therefore is indicative only. It has not been cross checked with more recent water quality data.

DRAWING:

GROUNDWATER BORON MAP OF THE NORTH REGION

Drawn by:	Andreas de Jong	Date: Apr 2013
Checked by:	Mihail Cojocaru	Date: Apr 2013
Authorized by:	Colm McClements	Date: Apr 2013
Drawing No:	017	
Version:	1	

PROJECT:

Modernisation of
Local Public Services
in the Republic of Moldova
Intervention Area II
Water and Sanitation

CLIENT:

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Scale 1:650,000 @ A3 paper size

0 5 10 20 30 40 Kilometres

Coordinate System: MOLDREF99
Projection: Transverse Mercator
Datum: ETRS 1989
False Easting: 200,000.0000
False Northing: -5,000,000.0000
Central Meridian: 28.4000
Scale Factor: 0.9999
Latitude Of Origin: 0.0000
Units: Meter

Data Sources:
1. Moldova Geoportal
2. UNICEF
3. Soviet Studies

File Path: F:\Moldova\1_Maps\017_UNICEF_Boron_North.mxd

Annex 6

WSS Donor Mapping

Annex 6: WSS Donor Mapping[1]

Agency / Contact Person	Active in Moldova	Strategic Objectives/Focal Points	Recent WSS Projects / Budget Lines	Investment
SDC The Swiss Agency for Development and Cooperation Embassy of Switzerland Mateevici Str. 23 B MD-2009 Chisinau – Republic of Moldova +373 22 79 69 38 +373 22 79 69 44 +373 22 79 69 35 chisinau@sdc.net www.swiss-cooperation.admin.ch/moldova/	2000 - present	Switzerland supports Moldova in its process of transition, thereby fostering stability, security, rule of law, prosperity and solidarity in Europe. The programme priorities for 2010-2013 are the following: • Health; • Water and Sanitation. SDC's focuses on the following aspects: • Understanding of sector dynamics and interdependence of actors and their roles at all levels, local, regional and national; • Building local capacities through further education and training; • Promoting policy dialog with the line ministries of the Government of Moldova in coordination with multilateral and bilateral donors. This dialog involves the civil society organizations, the private sector, and national and international experts; • SDC brings in and uses Swiss expertise.	• ApaSan Project Period: Phase I – 2009-2011, Phase II – 2011-2015 Implemented by: SKAT Consulting Ltd, Switzerland Description: While continuing to invest in infrastructure development, the project is focused on documenting the processes and supporting the nationwide replication of decentralized rural water supply and on-site sanitation services delivery and management models. In addition, the project envisions testing other innovative water supply and sanitation solutions. • Protocol on Water and Health Project Period: 2009-2010 Implemented by: UNECE Description: The project provides the Government of Moldova with a clear integrated strategy on water	• Phase I: 5,410,907 CHF (Co-funding Austrian Development Agency: 1,560,907 CHF); • Phase II: Budget: 10,500,000 CHF (Co-funding Austrian Development Agency: 2,200,000 CHF). • 240,000 CHF

[1] Source: The Swiss Agency for Development and Cooperation, Water Sector Assessment of Moldova, 2013

			and health, endorsed by all main stakeholders, with prioritized activities and measures. • Rehabilitation of the Water Supply System in the Rayon of Nisporeni: Municipalities of Nisporeni, Varzaresti and Grozesti (See ADA projects below)	• 800,000 €
EU The European Union Delegation to the Republic of Moldova 12, Cogalniceanu Str. MD 2001 Chisinau, Republic of Moldova Tel.: +373 22 50 52 10 Fax: +373 22 27 26 22 Delegation-Moldova@ec.europa.eu	1991 - present	EU cooperation focuses on democracy, governance, human rights, judicial reform, environment, gender, conflict prevention, economic development, growth and employment, sustainable regional and rural development, and poverty reduction (see EU Moldova Action Plan).	• European Union High Level Policy Advice Mission to the Republic of Moldova (EUHLPAM) Period: 01.2010 – 10.2013 Implemented by: United Nations Development Programme in Moldova (UNDP) Description: Support the democratic and sustainable development of Moldova through provision of high level policy advice in the overall implementation of the Government Program “European Integration: Freedom, Democracy, Welfare” 2009-2013, and "Moldova 2020" with particular focus on the EU integration process, economic recovery and democratic reforms. High-level policy advisers to different Moldovan Government institutions, including the Ministry of Environment, have been assigned.	• 6,600,000 €

			• Water Sector Policy Support Programme (WSPSP) Period: 07.08.2009 – 2016 Implemented by: Government of Moldova (budget support), Eptisa (TA-WSPSP) and ADA (Nisporeni Project). Description: The main objective of this Sector Policy Support Programme is to support Moldova in the implementation of reforms in its drinking water and sanitation sector, by providing finance, technical assistance and policy dialogue for priority activities of high-relevance for the Moldovan population and environment. The Programme consists of direct Sector Budget Support, technical assistance (http://ta-water-spsp.eu) and delegated cooperation with the Austrian development Agency (Nisporeni Project).	• 50,000,000 €, that consists of Sector Budget Support (42,000,000 €), technical assistance (3,000,000 €) and delegated cooperation with the Austrian development Agency (5,000,000 €)
			• Improving the Environmental Quality of the Black Sea through Better Waste Water Treatment & Climate Change Adaptation of the Water Sector in Moldova Period: 02.2012 –.12.2012 Implemented by: Kommunal Kredit (Austria)	• Co-funded by the European Commission and OECD EAP Task Force

			Description: The ultimate objective of the project is to improve the water quality of the Black Sea basin, and health situation in Moldova and downstream. The more immediate objectives of the project are: o To strengthen Moldova's capacity to adapt its water policies and infrastructures to climate change, with a focus on water quality; and o To propose a business model this will make sanitation sustainable in rural areas, villages and small urban settlements in Moldova. • Moldova Regional Development and Social Protection Project Period: 08.2008 – 09.2012 Implemented by: World Bank PIU Description: WSS Sector relevant is part D of the Project - Provision of goods, works and technical assistance by strengthening the capacity of Orhei waterworks and extending the water coverage area and client base. Project includes plant design, construction of the wastewater treatment facility and training for Orhei Apa Canal staff.	• 2,898,133 € (EC contribution for part D of the project). The Project is also co-financed by the National Environmental Fund (NEF)

GIZ Deutsche Gesellschaft für Internationale Zusammenarbeit Philipp Johannsen 31a Bulgara str., Chisinau, MD-2001, Republic of Moldova, Tel.: +373 22 22 59 04 Fax: +373 22 00 02 38 Email: philipp.johannsen@giz.de	1994 - present	The overarching objective of German assistance to Moldova is to tangibly improve the political, social, economic and ecological situation, with a mutual commitment to sustainable development. German international cooperation with Moldova focuses on promoting modernization in the agricultural sector and the food processing industries, as well as on improving vocational training and municipal services. Priority areas related to development of WSS Sector: • Modernization of Local Public Services; • Fund for Regional Development.	• Modernization of Municipal Services in the Republic of Moldova Period: Phase I - 2010 – 2014, Phase II – 2015-2016. Implemented by: GIZ and Ministry of Regional Development and Construction of Moldova The main objective is improvement of provision of municipal services in selected local authorities.	• 19,900,000 € in total, including 15,900,000 € form German Government (BMZ) and co-financing of 700,000 € from Romanian Government and 3,300,000 € from Swedish Government (SIDA)
MCC Millennium Challenge Corporation Valentina Badrajan 21, N. Iorga street, MD-2012; Chisinau, Republic of Moldova; phone +373 22 85 22 99; fax: +373 22 85 22 94; office@mca.gov.md www.mca.gov.md	US Government assistance 1994 – present, MCC 2010 - present	MCC goal is to reduce poverty in the Republic of Moldova through economic growth by increasing incomes through increased agricultural productivity and expanded access to markets and services through improved roads. Assistance focuses on irrigation reconstruction, access to agricultural finance, and the rehabilitation of an integral section of the country's national road network.	• Transition to High Value Agriculture Project Period: 01.09.2010 –.2015 Implemented by: Millennium Challenge Account (MCA) Description: The Project aims at increasing incomes in the rural areas by encouraging high value agriculture and catalyzing investments into high value production. Project includes four distinct activities: ○ Rehabilitation of the Centralized Irrigation Systems; ○ Irrigation Sector Reform;	• 101,770,000 USD

			○ Access to Agricultural Finance; ○ Growing High Value Agriculture Sales.	
WB World Bank Pushkin Street, 20/1, MD-2012, Chisinau, Republic of Moldova. Fax: +373 22 237-053	1993 - present	The WB focuses on three strategic priorities: • Improving economic competitiveness to support sustainable economic growth; • Minimizing social and environmental risks, building human capital, promoting social inclusion; • Improving public sector governance.	• National Water Supply and Sanitation Project Period: 13.05.2008 –.30.06.2013 Implemented by: World Bank PIU Description: The objectives of the National Water Supply and Sanitation Project Project for Moldova are: (i) to improve the coverage, quality, efficiency, and sustainability of water and sanitation services in selected urban and rural communities; and (ii) enhance the capacity of the Ministry of Environment to prepare and supervise the implementation of investment program and to provide technical assistance to the operating Apa-canals. The project covers 4 components: ○ Water and wastewater management in selected Apa-Canals; ○ Rehabilitation of rural water supply systems in selected villages; ○ Capacity building and project management; ○ Energy Efficiency Program.	• 14,000,000 USD

			• Moldova Social Investment Fund Period: Phase I - 07.1999 – 11.2004; Phase II – 11.2004 - 2013 Implemented by: Moldova Social Investment Fund Description: The objective of Moldova Social Investment Fund is to contribute to the implementation of the National Development Strategy (NDS) by empowering poor communities and their institutions to manage their priority development needs. MSIF represents for communities a tool for learning new principles of good governance for local governments. The project covers different municipal services, including WSS.	• Phase II – IDA and EBRD 20,000,000 USD (Additionally co-financed by different donors, including EU 1,500,000 €, KfW 5,000,000 €, Governments of Netherlands, Japan, Sweden, UKAID, USAID, UNICEF)
KFAED Kuwait Fund For Arab Economic Development Mirqab Mubarak Al-Kabeer St. Kuwait City P.O. Box 2921 Safat 13030 Kuwait State of Kuwait	2004 - present	The Kuwait Fund extends Loans on concessionary term to finance development projects in the developing countries.	• Improvement of Water Supply Systems in Six Regions in the Republic of Moldova Period: 2004 –.undetermined Implemented by: Apele Moldovei Agency Description: Technical investments in WSS infrastructure of 6 localities from Moldova – 3 towns and 3 villages.	• 6,500,000 USD
EBRD European Bank for Reconstruction and Development Julia Otto 10th floor,	1994 - present	The EBRD supports a reinvigorated reform process in Moldova by financing the modernization of transport and municipal infrastructure and investing in the private sector. Priorities also include engage-	• Moldova Water Utilities Development Programme Period: 16.06.2010 – 31.12.2013 Implemented by: Ministry of Environment (PMU), assisted by	• 10,000,000 € (Out of total project cost of 30,000,000 € - co-financers EIB and EU NIF). Additional 2,000,000 € in-

63 Vlaicu Pircalab Str. Sky Tower building Chisinau MD-2012 Moldova Tel: +373 22 21 00 00 Fax: +373 22 21 00 11		ment with the financial sector, promotion of energy efficiency, and improvements to corporate governance and transparency.	Eptisa (Spain) and Sweco International AB (Sweden) Description: The programme comprises the regionalization of water companies by expanding their operations into neighboring localities and is structured as priority investments focusing on the water utilities from Floresti, Soroca, Hincesti, Orhei, Leova and Ceadir-Lunga, municipalities committed to adjust the tariffs and introduce cost recovery of their water companies to ensure financial viability. The programme also aims at strengthening these municipal utilities to ensure provision of adequate supply of drinking water and improve wastewater treatment systems. • Feasibility Study for the Improvement of Water and Sanitation Systems in Chisinau Period: 11.2010 – 31.12.2012 Implemented by: Seureca (France) Description: The study is the basis for a large investment programme aimed at the improvement of water supply and sewage collection and treatment in Chisinau. Herewith, the living conditions of the Chisinau's population will be improved and environmental impacts reduced	vested in Technical Cooperation (TC) for project preparation and implementation. • 3,000,000 € (financed by NIF grant) The total cost of future investments is estimated at 59,000,000 € (Co-funded by EBRD, EIB and KfW) • 1,200,000 € (TC)

			• Development and Implementation of a Public-Private Partnership for the Improvement of the Water Supply in the Northern Region Of The Republic Of Moldova Period: 22.12.2011 – 2013 Implemented by: Ministry of Environment (PMU), Consultant TBD Description: The project envisages that six northern towns will cooperate with a view to developing and implementing a Public Private Partnership ("PPP") relating to water supply and wastewater treatment. The PPP shall be designed to (i) finance investments in the water distribution pipeline "Soroca-Balti" and the connections to six Rayons and Balti Municipality in the Northern part of Moldova, and (ii) select a private operator responsible for water and wastewater services in the whole region	
Austrian Development Agency (ADC) Gerhard Schaumberger Mateevici 23B, 2009 Chisinau Tel.: +373 22 739 370 Fax: +373 22 796 940 chisinau@ada.gv.at	2001 - present	Poverty reduction, peace and security, and environmentally and socially sustainable development The ADC in Moldova priority sectors are: • Water/sanitation in rural areas with a geographical focus on the Southern and Western parts of the Republic of Moldova;	• Water and Sanitation (ApaSan) Programme in the Republic of Moldova - 3 phase Period: 01.12.2009 – 31.12.2012 Implemented by: SDC Overall goal: Improve the quality of life and public health of the rural population in 15 municipalities of Moldova with a beneficiary popu-	• 1,200,000 €

		• Vocational education and training, including continuous training with a view to creating and improving job opportunities that ensure decent and sustainable livelihoods; • Other important areas of intervention are governance (capacity building in public administration), conflict prevention and reintegration of returning migrants.	lation of approx. 30,000) by increasing sustainable access to safe drinking water and environmental sanitation (see SDC project above) • Rehabilitation of Water Supply and Sanitation in the Town of Cantemir – 2nd Phase (Capacity Building) Period:01.12.2009-30.09.2010 Implemented by: Posch & Partners Phase goal: Strengthening of capacities, including technical and management know-how, but also efficient tariff setting and collection in the municipal Apa Canal to ensure sustainable, professional operation of the water supply infrastructure • Investment and Action Plan for the Implementation of the Moldovan National Water Strategy Period: 01.03.2009 - 30.11.2010 Implemented by: OECD / Kommunal Kredit (Austria) The objective is to provide support to the Government of Moldova in developing an Action/Investment plan for the water supply and sanitation sector and to effectively link it into the medium-term expenditure framework in the Ministry of Finance	• 82,000 € • 234,900 € (co-financed by the governments of Austria (ADA), the Czech Republic (Czech Republic Development Cooperation), the EU Water Initiative (EUWI))

			• Rehabilitation of the Water Supply System in the Rayon of Nisporeni: Municipalities of Nisporeni, Varzaresti and Grozesti Period: 11.2010 - 2014 Implemented by: ADA Description: The project covers the following three components: o Establishment of the water supply infrastructure; o Creation of an institution capable to sustainably operate, manage and maintain the water supply infrastructure; o Implementation of priority sanitation measures comprising also the elaboration of studies to further develop sanitation solutions for the project area.	• 3,500,000 € (ADA Contribution). Co-financed by EU 5,000,000€, Local authorities 2,000,000 €, SDC 800,000€

Annex 7

Population and WSS Demand Forecasts

Annex 7: Population and WSS Demand Forecasts

WS access rate (current per region)	Centre	46.00
	North	35.23
	South	56.20
WWS access rate (current per region)	Centre	10.47
	North	16.61
	South	13.91
Target: access WS, country level	%	65
Target: access WWS, country level	%	51
Target: access WS, urban level (NORTH)	%	90
Target: access WWS, urban level (NORTH)	%	80
GDP increase, regional level	%	2.5
Water demand per cap residential (urban)	l/pers./day	110
Water demand per cap residential (rural)	l/pers./day	50
Water demand per cap institutional (urban)	l/pers./day	20
Water demand per cap institutional (rural)	l/pers./day	10
Water demand per cap industrial (urban)	l/pers./day	30
Water demand per cap industrial (rural)	l/pers./day	15
Correlation factor industrial demand/GDP growth		0.8
Access increase to WS Chisinau	%	5
Access increase to WWS Chisinau	%	5
Start value for rural water demand (arbitrary)	l/pers./day	30

LEGEND (color coding)

	Fields containing values, which are extracted from National strategy, or regional strategies.
	Fields containing values, which were agreed during the workshop no. 4.
	Calculated data based on statistical reports, or data collected from the rayons (rayonal fishes)

Water Supply Service (WS)							
	Chisinau	**DRN**	**DRS**	**DRC**	**Gagauzia**	**Național**	**Excl. Chisinau**
Population total (2012)	794,800	1,002,600	538,900	1,062,000	161,200	3,559,500	2,764,700
Population with water (%)	90.65	35.23	56.20	46.00	50.49	54.68	44.34
Population with water (pers.)	720,486	353,189	302,862	488,538	81,390	1,946,465	1,225,979
Population total (2020)	805,325	986,670	529,676	1,045,126	159,450	3,526,247	2,720,923
Population with water (%)	94.40	47.04	68.42	57.99	62.29	65.00	54.64
Population with water (pers.)	760,226	464,099	362,402	606,019	99,313	2,292,061	1,531,834
Population water access increase (pers.)	39,740	110,910	59,540	117,481	17,924	345,596	305,856
Population water access increase (%)	5.00	11.24	11.24	11.24	11.24	9.80	11.24

Wastewater Service (WWS)							
	Chisinau	**DRN**	**DRS**	**DRC**	**Gagauzia**	**Country**	**Excl. Chisinau**
Population total (2012)	794,800	1,002,600	538,900	1,062,000	161,200	3,559,500	2,764,700
Population with WW (%)	86.37	16.61	13.91	10.47	11.50	29.71	13.43
Population with WW (pers.)	686,469	166,540	74,945	111,201	18,538	1,057,693	371,224
Population total (2020)	805,325	986,670	529,676	1,045,126	159,450	3,526,247	2,720,923
Population with WW (%)	90.18	42.64	39.91	36.40	37.39	51.00	39.40
Population with WW (pers.)	726,209	420,722	211,397	380,443	59,615	1,798,386	1,072,177
Population WW access increase (pers.)	39,740	254,182	136,453	269,241	41,077	740,693	700,953
Population WW access increase (%)	5.00	25.76	25.76	25.76	25.76	21.01	25.76

Name		2012	2013	2014	2015	2016	2017	2018	2019	2020
Country GDP	mln. MDL	87,847								
Population: Total Region North	pers.	1,002,600	1,000,595	998,594	996,596	994,603	992,614	990,629	988,648	986,670
• urban	pers.	356,000	355,288	354,577	353,868	353,161	352,454	351,749	351,046	350,344
• rural	pers.	646,600	645,307	644,016	642,728	641,443	640160	638,879	637,602	636,327
Water demand per capita (residential)										
• urban	l/pers./day	53.09	60.20	67.32	74.43	81.55	88.66	95.77	102.89	110.00
• rural	l/pers./day	30.00	32.50	35.00	37.50	40.00	42.50	45.00	47.50	50.00
Access to improved water supply services	%	35.23	36.70	38.18	39.66	41.13	42.61	44.08	45.56	47.04
• urban	%	73.31	75.40	77.48	79.57	81.66	83.74	85.83	87.91	90.00
• rural	%	14.26	15.40	16.54	17.68	18.82	19.96	21.10	22.24	23.38
Access to improved water supply services	pers.	353,189	367,253	381,260	395,209	409,101	422,936	436,714	450,435	464,099
• urban	pers.	260,984	267,874	274,735	281,569	288,373	295,150	301,898	308,618	315,309
• rural	pers.	92,205	99,379	106,524	113,641	120,728	127,786	134,816	141,817	148,790
Specific water demand, incl.	l/pers./day	63.59	72.96	82.26	91.51	100.70	109.85	118.96	128.03	137.07
Residential water demand	l/pers./day	47.06	52.71	58.29	63.81	69.28	74.71	80.10	85.45	90.76
Industrial water demand	l/pers./day	12.48	14.61	16.74	18.87	21.00	23.13	25.26	27.39	29.52
Institutional water demand	l/pers./day	4.05	5.64	7.24	8.83	10.42	12.02	13.61	15.20	16.79
GDP increase (percentage)		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Industrial increase consumption index		0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Industrial water demand increase (percentage)		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Industrial increase factor		1.000	1.020	1.040	1.061	1.082	1.104	1.126	1.149	1.172
Total water demand, incl.	m^3/year	8,197,711	9,779,863	11,447,530	13,200,180	15,037,283	16,958,311	18,962,739	21,050,043	23,219,702
Residential water demand	m^3/year	6,066,948	7,065,246	8,111,344	9,204,944	10,345,747	11,533,457	12,767,779	14,048,419	15,375,084
Industrial water demand	m^3/year	1,608,441	1,957,985	2,329 045	2,721,485	3,135,174	3,569,979	4,025,768	4,502,411	4,999,777

Institutional water demand	m^3/year	522,323	756,631	1,007,141	1,273,751	1,556,362	1,854,875	2,169,192	2,499,213	2,844,841
Access to improved sanitation services	%	16.61	19.86	23.12	26.37	29.63	32.88	36.13	39.39	42.64
• Urban	%	46.00	50.25	54.50	58.75	63.00	67.25	71.50	75.75	80.00
• Rural	%	0.43	3.14	5.84	8.55	11.25	13.96	16.66	19.37	22.07
Access to improved sanitation services	pers.	166,540	198,764	230,858	262,823	294 659	326 366	357 946	389 398	420 722
• Urban	pers.	163,760	178 532	193,245	207,898	222 491	237 025	251 501	265 917	280 275
• Rural	pers.	2,780	20,232	37,613	54,925	72 167	89 341	106 445	123 480	140 447
Rate of return of wastewater	%	57.12	58.95	60.92	63.01	65.21	67.50	69.87	72.32	74.85
• Urban	%	76.23	77.54	78.84	80.15	81.45	82.76	84.07	85.37	86.68
• Rural	%	3.02	8.86	14.70	20.55	26.39	32.24	38.08	43.93	49.77
Generated wastewater, incl.	m^3/year	3,138,535	4,118,098	5,211,390	6,422,765	7,756,540	9,216,992	10,808,365	12,534,861	14,400,650
• Residential	m^3/year	1,007,772	1,403,481	1,875,204	2,427,529	3,065,004	3,792,138	4,613,405	5,533,237	6,556,032
• Industrial	m^3/year	1,608,441	1,957,985	2,329,045	2,721,485	3,135,174	3,569,979	4,025,768	4,502,411	4,999,777
• Institutional	m^3/year	522,323	756,631	1,007,141	1,273,751	1,556,362	1,854,875	2,169,192	2,499,213	2,844,841

Annex 8

WSS Sector Development Risk Analysis

Annex 8: WSS Sector Development Risk Analysis[1]

	Identified potential risk	Potential impact	Assessed potential impact (1 low - 5 high)	Assessed impact probability (1 low - 5 high)	Proposals for risk mitigation
Political and legal risks					
External			3.4	3.0	
1.1	Construction standards and laws, outdated	The quality of the projects will be affected by the obsolete design rules - i.e. increased water consumption, oversized installations, overestimated investment costs, etc.	3.3	2.9	Update of the standards and norms, harmonization with European legislation and best international practices - MRDC, MoE
1.2	Delays in development of new tariff policy for regional and local water companies by National Agency for Energy Regulation (ANRE) – covering costs through the tariffs	The WSS service costs will not be covered by the future tariffs	3.4	3.1	Speedup of new tariff policy elaboration - ANRE, MoE
1.3	Lack of regulation regarding elaboration of Master plans	Development of WSS services will not be planned in a coherent and efficient way	3.1	3.0	Speedup of Master plan guide elaboration - MoE, MRDC
1.4	Lack of legal framework on ownership of land and public infrastructure at the regional level	Difficulties in efficient operation of the regional water company	3.4	3.3	Review and update of current legislation - MoEc, MoE, MRDC
Institutional risks					
• External			3.2	3.2	
2.1	Insufficient coordination of activities between ministries	Delays in planning/financial processes, duplication of activities, unwanted competition between ministries	3.3	3.4	Institutional reform - clear sharing of responsibilities and functions between ministries and subdivisions - MoE, MRDC
2.2	Inefficient management of WSS sector investments by state institutions	Duplication of efforts and investments from various ministries and subdivisions, low absorption capacity, poor quality of	3.7	3.4	Institutional reform - transfer of investment implementation functions to the MRDC (ADR)

[1] The average scorings are calculated on the basis of replies from 55 WG members from 3 regions (DRN – 13; DRS – 18; CDR – 24)

	Identified potential risk	Potential impact	Assessed potential impact (1 low - 5 high)	Assessed impact probability (1 low - 5 high)	Proposals for risk mitigation
		implemented projects			
2.3	Delays in establishing of new regulator (ANRE) as well as licensing framework for water companies	Lack of monitoring and control system of WSS companies and, as a result, low quality of provided services	3.0	3.2	Approval of relevant legislation regarding licensing of water companies - MoE, ANRE
2.4	Lack of experts and companies in WSS sector (planning, design, implementation, etc.)	Delays at various stages of planning, implementation and operation of WSS services as well as poor quality of implemented projects	3.4	3.4	Elaboration and implementation of the national training program in WSS sector - MoE (contribution of MACA)
2.5	Lack of WSS sector database as well as limited access to the data on natural water resources (deep wells, reserves, etc.)	Inconsistent data regarding development of WSS sector, which cannot serve as a basis for planning of the WSS services	3.4	3.2	Elaboration and implementation of the WSS sector database - MoE
2.6	Lack of WSS regional operator's guide	Untargeted development of regional water operators - lack of clarity as regards legal, institutional aspects, etc.	2.9	2.7	Elaboration of the regional water company guide - MoE
2.7	Lack of national professional training programs	Lack of qualified WSS staff	2.9	2.7	Development of national training programmes
Internal			3.4	3.3	
2.8	Insufficient capacity of the existent local WSS operators to provide sustainable regional services as well as local operators in remote rural areas	Low quality of provided WSS services, impossibility of extension of the services up to other localities, high costs as well as high tariffs	3.3	3.4	Elaboration and implementation of the program for institutional capacity increase as well as improvement of operational and financial indicators of regional water companies - MoE, MRDC, local authorities, water companies
2.9	Reluctance by local authorities to aggregate and benefit from joint WSS services	Difficulties in establishing a potent regional water company as well as improvement of provided services	3.5	3.3	Implementation of the water companies' licensing system, organization of campaigns for local authorities' awareness regarding intermunicipal cooperation - MoE, MRDC, ANRE
Financial risks					
• External			3.9	3.7	

	Identified potential risk	Potential impact	Assessed potential impact (1 low - 5 high)	Assessed impact probability (1 low - 5 high)	Proposals for risk mitigation
3.1	Insufficient financing of WSS sector from external funds – grants and loans from donors and financing institutions	Reducing of the number of foreign-financed investment projects as well as failure in achieving the development goals	3.9	3.6	Improvement of the financial planning in WSS sector - MF, MoE, MRDC
3.2	Low financial absorption capacity of state institutions	Limited volume of external investments	4.0	3.8	Improvement of financial planning process, Institutional reform - transfer of investment implementation function to the MRDC (ADR)
• Internal			3.8	3.6	
3.3	Insufficient financing of WSS sector from internal sources – development funds, local authorities, etc.	Reducing of the number of investment projects financed from internal funds as well as failure in achieving the development goals	3.9	3.5	Improvement of the financial planning in WSS sector - ADR, local authorities
3.4	High degree of political involvement by local authorities as regards setting of the tariffs for WSS services	Partial covering of the WSS service costs leading to the financial instability of the water company	3.8	3.7	Establishment of new entity for WSS sector regulation - ANRE
Economic and social risks					
• External			3.8	3.8	
4.1	Increased migration	Reduced consumers rate as well as low water sales	3.8	3.9	National programs
4.2	Low fertility	Decreased number of population, low water sales	3.4	3.6	National programs
4.3	Increased energy costs	Increase of operational costs and WSS service tariffs	3.9	3.8	National programs and policies for energy security
4.4	Reduced affordability rate of population	Reduced water consume, increased debts by population to water company	3.9	3.8	National programs for increasing of population welfare
• Internal			3.2	3.1	
4.5	Low level of population awareness	Reluctance to benefit from improved services, poor quality water consumption, low payment rate	3.5	3.4	Conducting the campaigns for population awareness - ADR, MoE
4.6	Reluctance of population to be connected to the	Decreased number of consumers, decreased water sales	3.4	3.2	Conducting the campaigns for population awareness - ADR, MoE

	Identified potential risk	Potential impact	Assessed potential impact (1 low - 5 high)	Assessed impact probability (1 low - 5 high)	Proposals for risk mitigation
	centralized water supply systems				
4.7	Reluctance of population to be connected to the centralized sewerage systems	Decreased number of consumers, decreased water sales	3.7	3.5	Conducting the campaigns for population awareness - ADR, MoE
4.8	Unacceptability of alternative waste water treatment technologies	Difficulties in construction of waste water treatment plants	3.4	3.2	Conducting the campaigns for population awareness - ADR, MoE
4.9	Gender issues	Various risks related to gender discrimination	2.3	2.2	Conducting the campaigns for population awareness - ADR, MoE

Annex 9

Possible Project Concepts Identification Reports - Long List

Annex 10

Possible Project Concepts Rapid Appraisal Reports – Short list

Annex 11

Workshop Reports

Annex 11: Report on workshops

Since 2010, North, Central and South Regions were actively involved in the initial processes for regional development led by Regional Development Councils (RDC) and Regional Development Agencies (RDA), under the regional policy developed by the Ministry of Regional Development and Constructions (MRDC).

In this context, the „Modernization of Local Public Services" Project, Area of Intervention 2, „Regional Planning and Programming", provided assistance to the Ministry of Regional Development and Constructions, as well as to the Regional Development Agencies for implementing the regional planning process in the WSS sector in the North, South and Central Regions, by implementing a participatory approach.

3 Working Groups were established, one for each of the three development regions, with representatives from Rayon Councils of the North, Central and South Development Regions, North, Central, and South RDA, MRDC and Ministry of Environment, as well as representatives from the Water Companies at rayon level, from the 3 regions, Public Administration Academy, ApaSan, GOPA experts and GIZ consultants, as well as other stakeholders, in deciding the desired service levels in the WSS sector. In RD North, 4 workshops were organised, as follows:

	Workshop no. 1	**Workshop no. 2**	**Workshop no. 3**	**Workshop no.4**
Dates and venues::	01 February, 2013, Municipality Balti	21 March 2013, Municipality Balti	17.July .2013, Municipality Balti	31 October 2013, Municipality Balti
Purpose:	Similar type of information provided to al stakeholders / parties in the North Region and active involvement in developing the sectorial integrated plan in the field of Water Supply and Sewage in the region.	Data confirmation regarding present situation in WSS field and participatory development of service vision in WSS field at regional level by 2018. Aspects will be considered and taken into account in the identification process of project ideas/concepts, considered in the context of regional planning.	Presentation, discussions and confirmation of hydrogeological situation analysis in rayons in region to identify the drinking water sources. Identifying the possible water supply and sewage solutions. Vision forming on WSS service development in the context of regional planning in WSS field.	Presentation of district activity fiches developed based on the results of Workshop no. 3 and additional information submitted by rayons Presentation of forecasts regarding WSS service development by 2020. Discussion on implementation of gender issues in WSS sector Identification of risks and sustainability of WSS possible project concepts (PPCs).
Number of participants:	25 people, 20 men and 5 women.	30 people, 22 men and 8 women	36 people	25 people
Topics addressed:	Necessity of regional planification; integrated sectors; Technical assis-	Current politic in WSS sector ; WSS sector analyses in North Region.	Analyses of existing water source in North Region. Practical exercise-compartment of	• Presentation of rayon's fiches in North Region. • Presentation of prognosis in WSS service development, North region, horizont 2020.

	tance in MLPS project. Initial conditions in WSS sector, North region Data collection and distribution of questionnaires, related to WSS sector.	Organised structure of WSS enterprises. Processes and options in rendering of WSS services Evaluation procedure of project concepts.	water supply system in the region Practical exercise-compartment of sewage system in the region	• Practical exercise: • Project's Sustainability ; • Gender issues in regional planification of WSS services; • Presentation of Regional Sector Plan content for WSS services in North Region.
Results / Conclusions:			Opportunity to have potable water for each locality. Project of rehabilitation and extension of aqueduct Soroca-Balti is a long one, in a short period of time, should be found local alternative solutions. To have priority areas, where population is larger and to ensure the access to WSS services. WSS problem of rural area, in comparison, with urban area is more difficult to be realised; it's necessary to have solidarity between rural and urban areas. It's necessary to have developed and implemented project "soft", which would promote an informational campaign on a large regional scale. Elaboration of ways and vision for water supply and sewage systems in each rayon.	Following exercise in WSS sector development, WG members were established the horizont 2020 for RD North, for 7 years. • Connection rate in water supply system will be: 47%, urban level – 90%, and rural level– 23%; • Connection rate in sewage system: (collection and transport of wastewater) will be 43%, urban level - 80%, rural level – 22%. Expert's team was mobilized and demonstrated professional tools during workshops. It seems efficient communication between WG members, GOPA experts, other experts, regional specialists and consultants. Collection of comments, observations, made by WG members and its presentation in an organized form by GOPA- 15 November 2103.

			Organization of proposals of WG members for pla-nification in WSS sector – August 2013.	

Annex 12

List of projects financed from national funds in 2013

Annex 12: List of projects financed from national funds in 2013

Table 1-1: National Regional Development Fund

No.	Development Region	Rayon	List of beneficiary localities	Title of the Project	Total cost of the project, from the NRDF sources (thousand MDL)
Development Region North					
1	DRN	Singerei rayon	Biruinta city, Singerei city, villages from the Singerei rayon	Completion of the construction of the Balti-Singerei water main with community ramifications	24,017.1
2	DRN	Ocnita rayon	Otaci city	Quality water and sewerage systems in the city of Otaci for a clean environment in the North Region	25,372.2 – total, including 7,442.58 - water
3	DRN	Balti Municipality	Balti Municipality	Supporting the private sector development and process of attracting investments in the North Region through the construction of water supply and sewage networks for the subarea No.3 of the Balti Free Economic Area	14,820.0
	Total DRN				64,209.3
Development Region Centre					
1	DRC	Ungheni rayon	Communes: Manoilesti, Untesti, Alexeevca, Cetireni, Floritoaia Veche. Communes: Manoilesti – Nicolaeuca Noua, Vulpesti, Manoilesti, Rezina; village Untesti; communes: Alexeevca – Lidovca, Saghieni, Alexeevca; village Cetireni; communes: Floritoaia Veche – Floritoaia Noua, Grozasca, Floritoaia Veche	12.000 citizens supplied with drinking water in 12 localities	28,022.0
	Total DRC				28,022.0

No.	Development Region	Rayon	List of beneficiary localities	Title of the Project	Total cost of the project, from the NRDF sources (thousand MDL)
Development Region South					
1	DRS				0
	Total DRS				0
	Total NFRD 2013				92,231.3

Source: Report on implementing the Action Plan for 2013:

RDA South http://www.adrsud.md/pageview.php?l=ro&idc=603&

RDA Centre http://www.adrcentru.md/lib.php?l=ro&idc=377&t=/Planificare-i-programare-regionala/Planuri-i-rapoarte-anuale/Rapoarte-de-activitate&

RDA North http://adrnord.md/libview.php?l=ro&idc=235&id=2014

Table 1-2: National Ecological Fund

No.	Development Region	Rayon	List of beneficiary localities	Title of the Project	Total cost of the project, from the NEF, MDL
Development Region South					
1	DRS	Cimislia	Batir village	Renovation of the water supply system in the village of Batir - stage II	1,700,000.0
2	DRS	Cimislia	Cimislia city	Supply of drinking water to the “Recea" neighbourhood from Cimislia city, stage - 2	316,746.0
3	RS	Stefan-Voda	Olanesti village	Reconstruction of the water supply and sanitation system of the micro-rayon with multi-storey buildings from Olanesti village - stage I	2,000,000.0
4	DRS	Cimislia	Cimislia city	Capital repair of the sewerage networks and of the wastewater treatment plant from Cimislia city, stage - 2	2,520.000.0
5	DRS	Cimislia	Valea Perjei village	Supply of drinking water, disposal and treatment of wastewater in Valea Perjei village, Cimislia rayon	1,500,000.0
6	DRS	Leova	Hanasenii Noi, Filipeni-Romanovca village	Construction of the Leova-Hanasenii Noi, Filipeni-Romanovca main water main, Leova rayon	3,073,010.0
7	DRS	Stefan-Voda	Crocmaz village	Construction of the wastewater collection and treatment plant - stage I	1,500,000.0
8	DRS	Cahul	Cislita-Prut village	Supply of drinking water to Cislita-Prut village - stage I	1,500,000.0
9	DRS	Cahul	Slobozia Mare village Cahul	Supply of drinking water to Slobozia Mare village Cahul	3,604,076.0

No.	Development Region	Rayon	List of beneficiary localities	Title of the Project	Total cost of the project, from the NEF, MDL
			rayon	rayon - stage II	
10	DRS	Cantemir	Tiganca village	Construction of water supply and sewerage networks as well as of the treatment plant in the village of Tiganca, Cantemir rayon - stage II	4,292,790.0
11	DRS	Causeni	Ciuflesti village	The water supply, sewerage and treatment system of the Ciuflesti village, Causeni rayon - stage 2	1,000,000.0
12	DRS	Cimislia	Albina commune	Water main in the Albina locality	989,502.0
13	DRS	Cahul	Badicul Moldovenesc village	Supply of drinking water to Badicul Moldovenesc village - stage III	1,500,000.0
14	DRS	Cahul	Cucoara village	Reconstruction of the water supply, sewerage and treatment system in the kindergarten from Cucoara village, Cahul district	540,300.0
15	DRS	Causeni	Cirnateni village	Reconstruction and extension of the water supply system from Cirnateni village, Causeni rayon	3,000,000.0
16	DRS	Causeni	Gradinita village	Water supply to Gradinita village, Causeni rayon, including the water tower and construction of the sewerage system	500,000.0
17	DRS	Basarabeasca	Basarabeasca city	Capital repair of treatment and pumping stations from Basarbeasca city	800,000.0
18	DRS	Stefan Voda	Caplani village	Renovation and expansion of the water main on the village territory as well as of the sewerage system from the kindergarten and Lyceum of Caplani village, Stefan Voda rayon	1,000,000.0
19	DRS	Cahul	Rosu village	Connection of Rosu village, Cahul rayon to the sewerage system of Cahul rayon	1,000,000.0
20	DRS	Leova	Tomai village	Construction of the Leova - Sirma - Tochile Raducani - Tomai -Sarata Razesi main - stage I	1,000,000.0
21	DRS	Causeni	Copanca village	Reconstruction of the water main from Copanca village, Causeni rayon	1,000,000.0
22	DRS	Cimislia	Selemet village	Drilling of the deep well and extension of the water supply networks from Selemet village, Cimislia village	1,000,000.0
23	DRS	Stefan-Voda	Festelita village	Construction of the water main, sewerage network and treatment plant in Festelita village	1,000,000.0
24	DRS	Cantemir	Ciietu village	Construction of the water main for drinking water sup-	500,000.0

No.	Development Region	Rayon	List of beneficiary localities	Title of the Project	Total cost of the project, from the NEF, MDL
				ply as well as of the school and kindergarten sewerage system from Ciiet village, Cantemir rayon	
25	DRS	Cimislia	Ecaterinovca village	Construction of water supply and sewerage networks and construction of the treatment plant for Ecaterinovca village	3,000,000.0
26	DRS	Cantemir	Porumbesti village	Construction of the water main in Porumbesti village, stage 2	1,100,000.0
27	DRS	Leova	Borogani village	Construction of the water supply system in Borogani village, Leova rayon	500,000.0
	Total DRS				41,436,424.0
Development Region North					
1	DRN	Falesti	Falesti city	Water supply from the Prut River of the Falesti city - stage III	10,492,899.0
2	DRN	Edinet	Blesteni village	Construction of the water main from Blesteni village, Volodeni, Edinet - stage I	1,500,000.0
3	DRN	Ocnita	Ocnita village	Repair of the sewerage networks from Ocnita village, sector No. 7 (Ocnita rayon hospital)	508,174.0
4	DRN	Edinet	Corpaci village	Supply of water to Corpaci village, Edinet rayon - stage I	500,000.0
5	DRN	Edinet	Viisoara village	Supply of water to Viisoara village, Edinet rayon	1,000,000.0
6	DRN	Edinet	Parcova village	Renovation of the water supply system from the Fintina Alba village, Edinet rayon (Sector 1)	190,380.0
7	DRN	Briceni	Corjeuti village	Construction of water, sewerage and treatment system	1,068,152.0
8	DRN	Falesti	Ciolacul Nou	Renovation of the water supply and sewerage system of the Fagadau village, stage I - water main	500,000.0
9	DRN	Singerei	Bursuceni	Water supply to Bursuceni village	1,000,000.0
10	DRN	Floresti	Gura Cainarului	Reconstruction of the wastewater treatment plant and taking environmental measures for the protection of the natural water sources from Gura Cainarului village, Floresti rayon, stage - 2	4,000,000.0
11	DRN	Drochia	Tarigrad	Renovation of the water main in the South East area, Tarigrad village, Drochia rayon - stage II	941,795.0
12	DRN	Floresti	Rosietici	Construction of the drinking water supply tower in the Rosieticii Vechi village, Floresti rayon	372,946.0
13	DRN	Briceni	Larga	Drilling of the artesian well and construction of an water	500,000.0

No.	Development Region	Rayon	List of beneficiary localities	Title of the Project	Total cost of the project, from the NEF, MDL
				main portion for the connection of the projected well to the existing water supply networks from Larga commune, Briceni rayon	
14	DRN	Riscani	Petruseni	Water supply and sewerage in Petruseni village, Riscani rayon	1,000,000.0
15	DRN	Balti Municipality	Balti Municipality	Expansion of the central water and sewage system into the Baltul Nou neighborhood (Planul Nou sector) of the Balti Municipality - stage 2	2,000,000.0
16	DRN	Falesti	Falesti	Supply of water from the Prut River to Falesti city	6,970,540.0
17	DRN	Edinet	Rotunda	Renovation of the water supply system from Rotunda village, Edinet rayon - stage II	907,017.0
18	DRN	Falesti	Glinjeni	Rehabilitation of the water supply network and of the water tower from Glinjeni village, Falesti rayon	976,080.0
19	DRN	Edinet	Corpaci	Supply of water to Corpaci village, Edinet rayon - stage II	2,428,652.0
20	DRN	Edinet	Viisoara	Supply of water to Viisoara village, Edinet rayon - stage II	585,016.0
	Total DRN				37,441,651.0
Development Region Centre					
1	DRC	Nisporeni	Nisporeni city	Supply of water from the Prut River to Nisporeni city, Grozesti village and Varzaresti commune - stage I	6,050,000.0
2	DRC	Orhei	Orhei city	Construction of the wastewater treatment plant (ZUC) and of the effluent water collector in the Orhei city	27,500,000.0
3	DRC	Telenesti	Chitcanii Vechi	Construction of the water main, sewerage and wastewater treatment system – stage II	900,000.0
4	DRC	Ungheni	Cetireni village	Construction of the water supply and sewerage system - stage III	1,984,789.0
5	DRC	Soldanesti	Soldanesti city	Purification facilities in the city of Soldanesti with the reconstruction of networks and installations - stage 4	2,165,810.0
6	DRC	Ialoveni	Razeni village	Drilling and endowment of the artesian well and construction of water supply networks of a new neighborhood from Razeni village, Ialoveni rayon	2,217,180.0
7	DRC	Rezina	Ghiduleni village	Treatment, sewerage and water supply networks and facilities in the Ghiduleni	2,021,000.0

No.	Development Region	Rayon	List of beneficiary localities	Title of the Project	Total cost of the project, from the NEF, MDL
				commune, Rezina rayon - stage II	
8	DRC	Anenii Noi	Gura Bicului village	Renovation of the drinking water supply system from Gura Bicului village, Anenii Noi rayon	486,330.0
9	DRC	Calarasi	Tuzara village	Construction of the sewerage system of the Selistea-Noua and Tuzara villages, Calarasi rayon - stage III	1,351,030.0
10	DRC	Telenesti	Pistruieni village	Reconstruction of the fountain No. 4810, of the drinking water supply system and of the sewerage network from Pistrueni village, Telenesti village - stage I	1,500,000.0
11	DRC	Hincesti	Caracui village	Supply of water to Caracui village, Hincesti rayon - stage I	1,000,000.0
12	DRC	Criuleni	Corjova village	Extension of the sewerage networks from Corjova village, Criuleni rayon	3,000,000.0
13	DRC	Ialoveni	Gangura village	Construction of the purification station in the kindergarten	546,996.0
14	DRC	Criuleni	Criuleni city	Reconstruction of the water supply system	882,206.0
15	DRC	Soldanesti	Rogojeni village	Reconstruction of the water supply system from Rogojeni village, Soldanesti rayon	1,500,000.0
16	DRC	Ialoveni	Costesti village	Construction of the sewerage system and of the treatment plant	3,000,000.0
17	DRC	Hincesti	Cotul Morii, Obileni, Sarateni, Leuseni villages	Complex of drinking water supply of Hincesti rayon villages. Stage 1 - Localities from the Prut River meadow. Stage 1- Cotul Morii, Obileni, Sarateni, Leuseni localities	6,000,000.0
18	DRC	Rezina	Sircova village	Construction of the water supply, sewerage and treatment system from Sircova village, Rezina rayon	1,500,000.0
19	DRC	Soldanesti	Mihuleni village	Renovation of the water supply system for the connection of 52 households from Mihuleni village	78,933.0
20	DRC	Ialoveni	Horesti village	Treatment plants and sewerage networks in Horesti village, Ialoveni rayon	1,500,000.0
21	DRC	Orhei	Peresecina village	Construction of the sewerage networks in the Butoi sector	1,000,000.0
22	DRC	Straseni	Vorniceni village	Construction of sewerage networks and of the treatment plant in the northern area of Vorniceni village, Straseni rayon	1,500,000.0
23	DRC	Telenesti	Bogzesti village	Supply of water and sewerage to Bogzesti village,	3,000,000.0

No.	Development Region	Rayon	List of beneficiary localities	Title of the Project	Total cost of the project, from the NEF, MDL
				Telenesti rayon, stage - 2	
24	DRC	Criuleni	Riscova village	Installation of the water tower and rehabilitation of the artesian well	205,000.0
25	DRC	Dubasari	Molovata Noua village	Reconstruction of the drinking water supply networks of Molovata Noua village, Dubasari district - stage II	1,500,000.0
26	DRC	Rezina	Horodiste village	The water supply and sewerage system. Slobozia-Horodiste village, Rezina rayon	1,000,000.0
27	DRC	Nisporeni	Soltanesti village	Expansion of the drinking water supply system from Soltanesti village, Nisporeni rayon	85,340.0
28	DRC	Ialoveni	Molesti village	Renovation of the artesian well and water supply	278,190.0
29	DRC	Ungheni	Chirileni village	Construction and reconstruction of the sewerage systems and of the treatment plant - stage III	2,899,120.0
30	DRC	Calarasi	Raciula village	Reparation and expansion of the water supply system from Raciula village	150,000.0
31	DRC	Hincesti	Sarata Galbena village	Construction of the water supply, wastewater discharge and wastewater treatment in the Sarata Galbena village, Hincesti rayon - stage II	4,000,000.0
32	DRC	Orhei	Ciocilteni commune	Supply of water, sewerage system and purification station in Feodoreuca and Clisova Noua villages, Ciocilteni commune - stage II	2,000,000.0
33	DRC	Soldanesti	Samascani village	Supply of water to Samascani village, stage II	1,441,822.0
34	DRC	Orhei	Putintei village	Supply of drinking water to Putintei village	1.000.000,0
35	DRC	Telenesti	Ratus village	Reconstruction of the drinking water supply system from the Ratus village, Telenesti rayon - stage II	786,523.0
36	DRC	Hincesti	Sofia village	Construction of the water supply and sewerage system in Sofia village, Hincesti rayon	500,000.0
37	DRC	Ialoveni	Vasieni village	Reconstruction of the water treatment, sanitation and supply system of the Geriatric Centre, Vasieni village	447,380.0
	Total CRDC				86,977,649.0
1	DR ATU Gagauzia	Comrat	Svetlii village	Reconstruction of the treatment plant and reconstruction of the sewerage networks' pumping station from Svetlii village, Comrat rayon - stage I	1,500,000.0

No.	Development Region	Rayon	List of beneficiary localities	Title of the Project	Total cost of the project, from the NEF, MDL
2	DR ATU Gagauzia	Ceadir-Lunga	Baurci village	Construction of the water main and sewerage networks with restoration of the artesian well from Baurci village, Ceadir-Lunga rayon	1,500,000.0
3	DR Chisinau	Chisinau Municipality	Tohatin village	Sewerage networks from the water pumping station,,Tohatin"	1,800,000.0
4	DR Chisinau	Chisinau Municipality	Gratiesti village	Construction of sewage networks in Gratiesti village, Chisinau Municipality	1,500,000.0
5	DR Chisinau	Chisinau Municipality	Durlesti village	Construction of the sewerage collector - stage IV	500,000.0
6	DR Chisinau	Chisinau Municipality	Truseni village	Water supply to some sectors from Truseni commune - stage II	1,055,000.0
Total NEF					173,710,724.0

Source: Ministry of Environment *http://mediu.gov.md/index.php/component/content/article/79-categorii-in-romana/despre-minister/institutii-subordonate/72-fondul-ecologic-national*