



# **SOCIAL AND ECONOMIC DEVELOPMENT STRATEGY FOR CAHUL DISTRICT 2012-2017**

Component: Water Supply and Sewerage Services



2012

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## **Abbreviations**

WSS	Water Supply and Sewerage
RDA South	Regional Development Agency South
LPA	Local Public Administration
EIB	European Investment Bank
EBRD	European Bank for Reconstruction and Development
NFRD	National Fund for Regional Development
LWG	Local Working Group
ME	Municipal Enterprise
NGO	Non-Government Organization
SEDS	Social and Economic Development Strategy
UM	Unit of Measurement

## Introduction

The main purpose of updating the Social and Economic Development Strategy (SEDS) for Cahul district, the water supply and sewerage component (WSS) is to provide a clear guidance in the development of the water supply and sewerage sector in order to ensure people access to better services in terms of quantity and quality.

To this end, an innovative planning methodology, involving local and national priorities in the water supply and sewerage sector was used, which are established in a participatory manner by local communities of Cahul district.

The planning was coordinated by the **Regional Development Agency South**, which ensures the promotion of the relevant regional policies and cooperation with branch ministries and relevant authorities.

The **German Development Cooperation (GIZ)** provided a comprehensive assistance at all stages, in particular the technical expertise of national and international experts. GIZ cooperation with the **Humboldt University** enabled the application of the participatory method and the involvement of all stakeholders in identifying the needs and establishing the development options.

## I. Overview

### 1.1. SEDS Updating Methodology, Water Supply and Sewerage Services Component

The participatory planning methodology for the updating of the SEDS in terms of water supply and sewerage covers the following main steps:

- **Establishment of a local consensus.** The planning methodology was discussed and accepted by representatives of Cahul District Council through the working group comprising officials from Cahul DC and LPA of the 1st level of the district, the providers of water supply and sewerage services, representatives of the civil society and state decentralized services (Public Health Center, Agency of Ecology);
- **Establishment of national priorities.** The national priorities were identified based on the national policy documents;
- **The determination of local priorities,** reflecting the most important needs of local communities was performed in a participatory manner within various events including: discussions in focus groups and at round tables no.1, no.2 and no.3. with active involvement of local social actors.
- **The data collection** occurred along with participatory activities to provide the information necessary to prioritize settlements based on the established priorities. The prioritization system should reflect the national and local priorities. Thus, it was decided to combine the national and local priorities. At this step, the local (LPA, Public Health Center) and the national authorities were involved (National Center for Public Health, Agency for Land Relations and Cadastre.)
- **The data analysis** aimed the prioritization of settlements in accordance with the established priorities. Also the technical possibilities of efficient management of the WSS services delivery were taken into account. The data analysis was conducted by a team of national and international technical experts in WSS.
- **The water supply and sewerage options** were discussed at the 4th Round Table organized by the local team and the mayors of each settlement. Water supply options were proposed based on the possibilities of connecting citizens to safe drinking water and effective service management solutions. Because of the lack of clean and safe drinking water sources and for a better service efficiency, the proposed solutions were based on intermunicipal cooperation.

- **The specific long-term objectives and the action plan** (soft actions) for 2012 - 2017 were developed during the 5th round table by the local team with expert assistance.

The approach used to define the cluster (the optimum operating area) for the WSS services was based on the following assumptions:

- The optimum operating area for the WSS services is based on the need for water supply services. It was assumed that the sewerage services will follow the water supply services;
- The first step in defining the optimum operating area of water services was an inventory of existing water sources and the relevant infrastructure;
- Based on the information collected by experts, several possible options on how to tackle water supply problems throughout the district were proposed. This was achieved by taking into account the way of using existing water sources and / or the construction of new surface water intakes;
- For each option proposed the infrastructure required (pumping stations, water supply and distribution networks, water towers and reservoirs) was determined through hydraulic modelling.
- Investment and operating costs for each option were estimated;
- The optimum operating area of water supply services will be based on the cost-effectiveness approach.

## 1.2. WSS Legal and Institutional Framework

### **WSS National Legal Framework**

#### **Legal Framework Assessment.**

Nationally the water supply and sewerage services are governed by the following regulations and legal acts:

- The Framework - Regulations on the use of public water supply and sewerage systems. Approved by the Moldovan Government Decision no.656 of 27 May 2002;
- The Framework - Regulations on technical operation of water supply and sewerage systems. Order no.6 of 24 January 2006 RDA.
- The methodology of development of norms on industrial water consumption at the enterprises providing water supply and sewerage services in Moldova. Approved by Ministry of Territorial Development, **C** and **GC** of the RM by the order no. 163 of 27 October 1999;
- The Framework Regulations on receiving wastewater, issue of technical specifications and permits for wastewater discharge into the sewerage system of settlements. The order no.40 of 18 February 2005 of the Department of Construction and Territorial Development.
- The Technical Security Regulation for water pipeline and sewerage operation. Approved by the Ministry of Utilities and Housing with the order no.69 of 11 March 1990;
- The district council shall provide in its monitoring plans the implementation, the adjustment and approval of this strategy by Cahul District Council decision and the application of these provisions in practice.

## II. Current Situation of Water Supply and Sewerage Services in Cahul District

### 2.1. Water Resources. Water Quality

The hydrology of the area comprises of Prut river, which forms throughout its course ravines, bays and natural lakes. The territory is crossed by the rivers Cahul, Cotihana, Salcia Mare and Salcia Mica, Tiheci and Larguta. The district has the largest lakes in Moldova: Beleu and Manta. The quality of Prut river water downstream of Ungheni, is influenced by discharges of insufficiently treated wastewater at Valea Mare facilities (Romania), especially during September and October, when the water flow of Prut river is the lowest one. The results of the analysis conducted by the State Ecological Inspectorate at different river points in Moldova also proves that with the expansion of the surface of the watercourse basin, the anthropic pressure on water quality increases as well. This is typical for Prut river with the increase on the low portions of the watercourses of the index obtained by referring the actual concentrations of CBO5 and NH4 to CMA.

The water quality of watercourses is strongly influenced by discharges of pollutants in wastewater discharged in concentration into watersheds, by how their basins are managed by border countries, by the countries cooperation for water sustainable protection and use.

We have to solve with Ukraine and Romania important problems related to a number of consistent prerequisites and current conditions, which requires a radical revision of the principles of water resources management, because the current state of water resources does not guarantee food, sanitary and hygienic and environmental security does not contribute to the economic and social development of all countries of the border river basin. These prerequisites for Moldova can be stipulated as follows:

- The fragmented application of water laws (without reflecting any of the transboundary aspects).
- The application of the obsolete regulatory framework for water management, use and protection.
- The administrative dismantling of problems. The separation of responsibilities on the problems of surface and underground water use, its protection, the conservation of ecosystems, the negative impacts on water between different administrative structures.
- The negative impact of the poor water quality and utilities on public health.
- The ongoing degradation of the hydro-technical infrastructure and water resources.
- The limited financial possibilities of the country and the low income of population.
- The insufficient measures for fundraising and cooperation with neighbouring countries in the sustainable management of water resources.

The water supply system of Cahul town is based on surface water from Prut river. The water intake station is located approx. 4 km west of the town center. From the intake station the raw water is pumped through a feed pipe 8 km long to the treatment plant located approx. 4 km south of the town center. The treatment plant includes the following installations: vertical mixer for the input of the anticoagulant solution (aluminium sulphate); reaction chambers; suspension decanters; quick-open filters; chlorination station for final treatment.

The treated water is stored in three underground reservoirs with a capacity of 2000 m<sup>3</sup> each, and is distributed from the pumping station (PS), located on the territory of the treatment plant (TP).

Currently, the delivered water flow makes up 3,000 m<sup>3</sup>/day, while the pumping station capacity is approx. 23,000 m<sup>3</sup>/day (when all three (3) pumps operate).

The water treatment plant was designed for a capacity of 27,500 m<sup>3</sup>/day, the actual capacity of the treated water is 8,000 m<sup>3</sup>/day.

## 2.2. Water Supply Infrastructure and Sewerage Services

The water supply and sewerage infrastructure of Cahul district can be deemed as satisfactory despite the influence of the critical situation of the national economy and the financial decline of the population. The water supply systems in rural areas are largely built from efficient materials. Of the total 279.3 km of water networks, 82.8% are of polyethylene, 5.84% of iron and steel and only 11.3% of carbon. The Municipal Enterprise "Apa-Canal Cahul" benefited from a number of loans and grants that allowed the rehabilitation of water networks and pumping stations.

*Table no.1 Accessibility of Water Supply Services*

No.	Indicator	UM	Settlements			
			Total district	Urban areas	Rural areas	
					communes	villages
1	Number of settlements	number	55	1	36	18
2	Settlements benefiting from water supply	number	31	1	23	7
3	Total population	number	124.8	39.7	77.3	7.8
4	Population benefiting from water supply services from the public network	number	61.4	36.6	23.2	1.6
		%	49.2%	92.2%	30.0%	20.5%

The analysis of data on population accessibility to water supply services proves that the situation in the district is below the target indicator specified in the Water and Health Protocol signed by Moldova on 10 March 2000 and which became part of on 15 December 2005. According to the joint order of the ministries of Environment and Health signed on 20 October 2010 a list of indicators was approved that provides for the assurance of access to improved water sources for 35% of rural population by 2015 and for 45% by 2020. The district has a tendency of increasing development of water supply services in the residence settlements of the commune and large villages (30.0%) and less in the villages of the commune or in the poorly populated ones (20,5%). In conclusion, it may be emphasized that Cahul district and Cahul district commune requires significant efforts to meet the target indicators.

## 2.3. Public Accessibility in Cahul District to Sewerage Services

*Table no.2 Accessibility of Sewerage and Water Treatment Services*

No.	Indicator	UM	Settlements			
			Total district	Urban area	Rural area	
					communes	villages
1	Number of settlements	number	55	1	36	18
2	Settlements benefiting from sewerage		4	1	10	0
3	Total population	number	124.8	39.7	77.3	7.8
4	Population benefiting from sewerage services from the public network	number	35.4	34.5	0.9	0
		%	28.4%	86.9%	1.2%	0%

It is rather difficult to predict the development of sewerage and wastewater treatment systems with financial deficit. At the same time, it is necessary to efficiently use the financial resources for the construction of sewerage systems by establishing some priorities at district level and by selecting some technologies to be implemented that would meet the cost-quality relationship. One of the ways of addressing this issue is the hold a tender for the construction of sewerage systems and wastewater treatment plants according to the "yellow fidic" model or in

accordance with the "turnkey" model. This will increase the accountability of the involved stakeholders and will impose meeting the cost-quality relationship.

Table. 3 summarizes the technical and technology data on the public drinking water supply, sewerage, wastewater treatment and rainwater sewerage network in Cahul district (reference year - 2010 ).

*Table 3 Technical and Technology Data on the Public Drinking Water Supply Network*

Indicator	UM	Total District	Urban area	Rural area
<b>Public drinking water supply network</b>				
Length of the water supply network		359.5	80.2	279.3
Amount of produced water				*
Amount of supplied water				*
<b>Public sewerage and wastewater treatment network</b>				
Length of the sewerage network		72.5	51.6	20.9
Sewerage in unitary system				*
Sewerage in separation system		72.5	51.6	20.9
<b>Public sewerage and rainwater discharge network</b>				
Length of the rainwater sewerage network				*
Water treatment capacity				0

\* no data or incomplete data

#### 2.4. Institutional Framework

##### **National Institutional Framework**

Nationally the authorities responsible for water supply and sewerage are:

- The Ministry of Environment;
- The Ministry of Health; (for public health issues);

##### **Local Institutional Framework**

The water supply and sewerage services are of local or district (regional) interest, organized following an agreement largely expressed through a democratic decision taken by the competent local government.

The local authorities - Cahul Town Council, the district local councils and Cahul District Council are responsible for the establishment, management and financing of the water supply and sewerage services.

The local authorities with powers and competences in commentary public utilities are:

- Cahul District Council – for district services;
- Local councils of the Its level – for local services;
- Intercommunity cooperation associations (needed to be established) defined as public authorities and established by local governments, which assumes the duties, responsibilities and rights strictly in the field of water supply and sewerage services, for and on behalf of local associated governments.

To adjust the local institutional framework Cahul District Council shall establish by its decision the Public Utilities Supervisor. By the Regulations on the organization and operation, the following competences will be assigned:

- the development of proposals and recommendations for the development and approval of own draft strategies on the development of services, programs for the rehabilitation, expansion and modernization of the existing water supply and sewerage systems, as well as of draft programs for the establishment of some new systems, including in consultation with provides;



- the development of proposals and recommendations for the coordination of design and performance of technical and urban works in order to conduct them according to a unitary conception and in line with programs for settlement social and economic development, land planning, town planning and environment;
- the development of proposals and recommendations for the inter-communitary association in order to establish, organize, manage and operate some public services, including for financing and making investments in public utility systems;
- the development of proposals and recommendations for the transfer of service management and transfer into management or concession of public and / or private assets of territorial administrative units that constitute the technical and urban infrastructure of services;
- the development of proposals and recommendations for the participation of territorial administrative units in the establishment of the share capital of some commercial companies aimed at providing / rendering public local, intercommunity or district utility services, as appropriate;
- the development of proposals and recommendations on contracting or guaranteeing loans to finance investment programs for the development, rehabilitation and modernization of existing systems;
- the development of proposals and recommendations on ensuring, by law, loans obtained by public utility providers to establish or develop the technical and urban infrastructure for services;
- the development of proposals and recommendations on the development and approval of service regulations based on the framework regulations on services, developed and approved by competent regulatory authorities;
- the development of proposals and recommendations for the establishment, adjustment, modification and approval of special prices, rates and charges in compliance with methodological norms developed and approved by competent regulatory authorities;
- the development of proposals and recommendations for the approval of the establishment, adjustment or change of prices and rates for water supply and sewerage services;
- the restriction of areas with monopoly conditions (monitoring of areas where conditions for establishing some new monopolies and involvement of the competent authorities could occur);
- the protection and conservation of the natural and built environment.

For the improvement of the management of created water and sewerage services, Cahul District Council and village councils in the district will need to cooperate effectively with Cahul Cadastral Office to record investment and water supply and sewerage systems created in settlements.

### **Providers of Water Supply and Sewerage Services**

The public water supply and sewerage services are provided / rendered by specialized providers (municipal and individual enterprises, joint stock companies, partnerships, limited liability companies, companies with other legal forms of organization) that can be:

- a) specialized departments of the local government;
- b) businesses, regardless of legal form of organization;
- c) individuals and / or their associations.

The leading provider of water supply and sewerage services of Cahul district is the Municipal Enterprise "Apa-Canal Cahul".

Most settlements in the district who organized water supply and sewerage services in various forms need to reorganize and modernize the legal forms of organization of the providers concerned.

## 2.5. Funding of the WSS Sector

In 2007 for the drinking water supply works of the district settlement 23.2 million MDL were allocated from various sources of funding, out of which 1,630.0 thousand MDL from the state budget, 1,322 thousand MDL from the district and local budget and 20.2 million MDL from the World Bank and IFMS credits.

Through the World Bank funded project worth 2.8 million USD the existing networks in Cahul town were reconstructed and renovated.

## 2.6. Planning of the Water Supply and Sewerage Sector

The local councils should ensure the implementation of some effective, efficient and sustainable, result-oriented management. Depending on the nature and condition of service, the need to ensure the best price / quality ratio for the current and future interests of the settlement, as well as the size and complexity of water supply and sewerage systems, the local authorities will adopt one of the means of managing the water supply and sewerage services, namely:

- direct management; or
- transfer of management.

The public utilities will be adapted to the forms of management and the way of financing that takes into account the effects of the activity provided / rendered in terms of social solidarity, environmental protection and land planning.

The public or private assets of the territorial administrative unit, used to provide / render public utilities can be transferred into the direct management and operation of providers or can be conceded to provider, following the transfer of management.

Regardless of the adopted management, the water supply and sewerage services will be provided on the basis of a service regulations and specifications obligatory providing for the compliance with the indicators of quantity and quality of services and the way they shall be measured / quantified.

For the delivery / provision of some efficient, economically and financially cost-effective public services, the local councils are required to take optimum decisions on their management. A series of economic and financial, institutional and investment constraints, relative to foreign fund raising and the obligation of delivery / provision of services by authorized specialized providers justify the orientation of local authority in decision making towards the adoption the system of management delegation by concession as way of management.

## 2.7. SWOT Analysis of the Water Supply and Sewerage Sector

<b>Strengths</b>	<b>Weaknesses</b>
District council involvement in the initiation of some water systems development projects	Low level of people access to water and sewerage service in particular;
Existence of a water supply and sewage infrastructure covering a part of the district rural settlements	Big losses in the transport and distribution network
Existence of technical documentation prior to the start of some investment projects	Failure to comply with specific legislation on service management
Existence of the political will to cooperate inter-communitly for the joint organization and operation of water supply and sewerage services	Lack of a regional provider to manage the water and sewerage service needed for a much effective access of funds with a much advanced credibility in foreign donors.
Transformation of Cahul Its cluster (Water supply in	Limited capacity of local authorities to

the villages Crihana Veche, Manta, Pascani and Rosu) in a test laboratory for the inter-community and regional development principles of water supply and sewerage services	develop technical and investment projects in the field;
Existence of the State University "B.P. Hasdeu" in Cahul as a water and sewerage research and innovation centre.	Poor awareness of population on the need of connecting to urban networks
	Poor capacity of people to cover the operating and maintenance costs
<b>Opportunities</b>	<b>Threats</b>
The existence of technical documentation enables faster start of investment projects	Impossibility of covering the counter value of water supply and sewerage services because of very poor financial resources;
Possibility of accessing multiple sources of funding for the drinking water infrastructure, increase of the financial support from foreign donors (EBRD, EIB, European Commission)	The impossibility of further co-funding of some projects may damage the works performed;
Possibility of implementing investment projects through funding from the NFRD and technical assistance from RDA SOUTH	Pollution of surface and groundwater by uncontrolled storage of household waste, animal waste, use of improvised septic tanks
The existence of the water and sewerage infrastructure can contribute to the development of productive economic activities with major impact on economic development of villages in the district where agricultural processing enterprises are located	The high degree of poverty can make the water supply and sewerage systems ineffective
Ensuring comfort and health of inhabitants;	Organizational and financial difficulties caused by regionalization. Delayed approval of major projects
Reduction of environmental pollution and the risk of disease of population by establishing water supply and sewage systems;	High costs of compliance with European quality standards
Access to new technologies for the modernization and improvement of drinking water systems;	Difficulty relative to the financial support of investment projects
Establishment of a regional water supply system;	
Development and implementation of a Feasibility Study on water supply and sewerage	
Technical assistance of GOPA consortium within the GIZ-funded project "Modernization of local public services in Moldova"	

### **III. Strategic Development Directions of the Water Supply and Sewerage Sector 2012 - 2017**

#### 3.1. Criteria for Settlement Prioritization and Clustering

##### **Water Supply Clusters**

The cluster definition is based on the inventory of existing water sources. This inventory shows that the quality of water in wells is very poor in some settlements, while in others the water quality is good and the water source capacity is insufficient to ensure water supply in the nearby communities.

Cahul town is supplied with water from Prut river. The intake station is located about 4 km southwest from the town center. Less than 30% of the water intake capacity and of the treatment plant is used. Actions that may extend the network beyond Cahul town are recommended in order to use this unused capacity. The ongoing projects in Manta, Crihana Veche, Pascani and Rosu villages are arguments for their inclusion in the same cluster like Cahul town.

There are large differences between locations in terms of water / sewerage and it has a significant influence on the functioning of water supply networks. There are also locations that are supplied with water and do not require connection to water supply networks and the water treatment plant of Cahul town.

##### **Agglomerations of the Sewerage and Wastewater Treatment Network**

The water supply networks need the construction of sewerage networks and a wastewater treatment plant. The effective development of the sewerage network is based on the following criteria:

- The agglomeration should be large enough (in terms of population) so that the wastewater treatment plant is not too expensive (in accordance with the EU standards, such agglomeration should have more than 2,000 people or equivalent);
- The sewerage and pumping services are very expensive, so the agglomeration should enable the existence of a gravity sewerage network;
- There is a need to identify a land lot suitable for wastewater treatment plant at the lowest point of the sewerage system in the agglomeration.

#### 3.2. Technical and Technological Solutions. Proposed Water and Sewerage Options. Assessment of Investment Needs

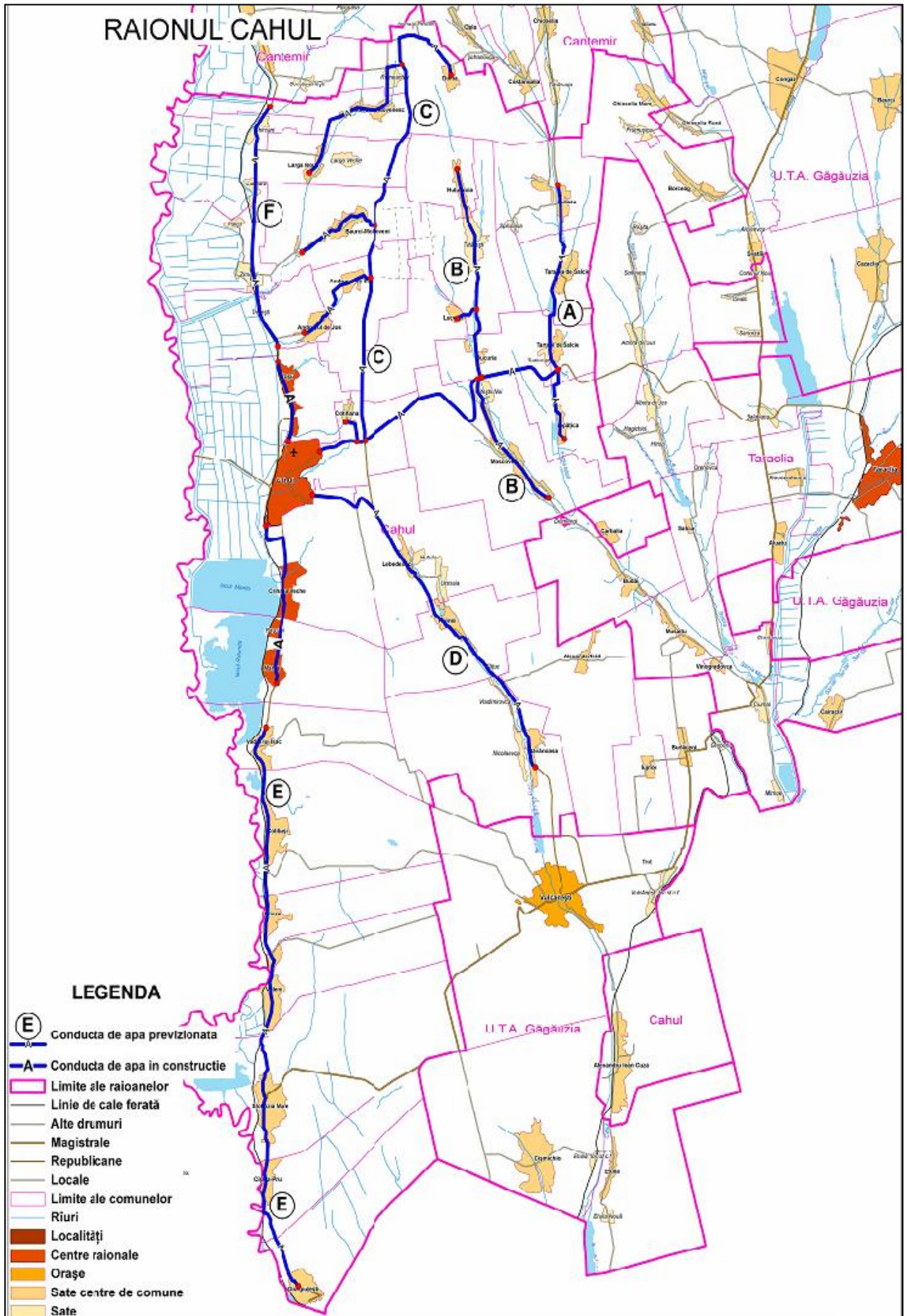
Cluster 1 (A, B, C) the villages Andrusul de Sus, Andrusul de Jos, Baurci Moldoveni, Larga Veche, Larga Noua, Badicul Moldovenesc, Rumeantev, Zirnesti, Trestesti, Cucoara, Chircani; Cotihana; Moscovei, Bucuria, Lucesti, Tataresti, Huluboaia; Trifestii Noi, Lopatica, Tudoresti, Tartaul de Salcie, Taraclia de Salcie; Burlacu.

Cluster 2 (D) the villages Hutulu, Lebedenco, Ursoaia, Pelinei, Satuc, Vladimirovca, Gavanoasa, Nicolaevca, Alexanderfield, Iujnoie, Burlaceni, Greceni;

The sustainable development of water supply systems in Cahul district is determined by the following factors:

1. The flow of aquifers,  $2 \div 4 \text{ m}^3 / \text{h}$  are inefficient for the organization of water acquisition in industrial quantities. To meet a demand of about 125l per/day, it is necessary to drill more wells, because the operated ones in the region are drilled in 1963  $\div$  1968, which means that they exceeded two or three times the operating term.
2. The location of the 33 settlements is random - from the height of 35m (Andrusul de Jos) to 257 m (Iasnaia Poleana) above the sea level.

**Water Supply Scheme in Cahul District Settlements**



3. The settlements are different in terms of the number of population. Of all settlements, 8 villages are inhabited by 66 - 428 people.
4. There is a large discrepancy on the level of access to water supply services between the settlements located in the valley of Prut river and in the eastern plateau. Of 31 settlements that have no water supply system only 3 villages are located in the river valley and are working on an investment project to be realized in autumn 2012.

Based on the studies conducted, Cahul District Council jointly with local governments approved the decision to accept the scheme of development of water supply systems, using the unused production capabilities of the surface water treatment plant managed by the Municipal Enterprise Apa Canal Cahul. It was found that according to the results of activities over the last years, the Provider delivered an average of 5,582 m<sup>3</sup>/day, which is 32.1% of the total capacity. The water supply scheme provides for the extension of water supply pipelines towards Burlacu village (Area A), Huliboia village (Area B), Iasnaia Poleana village (Area C) and Gavanoasa village (Area D).

The areas A, B, C and D are the most disadvantaged ones and at the working meetings they were established as priorities. The settlements in the areas F and E have water supply systems and reached an average level of branching of 42.6% of households. But it is necessary to mention that there are settlements that have more than 80% of households connected to the water supply system. The strategy of development of water supply systems requires the settlements located in Prut valley to benefit from financial support in the II<sup>nd</sup> stage after 2017, when the settlements located on the plateau will reach a level of accessibility of at least 35% of people provided with services.

Under this strategy, the design of regional water supply system for the settlements located in the cluster D started. This was due mostly to the intercommunity cooperation of the public authorities of Pelinei, Gavanoasa and Lebedenco communes.

Cahul District Council will monitor the situation on the development of intercommunity relations of these territorial administrative units in order to remove the risks that could dissolve these relations.

### **Development Scheme of Sewerage and Wastewater Treatment Systems in Cahul District**

Cluster 1: Cahul town; the villages Manta, Pascani, Crihana Veche, Rosu;

Cluster 2: the villages Andrusul de Sus, Andrusul de Jos, Baurci Moldoveni, Larga Veche, Larga Noua, Badicul Moldovenesc, Rumeantev, Zirnesti, Trestesti, Cucoara, Chircani; Cotihana;

Cluster 3: the villages Moscovei, Bucuria, Lucesti, Tataresti, Huluboia; Trifestii Noi, Lopatica, Tudoresti, Tartaul de Salcie, Taraclia de Salcie; Burlacu;

Cluster 4: the villages Borceag, Frumusica, Chioselia Mare

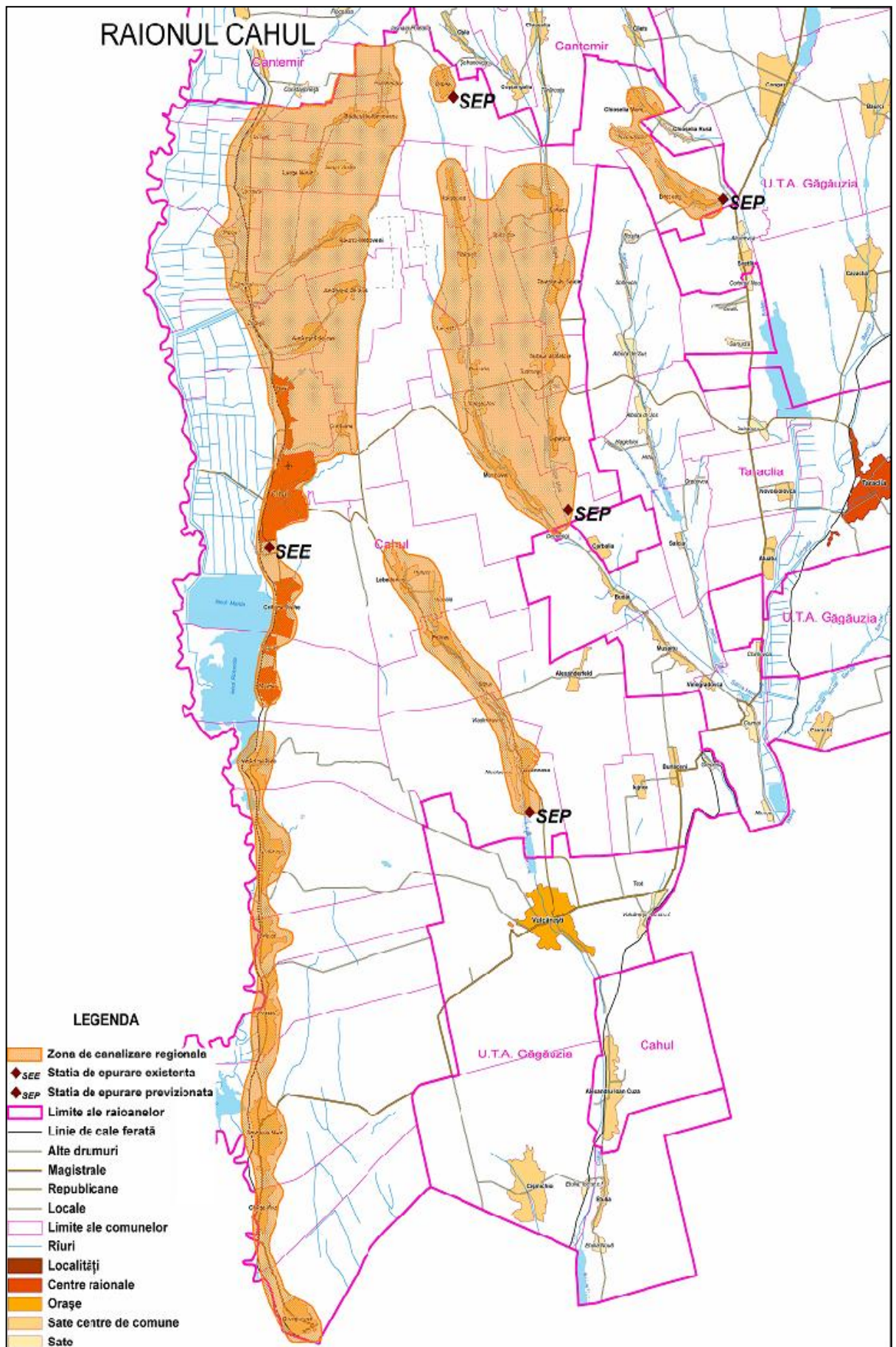
Cluster 5; the villages Hutulu, Lebedenco, Ursoaia, Pelinei, Satuc, Vladimirovca, Gavanoasa, Nicolaevca, Alexanderfield, Iujnoie, Burlaceni, Greceni;

Cluster 6: the villages Vadul lui Isac, Colibasi, Brinza, Valeni, Slobozia Mare, Cislita-Prut, Giurgiulesti;

The development of the sewerage and wastewater treatment systems is influenced by constraints imposed by the strips of protected areas in accordance with the Law No. 440 of 27 April 1995 on the protected areas and strips of river and basin water setting out for Danube and Prut rivers a protection strip of 1000 m. For 10 settlements in the lower river valley (cluster E) it may become a difficult problem relative to the location of the treatment plant at an equal distance, which would require wastewater pumping at 62 - 82 m above sea level and with a length of pumping and of discharge pipes from 2 to 4 km.



*Development Scheme of Sewerage and Wastewater Treatment Systems in Cahul District*



Another constraint is the cost of wastewater treatment technologies, which are usually imported from the EU countries or Ukraine. The cost analysis showed that the cost - capacity relationship favours the plants with a capacity of over 600 m<sup>3</sup>/day. At plants with a capacity of over / day the investment cost for wastewater treatment is 1 m<sup>3</sup>/ wastewater is 605 EUR as compared to 2,001 ÷ 2,872 EUR for plants with a capacity of 15 ÷ 45 m<sup>3</sup>/day.

Given the above, Cahul District Council accepts the concept of sewerage systems development based on the principle of the river watersheds in the region. It provides for the design and construction of 6 clusters, the composition of which is shown above.

The small settlements that are not located in the area of the main collectors will develop decentralized sewerage systems, storage tanks or septic tanks ensuring the transport of liquid waste to the waste treatment plant located in the closest area. The equipotent of providers with specialized high-capacity vehicles will allow establishing affordable charges for population. This refers to settlements with a population below 500– equivalent inhabitants.

The wastewater treatment plants will be constructed in the most favourable place of the agglomeration which agreed to jointly solve the problems of sewerage and wastewater treatment. The calculation of these plants capacity will allow treating the transported wastewater.

In case of a positive opinion of the feasibility study, the cluster no.6 can transport wastewater for treatment to the plant in Cahul town. The calculation of efficiency will also establish the direction of wastewater of some settlements of the cluster no.2.

## **Assessment of Investment Needs**

### **Overview**

The investment needs for the technical and public infrastructure of the territorial administrative unit is based through feasibility studies, developed and approved according to the law by the local council which coordinates the subordinated water supply and sewerage services.

The determination of the investment needs shall include the following steps:

- the analysis of the existing situation of water supply and sewerage services and of the objective needs of local communities;
- the development and approval of some own local strategies on the development of water supply and sewerage services;
- the identification of required investment objectives in each local community;
- the prioritization of investment objectives;
- the identification of human, material and financial resources required for the projects;
- the development and approval of feasibility studies.

The methodology of identification of funds to cover the investment needs will meet the following:

- the charges for service may be increased in line with the affordability rate, so that the bill will not lead to it overcome;
- the maximum level of own funds (direct sources for investments from increased charges, loans that may be contracted taking into account the costs of repayment, the participation of the private sector considering the return on the invested capital, etc.) will be calculated based on the income from increased charges;
- the financial deficit will represent the value of the uncovered investment being financed from the following sources:
  - community funds;
  - local budget sources;
  - state budget sources;
  - loans.

## **Assessment of investment Needs for Water Supply, Wastewater Collection and Treatment for 2012-2025**



The investment need is calculated based on the opportunity studies and the analysis of the situation of existing water supply and sewerage systems. The provision of the water supply and sewerage systems development plan was developed in accordance with the target indicators and the terms of control approved by joint order no.91/704 of the Ministry of Environment and the Ministry of Health for the implementation of the Water and Health Protocol. The calculations are made at cost level in the second quarter of 2012.

Cost Estimates of Investment Needs for 2017 – 2025.

Water Supply

	Cluster	UM	Water	Channel	Treatment	Total
1	<b>Cluster D Cahul - Gavanoasa</b>	th. MDL	59,159	49,050	22,293	130,502
2	<b>Cluster A+B Cahul – Burlacu – Huliboaia</b>	th. MDL	74,440	88,009	38,761	201,210
3	<b>Cluster C Cahul – Iasnaia Poliana</b>	th. MDL	77,551	56,776	0	134,327
4	<b>Cluster Borceag – Frumusica – Chioselia Mare</b>	th. MDL	14,349	10,242	2,967	27,558
5	<b>Cluster F Cahul – Chircani</b>	th. MDL	17,055.8	15,169.2	0	32,225
6	<b>Cluster E Cahul – Giurgiulesti</b>	th. MDL	31,793.4	43,341	32,797	107,931
	<b>Total</b>	th. MDL	<b>274,348.2</b>	<b>262,587.2</b>	<b>96,818</b>	<b>633,753</b>
	<b>Total EUR</b>		17,699.88	16,941.11	6,246.32	40,887.32

Construction of Sewerage Systems

	Cluster	UM	Total Cost	2012 – 2017	2018 – 2025
1	<b>Cluster D Cahul - Gavanoasa</b>	Th. MDL	59,159.00	23,663.60	35,495.40
2	<b>Cluster A+B Cahul – Burlacu – Huliboaia</b>	Th. MDL	74,440.00	29,776.00	44,664.00
3	<b>Cluster C Cahul – Iasnaia Poliana</b>	Th. MDL	77,551.00	31,020.40	46,530.60
4	<b>Cluster Borceag – Frumusica – Chioselia Mare</b>	Th. MDL	14,349.00	5,739.60	8,609.40
5	<b>Cluster F Cahul – Chircani</b>	Th. MDL	17,055.80	0.00	17,055.80
6	<b>Cluster E Cahul – Giurgiulesti</b>	Th.	31,793.40	0.00	31,793.40

		MDL			
	<b>Total MDL</b>		274,348.20	90,199.60	184,148.60
	<b>Total EUR</b>		17,699.88	5,819.33	11,880.55

### 3.3. Objectives and Priorities for the Development of the Water and Sewerage Sector in Cahul District

**Cahul district vision** is to provide accessibility to affordable water supply and sewerage services for all people and businesses in the district. The district will protect the drinking water sources and will reduce the negative environmental impact by improving the wastewater collection and treatment facilities.

#### **Long-Term Objective**

**Cahul district will ensure an accessible system of safe and high-quality water supply, anywhere in the district for citizens and businesses.**

#### **Priorities**

The purpose of investment prioritization in Cahul district settlements relates to the urgency of problems and the combination of these needs with the proposal of the WSS services regionalization to understand what will be the first interventions (actions) to be implemented.

The prioritization system reflects both national and local priorities with selected combination of these 2 categories of priorities.

The national priorities relate are:

Reduction of morbidity caused by water quality
Increase in the level of public water supply and sewerage
Assurance of water supply 24 hours per day
Increase in the level of people assurance with improved sewerage systems
Halt of the deterioration of existing infrastructure
Improved access of children from schools and kindergartens to water

The regional priorities were defined in the participatory process. During the second round table the participants proposed the local priorities defining in the 5-6 most important priorities for Cahul district. During the next participatory event, according to the criterion of importance or weighting, only three priorities were identified as follows:

Improvement of economic development
Increase in the number of people benefiting from quality water and sewerage services
Improvement of the access to water and sewerage for public authorities

The tables in Annex 1 present the local priorities with information on the criteria for each priority and indicators.

#### **Medium Term Objectives**

The medium-term objectives were divided into four groups:

1. objectives relative to the WSS services management
2. objectives relative to information and awareness
3. objectives relative to the improvement of the existing infrastructure
4. objectives relative to a new regionalized infrastructure.

The following medium-term objectives were selected:

**1. objectives relative to the WSS services management:**

- 1.1. preparation of settlements for a better WSS services management;
- 1.2. collaboration between settlements and intercommunity cooperation in WSS services;
- 1.3. increase in the potential of implementing projects in water supply / wastewater services by providers in the settlements;
- 1.4. capacity strengthening of providers of water / wastewater services to improve existing service delivery.

**2. objectives relative to information and awareness:**

- 2.1. assurance of the transparency of WSS services;
- 2.1. raising awareness of responsible use of WSS service.

**3. objectives relative to the improvement of existing infrastructure:**

- 3.1. identification and preparation of projects for the improvement of existing infrastructure.

**4. objectives relative to a new regionalized infrastructure:**

- 4.1. preparation of capital investment projects, including the financial package for six groups in the inter-community cooperation;
- 4.2. increase in the coverage of safe and quality (clean) water services from surface water sources through a network of underground pipes;
- 4.3. preparation of capital investment projects, including financial package for wastewater.

*Medium- and long-term target indicators for Cahul district clusters*

<b>Cluster D Cahul - Gavanoasa</b>	UM	Current situation	2015	2017	2025
Rate of population access to improved drinking water supply systems:	No.*	3889/677			
Rural population	%	17.4	20.0	40.0	> 65
Rate of population access to improved sanitation systems					
Rural population	%	0	3.0	10.0	> 35

<b>Cluster A+B Cahul – Burlacu – Huliboia</b>	UM	Current situation	2015	2017	2025
Rate of population access to improved drinking water supply systems:	Nr *	5109/930			
Rural population	%	18.2	15.0	48.0	> 65
Rate of population access to improved sanitation systems					
Rural population	%	0	3.0	10.0	> 35

<b>Cluster C Cahul – Iasnaia Poliana</b>	UM	Current situation	2015	2017	2025
Rate of population access to	No.*	3587/682			

improved drinking water supply systems:					
Rural population	%	19.1	30.0	48.0	> 65
Rate of population access to improved sanitation systems					
Rural population	%	0	3.0	10.0	> 35
<b>Cluster F Cahul – Chircani</b>	UM	Current situation	2015	2017	2025
Rate of population access to improved drinking water supply systems:	Nr*	2319/1063			
Rural population	%	45.8	47	49	> 65
Rate of population access to improved sanitation systems					
Rural population	%	0	3.0	10.0	> 35

<b>Cluster E Cahul – Giurgiulesti</b>	UM	Current situation	2015	2017	2025
Rate of population access to improved drinking water supply systems:	No.*	10911/3777			
Rural population	%	34.6	37	48.0	> 65
Rate of population access to improved sanitation systems					
Rural population	%	0	3.0	10.0	> 35

<b>Cluster Borceag – Frumusica – Chioselia Mare</b>	UM	Current situation	2015	2017	2025
Rate of population access to improved drinking water supply systems:	No.*	937/425			
Rural population	%	45.3	50	55	> 65
Rate of population access to improved sanitation systems					
Rural population	%	0	3.0	10.0	> 35

*N\* is the relation between the total number of households in each cluster and the number of households connected to the centralized water supply system*

The analysis of the fundraising forecast to boost water supply and sewerage services shows the discrepancy between the demand for funds between the cluster A+B Cahul - Burlacu - Huluboaia, which service coverage makes up 10.7 %. Another negative factor influencing investment prioritization is poor quality of water from deep sources and the little flows that were outlined above in terms of water resources. The 2nd priority is cluster D Cahul - Gavanoasa, which has an index of population access to centralized water supply of 17.4%. The 3rd priority is the cluster Cahul - Iasnaia Poleana, which indicator of access makes up 19.1%.

Given the small difference between these 3 clusters on people's access to guarantee supply with centralized and quality water, Cahul District Council in the strategy will consider the capabilities of local governments to have the political will for an efficient and sustainable intercommunity operation of a public utilities.

The component "sewerage and wastewater treatment" of the service will be further studied within the feasibility study in order to determine the demand for services in rural areas and identify how to develop the system in the area of the watershed for an agglomeration not less than 10,000 of equivalent inhabitants.

### 3.4. Action Plan to Achieve Objectives

The action plan is a list of activities required for the achievement of each medium-term objective. The action plan covers in detail the priority investments and the SOFT measures that contribute to the agreed priorities. The action plan was divided into three groups:

- The soft actions (non-investment measures), which contribute to reaching the following groups of objectives
  - relative to the WSS services management;
  - relative to information and awareness
  - Soft actions are also related to the preparation of investment projects, thus contributing to reaching the following groups of objectives:
    - ✓ relative to the improvement of the existing infrastructure,
    - ✓ relative to the newly regionalized infrastructure.
- rapid interventions related to the modernization of existing infrastructure.
- investment projects for water supply and wastewater collection and treatment for priority groups.

The Table with summarized soft actions, rapid interventions and technical investment projects for the investment projects are presented in the annex.

### 3.5. Monitoring and Evaluation

The proper monitoring of the implementation of proposed plans is a prerequisite for the quality of their realization. Actions are proposed to monitor the whole implementation of the SEDS, component of the water supply and sewerage services.

This will be achieved through the discussion at certain times of the implementation by the responsible persons. The monitoring shall be ensured by Cahul District Council, which by its bodies will pursue and take recovery measures when necessary to anticipate problems and reduce the risk of incurring additional costs. It aims improving the efficiency and effectiveness of the water supply and sewerage services.

During the monitoring of water quality and the progress in this area, Cahul Public Health Center will develop jointly with Cahul District Council an annual plan related to the monitoring of water quality at the source, identifying to this end the financial resources. These data will be highly relevant in assessing the dynamics of changes in water quality in Cahul district.

The monitoring will involve regular collection and analysis of information necessary to track the progress. The assessment consists in comparing the real impact of the project with the original plans: what was established to achieve, what was achieved and how it occurred. The evaluation will consider the criteria of effectiveness, involvement of responsible actors, the transparency of the process.

The following procedure will be applied to monitor the WSS component of the Social and Economic Development Strategy of the district:

1. Responsible for the monitoring of the SEDS will be the Department of Economy of Cahul District Council, which will collect data on progress monthly. The established working group for the development of the strategy will meet monthly.
2. Annually in June, the Department of Economy will prepare a monitoring report. The report shall include the findings on the implementation of each activity covered by the Action Plan. The Monitoring Report will indicate the extent to which the action was achieved, the terms of achievement, the expenses, the achieved results. Deviations from the action plan and the proposals of adjustment and correction will be described. The form to be used by the Department of Economy is given in the annex of the strategic document.

3. Based on the monitoring report the Local Working Group will suggest ways to update the SEDS, the WSS component.
4. Cahul District Council will hear the annual monitoring report and will decide on the update of the Social and Economic Development Strategy.

## Annex 1. National and Local Priorities

**Table 1-1 National priorities, criteria and indicators**

<b>Priority</b>	<b>Reduction of morbidity caused by water quality</b>
Proposal of criteria	Priority is given to the settlements with the largest share of artesian wells which water quality does not meet the GOST standard "drinking water".
Indicators	<p>The number of wells (including artesian) and springs in the settlement the water quality of which:</p> <p>does not meet the 3 indicators in particular the GOST "drinking water": 1 point for every 10% of wells / springs  do not meet 2 indicators: 1 point for every 20%  do not meet 1 indicator: 1 point for every 30%</p> <p>Example: there are 30 wells in the settlement, 25% of them meet 3 indicators in particular the GOST "drinking water", 25% do not meet 2 indicators and the rest do not meet 1 indicator. The settlement will have 5.4 points ( 25% / 10% 25% / 20% 50% / 30%)</p> <p>Maximum number of points: 10 (when the wells do not meet 3 and more indicators).</p>

<b>Priority</b>	<b>Increasing public access to water through pipelines</b>
Proposal of criteria	Priority is given to settlements with lower share of population to water supply through pipelines
Indicators	<p>Lack of water supply pipeline network in the settlement: 10 points</p> <p>Existing water supply network in the settlement, the settlement will receive 1 point less for every 10% of the coverage with water supply pipeline. The are of coverage of water supply pipeline is calculated as the number of households connected to water supply divided to the total number of households in the settlement.</p> <p>Example: the settlement of 400 of households has a pipeline network covering 100 households. The settlement receives 7.5 points (10 - 10 * 100/400)</p>

<b>Priority</b>	<b>Non-stop delivery of water services to population (24 hours)</b>
Proposal of criteria	Priority is given to the settlements where drinking water is delivered without interruption.
Indicators	<p>The number of days per year when water supply is interrupted:</p> <p>less than 5 days: 0 points  5-9 days: 2 points  10-19 days: 4 points  20-29 days: 6 points  30-39 days: 8 points  40 and more: 10 points</p>

<b>Priority</b>	<b>Increasing population coverage with improved sanitation services</b>
Proposal of criteria	Priority is given to settlements with a less coverage of the sewerage

	<b>system</b>
Indicators	<p>The current sewerage system and its coverage in the settlement:  There is a sewerage system and the area of coverage is &gt; 90% of households : 0 points  There is a sewerage system and the area of coverage is &gt; 75% of households: 2 points  There is a sewerage system and the area of coverage is &lt; 75% of households in the settlements inhabited by less than 2000 people: 4 points  There is a sewerage system and the area of coverage is &lt; 75% of households in the settlements inhabited by more than 2000 people: 6 points  There is no sewerage system in the settlement inhabited by less than 2000 people: 8 points  If there is no a sewerage system in the settlement with a population more than 2000: 8 points</p>

<b>Priority</b>	<b>Halting the deterioration of the existing infrastructure</b>
Proposal of criteria	Priority is given to the settlement where the existing infrastructure of water supply and sewerage is depreciated
Indicators	<p>The existing infrastructure of water supply and sewerage:  1 point for every 10% of pipeline constructed before 1995.  Lack of infrastructure: 0 points</p> <p>The share of pipelines built before 1995 is calculated as the sum of the length of the network built before 1995 and the total length of the settlement network</p>

<b>Priority</b>	<b>Increasing access of schools and kindergartens to improved water supply and sanitation services</b>
Proposal of criteria	<p>School in the settlement:  If the settlement school is not supplied with water and does not have sanitation installations: 10 points  If the settlement school is not supplied with water and does not have sanitation installations (is not supplied with water and has sanitation installations): 5 points  If the settlement has no school or if the settlement is supplied with water and has sanitation installations: 0 points</p>
Indicators	To improve in schools and kindergartens for pupils the water supply and sanitation installations

**Table 0-1. Cahul district local priorities, criteria and indicators**

<b>Priority</b>	<b>Support for Economic Development</b>
Proposal of criteria	<p>This priority targets the settlements with a high potential of economic development. The economic potential is defined as:</p> <p>Low interest of tourists for settlements without water supply and sanitation infrastructure:  - river, lake, woods with footways for tourists, monuments, museums etc.;  - restaurants, cafes without water supply and sanitation infrastructure;  - regular food processing enterprises without water supply and sanitation infrastructure;</p>



	- industrial enterprises without water supply and sanitation infrastructure;
Indicators	<p>The points are summarized for each indicator of economic development potential (as defined below) and then divided by the number of inhabitants, multiplied by 100. The formula of points for the number of indicators of economic development per 100 people:</p> <ul style="list-style-type: none"> <li>- tourist attractions located in the settlement: <ul style="list-style-type: none"> <li>▪ For attractions in the settlement without water supply and sanitation infrastructure: 3 points;</li> <li>▪ For attractions in the settlement with water supply infrastructure covering less than 50% of the population and without sanitation: 2 points;</li> <li>▪ For attractions in the settlement with water supply infrastructure covering more than 50% of the population and without and without sanitation: 1 point;</li> </ul> </li> <li>- Restaurants, cafes: <ul style="list-style-type: none"> <li>▪ For each attraction without water supply and sanitation infrastructure: 3 points;</li> <li>▪ For each attraction with water supply infrastructure and without sanitation: 2 points;</li> </ul> </li> <li>- Food processing enterprises: <ul style="list-style-type: none"> <li>▪ For each attraction without water supply and sanitation infrastructure: 3 points;</li> <li>▪ For each attraction with water supply infrastructure and without sanitation: 2 points;</li> </ul> </li> <li>- Industrial enterprises: <ul style="list-style-type: none"> <li>▪ For each attraction without water supply and sanitation infrastructure: 3 points;</li> <li>▪ For each attraction with water supply infrastructure and without sanitation: 2 points;</li> </ul> </li> </ul>

<b>Priority</b>	<b>Increase in the number of people benefiting from quality water and sewerage services</b>
Proposal of criteria	This priority targets highly populated settlements
Indicators	For each 100 of inhabitants: 1 point

<b>Priority</b>	<b>Improvement of the access to water supply and sanitation for public institutions</b>
Proposal of criteria	This priority targets the settlements with a large number of public institutions without water supply and sanitation infrastructure
Indicators	<p>The points are summarized for each public institution and then divided by the number of inhabitants, multiplied by 100. The formula of points for the number of public institutions per 100 inhabitants:</p> <ul style="list-style-type: none"> <li>- Health facilities (health centres and family physicians' centres): <ul style="list-style-type: none"> <li>▪ 2 points for the lack of water supply and sanitation infrastructure</li> <li>▪ 1 point with water supply infrastructure and without sanitation;</li> </ul> </li> <li>- Social assistance centres ( rehabilitation centres): <ul style="list-style-type: none"> <li>▪ 2 points for the lack of water supply and sanitation infrastructure</li> <li>▪ 1 point if with water supply infrastructure and without sanitation</li> </ul> </li> </ul>

## Annex 2. Action Plan

#	Activity	Deadline	Responsibility	Objective
<b>Soft Actions</b>				
<b>I Actions relative to the WSS services management</b>				
1.	Updating statistics on water and sewerage	2012/2013	Cahul District Council	1.1
2.	Evaluation and monitoring of people health depending on environment / water	annually	Public Health Centre (PHC), Agency of Ecology (AE)	1.1
3.	Organization of round tables on the WSS sector	2012-2013	Cahul District Council	1.1
4.	Development of the local WSS strategy in line with the district WSS strategy	annually	Local councils	1.1
5.	Study visits in the settlements with good WSS experience	twice a year	LPA of the Ist and the IInd levels in the district Service providers NGOs	1.2, 1.3
6.	Development of a tool for the collection of local contributions (citizens, budget)	2012	APL, LPA II	1.3
7.	Initiation of proposals to improve the legal framework (charges, assets, institutional)	permanently	APL, LPA II	1.3
8.	Establishment of intercommunity associations based on the proposed clusters (for service monitoring)	2012-2013	APL, LPA II	1.2
9.	Establishment of regional providers	2013	APL	1.2
10.	Promotion of intercommunity cooperation	2012-2014	Cahul District Council	1.2
11.	Training for professionals from the WS sector of service providers representing the LPA as well	annually	Apa-Canal Cahul	1.4
12.	Identification of resources for laboratory investigations	annually	PHC LPAs I, II	1.4
<b>II Raising awareness and information dissemination</b>				
13.	Publication in local media, TV of information for raising awareness (water use, charges) and moderators training among volunteers	permanently	PHC LPA NGOs AE ApaCanal	2.1
14.	Meetings with citizens	each semester	LPA Civil society Service providers	2.2
15.	Notices, signs, information panels on water quality	permanently	NGOs LPA	2.1
16.	Local awareness campaigns	permanently	NGOs	2.2

	(NGOs involved in training projects)	y	LPA	
17.	Active involvement of children in educational activities for rational use of water	permanentl y	Educational institutions LPA	2.2
18.	Seminars on WSS	each semester	Public institutions Service providers	2.1
<b>III</b>	<b>Actions relative to the preparation of investment projects for clusters</b>			
19.	Preparation of feasibility studies for two most priority clusters	the second part of 2012	LPA II, donors	4.1
20.	Preparation of financial packages for two most priority clusters	1st trimester 2013	LPA II, donors	4.1
21.	Preparation of a technical project for two most priority clusters	2013	LPA II, donors	4.1
22.	Preparation of a technical project for other two clusters	the first part of 2013	LPA II, donors	4.1
23.	Preparation of financial packages for two other clusters	IIIrd trimester 2013	LPA II, donors	4.1
24.	Preparation of a technical project for other two clusters	2013/2014	LPA II, donors	4.1
25.	Preparation of feasibility studies for the least priority cluster	the second part of 2013	LPA II, donors	4.1
26.	Preparation of a financial package for the cluster that is not a priority one at initial stage	1st trimester 2014	LPA II, donors	4.1
27.	Preparation of a technical project for the least priority cluster	2015	LPA II, donors	4.1
<b>IV</b>	<b>Actions relative to rapid interventions</b>			
28.	Identification of the needs for rapid interventions	annually	ApaCanal and LPA II in cooperation with LPA I	3.1
29.	Prioritization of rapid interventions	annually	LPA II	3.1
30.	Preparation of project documentation for rapid interventions	annually	ApaCanal and LPA I in cooperation with LPA II	3.1
<b>Investment projects</b>				
31.				4.2
32.				4.2
33.				4.3
34.				4.3
35.				

### Detailed Description of Non-Investment Activities

#	Action	Purpose
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1.	Update of statistics on water and sewerage	The WSS sector statistical information is not updated, but it is very important to make reasonable decisions. For example, information about water resources (wells, artesian wells), infrastructure development (network length) is not available, while these data are not very important for decision makers.
2.	Evaluation and monitoring of people health depending on environment / water	Poor quality of water causes multiple health problems. Health monitoring is important to make people aware of the importance of the WSS strategy and the monitoring of the strategy implementation.
3	Organization of round tables on the WSS sector	The round tables can contribute to the exchange of information and planning supported in the WSS sector. The round tables must be attended by the district administration, mayor's offices, WSS professionals and representatives of the civil society.
4	Update of the local WSS strategies in line with district WSS strategy	It is important for the settlements to develop their own SEDS and especially the WSS chapter, which must be in line with that one of the rational strategy. Thus, the purpose of this action is to assist the LPA I in developing the chapters of the strategy, which must correspond to the district vision.
5	Study visits in the settlements with good WSS experience	The practical knowledge and learning by observation are always important. There are settlements in Moldova and abroad that have good experience in upgrading the WSS sector. The aim of this action is that the LPA I representatives have the opportunity to visit other settlements, to know their experience and apply in practice the knowledge they learned.
6	Development of a tool for the collection of local contributions (citizens, budget)	The local contribution is an important source of funding investment projects in the WSS. On the other hand, the current experience is to collect the ad-hoc contribution. Thus, it is necessary to develop a tool (procedures) for a more systematic way to collect local contributions.
7	Initiation of proposals to improve the legal framework (charges, assets, institutional)	At this point, Moldova lacks the necessary WSS legislation or needs improving the existing provisions and to submit proposals to the respective ministries to initiate the amendment of legislation.
8	Establishment of intercommunity associations based on the proposed clusters (for service monitoring)	Despite the institutional arrangements of the intercommunity cooperation, it is necessary for the settlements to have a tool for service monitoring and the association is the best way to do so.
9	Establishment of regional providers	The purpose of this action is to establish a new provider or to upgrade the existing one (ApaCanal Cahul), which shall be responsible for the provision of WSS services.
10	Promotion of intercommunity cooperation	Even if the SEDS is based on the use of the concept of cluster in the WSS sector, it is needed to promote the intercommunity cooperation between settlements. The purpose of this action is to involve the LPA I.
11	Training for professionals from the WS sector of service providers representing the LPA as well	The WSS service providers (Apa Canal Cahul, municipal enterprises) need capacity building activities. The purpose of this action is to prepare a curriculum and to organize professional trainings. Before their organization, it is necessary to assess the training needs. The LPA I representatives will also be involved in training to the extent of their involvement in the organization of the WSS

		services.
12	Identification of resources for laboratory investigations	The laboratory tests are important to understand the drinking water quality for public health. At this time, the PHC and service providers lack funds to frequently examine the condition of water. This action aims to identify resources and to increase the number of laboratory tests.
13	Publication in local media, TV of information for raising awareness (water use, charges) and moderators training among volunteers	<p>This action aims to publish articles in local media, including TV, about:</p> <ul style="list-style-type: none"> <li>• the general situation in the WSS sector;</li> <li>• health problems caused by polluted drinking water;</li> <li>• environmental issues relative to wastewater discharge;</li> <li>• intercommunity WSS cooperation;</li> <li>• other WSS issues.</li> </ul> <p>This action aims to raise people awareness on water use, calculating of charges (full recovery of costs, the 'Polluter pays' principle), need for public contribution in investments and similar problems.</p> <p>Within this action, the moderators, who will meet with citizens will be trained.</p>
14	Meetings with citizens	The moderators trained under the previous action will hold a series of meetings with citizens, to explain the issues and to help raise awareness.
15	Notices, signs, information panels on water quality	Water quality is a serious problem for Moldova. Thus, the purpose of this action is to inform the society about water quality by notification, provision of signs and placement of information panels.
16	Local awareness campaigns (NGOs involved in training projects)	Some NGOs have the statutory purpose related to WSS, if not directly, then by reference to environmental issues through the health ones. These NGOs are interested in conducting campaigns. The purpose is to cooperate with interested NGOs and to unify resources and use their training services.
17	Active involvement of children and young people in activities with emphasis on water use	The education institutions are a major channel of communication for small settlements. Parents are interested in raising children and the objective of this project is to engage students in learning about water use.
18	Seminars on WSS	The purpose of the action is to organize seminars for the employees of public institutions to better understand the new WSS problems or issues.
19	Preparation of feasibility studies for two most priority clusters	The purpose of this action is to prepare feasibility studies for 2 regional projects. The feasibility studies are important for choosing the technical and organizational solutions. They are also important to communicate with potential donors.
20	Preparation of financial packages for two most priority clusters	The financial package is a final decision about who will financially support the investment project. Thus, we need to contact donors and other financial institutions, to set up meetings, to attract financing in investment projects. If it is decided to finance through credit, this action should include an analysis of creditworthiness.

21	Preparation of a technical project for two most priority clusters	The technical project is necessary to proceed with the tender and therefore the construction works.
22	Preparation of a technical project for other two clusters	See the action no. 19
23	Preparation of financial packages for two other clusters	See the action no. 20
24	Preparation of a technical project for other two clusters	See the action no. 21
25	Preparation of feasibility studies for the least priority cluster	See the action no. 19
26	Preparation of a financial package for the least priority cluster	See the action no. 20
27	Preparation of a technical project for the least priority cluster	See the action no. 21
28	Identification of the needs for rapid interventions	Smaller investment projects shall be implemented, especially related to the existing infrastructure (wastewater treatment plants, etc.). These projects are not identified at this stage.
29	Prioritization of rapid interventions	When rapid interventions are identified, it is needed to prioritize them to decide who is first to be implemented.
30	Preparation of project documentation for rapid interventions	The rapid investments like investment projects require preparation. It is impossible to decide what documentation will be required (rapid interventions are smaller, this is why there is no need for a feasibility study).

### Annex 3. Prioritization of Investments Needs in Cahul District

In order to identify the priorities, the multi-criteria analysis relative to criteria and indicators specified in the list of classification was used. The following shares were determined for Cahul district (after the reduction of the number of priorities and the normalization of shares):

**Table 0-1.** Share of local criteria for Cahul district

No.	Local Priorities	Share
1	Improvement of economic development	0.41
2	Increase in the number of people benefiting from quality water and sewerage services	0.32
3	Improvement of the access to water and sanitation for sewerage for public institutions	0.27

**Table 0-2. System of shares of priorities for Cahul district**

Criteria	Points	Share	Share of the national criterion and the district criterion	Points x share for the national and local criteria	Total
Reduction of morbidity caused by water quality	5.03	0.25	0.67	4.00	5.53
Increase in the level of people supply with water and sewerage	8.45	0.15			
Ensuring water supply 24h per day	0	0.15			
Increase in the level of people assurance with improved sewerage systems	8	0.15			
Halting the deterioration of the existing Infrastructure	10	0.15			
Improved access for children in schools and kindergartens to water	5	0.15	0.33	1.53	
Improvement of economic development	5	0.41			
Increase in the number of people benefiting from quality water and sewerage services	3	0.32			
Improvement of the access to water and sewerage for public institutions	6	0.27			

### Results of Prioritization of Investment Needs in Cahul District

For each (national or local) priority points have been allocated for each settlement of Cahul district. The information needed to evaluate the settlements were collected through a questionnaire in August 2011 and then in October 2011 and November. If the settlement did not

provide the necessary information, it was assigned 0 points for the given priority. The following table shows the total number of points and share of each settlement, **în care grupuri localitatea a fost atribuita și a populației.**

**Table 0-3. Provision of priority results in Cahul district**

No.	Settlement	Points	Cluster evaluation	
			Options relative to cluster 1	Options relative to clusters 2 and 3
1	MOSCOVEI	5.44	6	6
2	BORCEAG	4.32	4	4
3	LEBEDENCO	4.04	6	6
4	ALEXANDRU IOAN CUZA	3.97	6	6
5	BAURCI MOLDOVENI	3.81	1	2
6	MANTA+PASCANI	3.79	1	2
7	BRINZA	3.71	5	5
8	BUCURIA	3.47	6	6
9	Andrusul de Jos	3.44	1	2
10	PELINEI	3.40	6	6
11	CRIHANA VECHE	3.34	1	2
12	TATARASTI	3.31	1	2
13	ROSU	3.31	1	2
14	TARTAU DE SALCIE	3.26	6	6
15	Lopatica	3.26	6	6
16	BURLACU	3.21	6	6
17	ALEXANDERFELD	3.20	6	6
18	TARACLIA DE SALCIE	3.20	6	6
19	VADUL LUI ISAC	3.18	5	5
20	HUTULU	2.96	6	6
21	VLADIMIROVCA	2.83	6	6
22	LUCESTI	2.80	6	6
23	GAVANOASA	2.79	6	6
24	URSOAIA	2.78	6	6
25	BURLACENI	2.78	6	6
26	DOINA	2.63	1	2
27	HULUBOIA	2.63	1	2
28	CHIOSELIA MARE	2.60	4	4
29	BADICUL MOLDOVENESC	2.55	1	2
30	IUJNOE	2.54	6	6
31	RUMEANTEV	2.54	1	2
32	Cislita Prut	2.52	5	5
33	GRECENI	2.46	6	6
34	SLOBOZIA MARE	2.40	5	5
35	SATUC	2.39	6	6
36	CUCOARA	2.32	1	3
37	COLIBASI	2.12	5	5
38	FRUMUSICA	2.09	4	4
39	NICOLAEVCA	2.03	6	6
40	LARGA NOUA	2.01	1	2
41	LARGA VECHE	2.00	1	2
42	ANDRUSUL DE SUS	1.96	1	2
43	VALENI	1.93	5	5
44	IASNAIA POLEANA	1.90	1	2
45	ZIRNESTI	1.88	1	3



46	PAICU	1.83	1	3
47	TRETESTI	1.83	1	3
48	OR.CAHUL	1.71	1	2
49	CHIRCANI	1.42	1	3
50	GIURGIULESTI	1.03	5	5

**Table 0-4. Results obtained for each cluster of Cahul district**

No.	Cluster	No. of points	No. of points per 1000 inhabitants
1	cluster 1 (cluster 2+cluster 3)	50.21	1.704
2	cluster 2	40.93	1.651
3	cluster 3	9.28	1.981
4	cluster 4	9.01	2.808
5	cluster 5	16.89	0.661
6	cluster 6	62.81	2.511

**Table 0-5. Hierarchical list of clusters for Cahul district**

No.	Cluster	No. of points per 1000 inhabitants
1	cluster 4	2.808
2	cluster 6	2.511
3	cluster 3	1.981
	cluster 1 (cluster 2+cluster 3)	1.704
4	cluster 2	1.651
5	cluster 5	0.661

**Annex 6. Monitoring Form**

Action (according to the action plan)	Activity	Brief description of the activity	Main results of the activity	Data of activities	Cost of activities	Deviations from the plan of action	Possible adjustments of the action
1. Updating statistics on water and sewerage	1.						
	2.						
	3.						
					Total costs of actions:		
2. Evaluation and monitoring of people health depending on environment / water	1.						
	2.						
	3.						
					Total		

					costs of actions:		
3. Organization of round tables on the WSS sector	1.						
	2.						
					Total costs of actions:		

#	Action	Question – guide /indicator / data to be provided
1.	Update of statistics on water and sewerage	Number of questionnaires per WSS prepared % of the WS infrastructure for which updated statistical information is available
2.	Evaluation and monitoring of people health depending on environment / water	Report prepared on the health of the population depending on water, environment.
3	Organization of round tables on the WSS sector	Number of round tables organized
4	Development of the local WSS strategy in line with the district WSS strategy	Number of local strategies prepared, approved, with WSS chapter in line with the district one.
5	Study visits in the settlements with good WSS experience	Number of study visits Number of participants in study visits
6	Development of a tool for the collection of local contributions (citizens, budget)	The tool, the procedure for collecting local contributions was developed?
7	Initiation of proposals to improve the legal framework (charges, assets, institutional)	Number of proposals designed to optimize the legislation and sent to branch ministries
8	Establishment of intercommunity associations based on the proposed clusters (for service monitoring)	Number of associations established
9	Establishment of regional providers	Number of regional providers established
10	Promotion of intercommunity cooperation	List of activities organized to promote the intercommunity cooperation
11	Training for professionals from the WS sector of service providers representing the LPA as well	Number of trainings Number of participants in trainings
12	Identification of resources for laboratory investigations	Resources to support laboratory tests were identified. List of new laboratory equipment
13	Publication in local media, TV of information for raising awareness (water use, charges) and moderators training among volunteers	Number of publications
14	Meetings with citizens	Number of meetings held Number of citizens who participated in meetings
15	Notices, signs, information panels on water quality	Number of notifications and information about water condition

16	Local awareness campaigns (NGOs involved in training projects)	Number of awareness campaigns Number of NGOs involved
17	Active involvement of children in activities that insist on water use	Number of schools involved Number of students involved
18	Lectures on the collective work on WSS	Number of lectures organized Number of participants in lectures
19	Preparation of feasibility studies for two most priority clusters	Number of feasibility studies prepared
20	Preparation of financial packages for two most priority clusters	Number of financial packages prepared
21	Preparation of a technical project for two most priority clusters	Number of technical projects prepared
22	Preparation of a technical project for other two clusters	See the action no. 19
23	Preparation of financial packages for two other clusters	See the action no. 20
24	Preparation of a technical project for other two clusters	See the action no. 21
25	Preparation of feasibility studies for the least priority cluster	See the action no. 19
26	Preparation of a financial package for the least priority cluster	See the action no. 20
27	Preparation of a technical project for the least priority cluster	See the action no. 21
28	Identification of the needs for rapid interventions	Number of small investment projects identified
29	Prioritization of rapid interventions	Were the rapid interventions prioritized?
30	Preparation of project documentation for rapid interventions	Was the documentation on rapid interventions developed?