MOLDOVA WATER SECURITY AND SANITATION PROJECT (MWSSP)

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN (ESMP)

for "Cahul – Vulcanesti Water Supply" Sub-project

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LIST OF ABBREVIATIONS

EA	Cahul and TAU Gagauzia Environment Agency
ANSP	National Agency for Public Health
BoQ	Bill of Quantities
CWSC	Citizen Water and Sanitation Committee
DD	Detailed Design
ESS	Environmental and Social Standards
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FEZ	Free Economic Zone
FS	Feasibility Study
GoM	Government of Moldova
GRM	Grievance Redress Mechanism
IDA	International Development Association
EPI	Environmental Protection Inspectorate
IUCN	International Union for Conservation of Nature
FRMI	Forest Research and Management Institute
LPA	Local Public Authority
MIRD	Ministry of Infrastructure and Regional Development
MTP	Main Transmission Pipeline
MSU	Moldova State University
MWSSP	Moldova Water Security and Sanitation Project
NAA	National Archaeological Agency
NFRLD	National Fund for Regional and Local Development
NORLD	National Office for Regional and Local Development
PAP	Project Affected Person
PIU	Project Implementation Unit
SE	State Enterprise
SEP	Stakeholder Engagement Plan
SES	Stakeholder Engagement Strategy
PS	Pumping Station
TAU	Territorial Administrative Unit
TCD	Tehno Consulting & Design LTD
WB	World Bank
WSS	Water Supply and Sanitation

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1. EXECUTIVE SUMMARY

1.1. Project Background

The Government of Moldova (GoM) is currently implementing a project supported by the World Bank (IDA) financing the **Moldova Water Security and Sanitation Project (MWSSP).** The Moldova Water Security and Sanitation Project directly supports the Government's commitment to Sustainable Development Goal No.6: to achieve universal and equitable access to safe and affordable drinking water, sanitation, and hygiene by 2030 through its Action Program and the National Water Supply and Sanitation Strategy 2014-2028.

MOLDOVA WATER SECURITY AND SANITATION PROJECT (MWSSP)

The Project Development Objective (PDO) of the MWSSP is to increase access to improved water supply and sanitation services in selected rural areas and small towns, and to strengthen institutional capacities for water supply and sanitation service delivery, both at national and local level.

The World Bank's Water Security Diagnostic and Future Outlook[1] showed that there are several pressing challenges to Moldova's water security, such as (i) inequalities in access, inadequate quality of water supply in small towns and weak performance of service providers; (ii) poor environmental health and environmental pollution due to lack of sanitation and wastewater collection and treatment; (iii) weak institutions, fragmented financing streams and unresolved reform areas which hinder programmatic delivery of services.

Access in water supply and sanitation (WSS) is constrained by large coverage gaps in rural areas, compounded by income status. Compared to other countries in the Danube region, the share of population with access to basic water and sanitation services in Moldova is low. The gap between urban and rural remains one of the largest in Europe and is one of the key water security issues the country is facing. Based on JMP-data, gains were made in rural water supply access to drinking water services from piped networks, from 33% in 2000 to an estimate 40% in 2017, while urban piped service remained almost stable at 85%.

Household Budget Survey (HBS) data for the year 2022 provides the picture on national access to a public piped water supply being 74%, with urban access at 95.7% and rural access at 60.9%. However, the water quality of rural piped system is often compromised and below drinking water quality standard. Those not served by public centralized systems rely on so-called self-supply, through private shallow wells. Approximately one in three people rely on self-supply for their drinking water with 80% of wells not compliant with drinking water norms (e.g. nitrates, e-coli). The poorest quintile of the rural population faces the largest obstacles to get connected to a public system and is least

[1] Moldova Water Security Diagnostic, The World Bank, 2020, https://openknowledge.worldbank.org/entities/publication/11a12491-de81-5dc7-bc45-cd00e3614fb7

able to invest in private piped supply by wells. In 2022, out of a total of 19,034.4 km of length of public aqueducts and water distribution networks, 18,925.3 km of public aqueducts were functional.

In response to these challenges, the Project Development Objective (PDO) of the MWSSP is to increase access to safely managed water supply and sanitation services in selected rural areas and towns, and to strengthen institutional capacities for water supply and sanitation service delivery. Strengthening institutional capacities for water supply and sanitation service delivery refers to both national level planning and sector development capacities, as well as to improved operational efficiency and delivery at utility level.

The MWSS Project has four components:

Component 1: Increasing access to safely managed WSS services in selected rural areas and towns. This component will develop new and rehabilitate existing WSS infrastructure and WASH facilities in rural areas and towns, thus expanding access and quality of services for households, businesses, and public institutions and supporting resilience to the climate changes. Component 1 supports climate adaption through (a) providing reliable centralized water supply protecting vulnerable households from drought and poor water quality; (b) improving wastewater systems, sanitation, and WASH facilities, reducing environmental exposure to pathogens exacerbated by flooding, particularly in towns facing frequent flooding; and (c) ensuring climate-resilient design of all infrastructure for robust functioning under extreme weather events.

Component 1 consists of two subcomponents:

Subcomponent 1.1: Expanding access and quality of WSS services. This subcomponent will finance climate-resilient investments in towns and rural areas. This includes the following:

(a) *Water supply investments*: Expansion and rehabilitation of the regional water systems for water supply production and distribution, and service connections for LPAs in selected districts, including the preparation of relevant technical studies and management documents; technical supervision; and citizen engagement activities. This refers to water supply infrastructure in two preliminarily identified subprojects, that is, regional water system expansion for LPAs in Cahul District and the ATU of Gagauzia and a regional water supply system with a surface water treatment plant in Riscani District.[2]

(b) *Investments in sewerage and wastewater treatment infrastructure*: Expansion and rehabilitation of wastewater systems in selected towns, including the construction and rehabilitation of sewer networks and service connections, and the construction of new wastewater treatment plants, including the preparation of relevant technical studies and management documents; technical supervision; and citizen engagement activities. This refers to two preliminarily identified subprojects in Soroca and Comrat towns. There are areas in the Comrat town that face frequent flooding, and the Soroca town is also vulnerable directly on the right bank of the Dniester. The project will support the assessment of flood risk and impact at the household level and, in addition to ensuring resilient design of infrastructure, provide measures to reduce the impact of floods where possible.

[2] The Cahul-Vulcanesti water supply sub-project is part of this MWSSP sub-component 1.1 (a).

(c) *Pilot for on-site household sanitation*: selected rural or peri-urban villages, will benefit from the improvement of on-site household sanitation following a demand-led approach through the provision of technical assistance, the implementation of information campaigns, and the carrying out of civil works. The pilot will be co-financed through the Austrian Development Agency grant. This pilot project will present alternative sanitation solutions for small towns where centralized sewage systems are not feasible.

Subcomponent 1.2: Improving resilient WASH facilities in public social institutions. This subcomponent will finance works, goods, consulting services, non-consulting services and training/workshops to realize climate-resilient WASH facilities in medical and education institutions and implement hygiene education and behavior change communication program.

Component 2: Strengthening institutional capacity at national and local levels for WSS service delivery. This component focusses on institutional capacities of national and subnational entities and WSS operators for management, planning, regulation and reform implementation, and performance improvement of service providers for green, resilience, and inclusive service delivery. At the national level, development of plans, policies, and regulatory documents will support climate adaptation through climate-resilient planning, and at the local level, performance improvements will deliver climate benefits through reduction of non-revenue water and improvement of energy efficiency. The Component 2 consists of two subcomponents:

Subcomponent 2.1: Building national institutional capacity for WSS. This subcomponent aims to strengthen critical functions of facilitating and implementing WSS sector reform, investment planning and monitoring, and sector modernization and build capacities to this end of the assigned lead unit/entity within Ministry of Infrastructure and Regional Development (MIRD) structure. It finances goods, non-consulting services, consulting services, and training/workshops for activities that strengthen institutional capacities for planning, financing, economic regulation, performance monitoring, professional development, and the revision and development of new policies and normative documents.

Subcomponent 2.2: Improving performance of WSS service providers. Subcomponent 2.2 will finance works, goods, consulting services, non-consulting services, and training to support the implementation of a prioritized rolling multiyear Performance Improvement Plan (PIP) of selected WSS operators involved under Subcomponent 1.1. WSS operators will carry out annual assessments on PIP implementation and key performance indicators, including publication of results and feedback rounds with customers. The financing for selected WSS operators will be allocated based on results. Investments and TA activities identified in the PIPs are based on utility diagnostics and include, but are not limited to, the following: improving technical and commercial operations, improving financial management (FM), human resources management, and organization and strategy aspects, including improving asset management systems and inventories, energy efficiency, non-revenue water reduction programs, water metering practices and equipment to improve climate resilience, water safety, and business continuity, and enhancing responsiveness to customers.

Component 3: Project management and coordination. This component will finance operational costs, consulting services, non-consulting services, goods, and training to finance the overall project management cost, including the project team at the Project Implementation Unit (PIU), implementation

support consultants at the regional level within MIRD's RDAs for environmental and social standards implementation. The Component will finance training costs, including for capacity building in procurement, social and environmental standards, specialized short-term implementation support consultants, financial audits, project communication and citizen consultations, as well as monitoring and evaluation (M&E).

Component 4: Contingent emergency response component (CERC). A provisional zero-amount component is included, which will allow for rapid reallocation of credit/loan proceeds from other components during an emergency under streamlined procurement and disbursement procedures. This component allows the Government to request the World Bank to recategorize and reallocate financing from other project components to cover emergency response and recovery costs.

The Government of the Republic of Moldova has received financing from the World Bank toward the cost of the Moldova Water Security and Sanitation Project (MWSSP) and intends to apply part of the proceeds for consulting services.

1.2. Proposed Investments

The sub-project "Cahul – Vulcanesti water supply", hereafter the Project, consists in the construction of the main transmission pipeline with a length of 46.3 km from the city of Cahul to the village of Alexandru Ioan Cuza and the construction of public water supply systems for the localities: Pelinei, Satuc, Gavanoasa, Nicolaevca, Vladimirovca and Vulcanesti Railway. The main design measures for the main transmission pipeline Lebedenco – Vulcanesti – Alexandru Ioan Cuza consist in:

- 46.3 km of main water transmission pipes;
- 4 disinfection stations in the towns of Ursoaia, Gavanoasa, Alexanderfeld and Vulcanesti;
- 3 pumping stations in the localities of Gavanoasa, Vulcanesti and Alexandru Ioan Cuza;
- 12 water reservoirs/water tanks in the localities of Pelinei, Satuc, Gavanoasa, Vladimirovca, Nicolaevca and Vulcanesti Railway and the Free Economic zone;
- 60.8km of water distribution network;
- 1,732 connection points to the water supply network.

Beneficiaries of the sub-project are:

• Direct beneficiaries – 23823 inhabitants of communes Pelinei (inclusive Satuc village), Gavanoasa (inclusive Nicolaevca and Vladimirovca villages), Alexanderfeld village, Vulcanesti town and Alexandru Ioan Cuza village (4 localities planned for direct connection to the inter-municipal water main);
• Potential beneficiaries – 6 more localities will have the possibility to connect to the above, newly constructed water main and have 24/7 access to a good quality water (Iujnoe, Burlaceni, Greceni from Cahul district, and Cismicioi, Etulia, Etulia Noua from Vulcanesti rayon;
• JSC Apa-Canal Cahul" by expanding the managed water supply systems.

1.3. Environmental and socio-economic baseline

The analysis of the data regarding the reference situation had the purpose of presenting the existing environmental and socio-economic conditions, specific to the MTP route in order to establish the potential impacts.

Based on environmental and socio-economic analyzes performed during the ESIA process, several sensitive aspects were identified and assessed, in terms of potential impact and mitigation measures. Chapter 6 of the ESIA describes the key baseline conditions achieved in the "project area", covering environmental, biological, and socio-economic topics.

The main water transmission pipeline crosses the public territories of the towns: Crihana Veche - Cahul - Lebedenco - Pelinei - Gavanoasa - Vulcanesti - Alexandru Ioan Cuza. Construction works of water distribution networks and its associated infrastructure will be carried out in the localities of Pelinei, Satuc, Gavanoasa, Nicolaevca, Vladimirovca and Vulcanesti Railway. The study area is located in the Southern region of the Republic of Moldova. The project area includes 5 local public administrations (LPA) from Cahul district and one LPA from Vulcanesti (UTAG).

According to the engineering-geological zoning of the territory of the Republic of Moldova the studied area is part of the Tigheci Hills characterized by an almost flat relief but with numerous slopes affected by numerous fragments resulting from soil erosion by meteoric waters and the Bugeac River Plain characterized by flat lands with large stretches and slopes affected by erosion. Dangerous geological processes such as landslides, collapses or rockfalls have not been observed on the land intended for the construction of the pipeline networks, instead, there are regions affected by massive erosions that form gullies and ravines, located more on steep slopes, on both sides of the Cahul river meadow.

The hydrographic network in the Project area is represented by the Danube Prut and Black Sea hydrographic districts, which form meadows, ponds, and natural lakes along the courses. The Project area is located in the Cahul watershed (Danube River basin).

The total number of the population from the project localities are 23823 people (Vulcanesti – 15213, Vulcanesti Railway station – 234, Pelinei – 2187, Gavanoasa - 2405, Alexanderfeld – 1316 and A. I. Cuza – 2468). All the localities included in the project over the past three years have registered a negative trend in birth rate, except the year of 2021, when a positive trend was registered in Vulcanesti city. In terms of gender distribution, the percentage of women is slightly lower than that of men, specifically 47.4% compared to 52.6%.

At the moment the subproject settlements are facing serious problems regarding water supply in their localities. Although villages of Alexanderfeld and A.I. Cuza have better water supply from the artesian wells and the pipeline already built, the quality of water however is poor.

As a result of the update of the MTP route, in the localities of Pelinei, Satuc, Nicolaevca, Gavanoasa and in the Gara Vulcanesti sector from Vulcanesti town, there is only one private land (a strip 67 m long and 8 m wide) that will be used (permanently affected) for the construction of a small sector of the distribution network. According to the Resettlement Screening Report elaborated by FluxProiect wthin this subproject there are 139 private ownership lands that are temporary affected by works.

1.4. Potential Social and Environmental Impacts and Risks, and mitigation measures

The ESIA was developed in compliance with national legislation and specific Environmental and Social Standards of the World Bank. The ESIA determined the significance of the potential impacts on environmental/social components according to three criteria: intensity, duration, and extension. Thus, the significance of the impact was determined semi-cantitatively: high, moderate or low.

The following impacts were determined to be of" high" significance during the construction period:

- Air quality - dust emissions due to construction works and the transport used;
- The quality of the roads – following the construction works, the existing roads will be affected, especially the local roads inside the towns.

The impacts of "moderate" significance established during the construction period are as follows:

➢ **Soil component**

- Accidental losses of fuel and lubricants;
- Loss of fertile soil quality due to the organization of the construction site;
- Increased vulnerability to erosion due to excavation and creation of foundation pits.

➢ **Water component**

- Oil and fuel leaks due to the operation of machinery;
- Water pollution due to improper storage of construction waste;
- Local changes in drainage conditions due to construction or pipeline installation operations.

➢ **Noise**

- Noise and vibration production above maximum limits;

➢ **Cultural, archaeological and historical resources**

- The loss of archaeological materials through uncontrolled excavations.

➢ **Biodiversity**

- Impact on fauna (birds, reptiles, insects other);
- Impact on fauna aquatic species (birds, fish, crustaceans, etc.);

➢ **Socio-economic**

- Temporary land use (139 plots);
- Traffic and Pedestrian Safety;
- Health and Welfare of the Population;
- Impacts on the local roads (flooding from pipes);
- Worker's Health and Safety;
- Temporary settlement of Contractor's warehouse and office.

No significant or moderate impacts were identified at the operation stage of the water supply system apart from the requirement of the water operator to ensure the population with quality and safe services for the inhabitants.

The summary of the most relevant measures and actions to avoid or reduce the impact on the environment and the population during the construction works is listed by the following:

➢ **Air quality**

- Safe measures to mitigate dust emissions in atmospheric air;
- Use of machines and equipment with low pollutant emissions.

➢ **Soil quality**

- The use of only the lands selected for construction without affecting the adjacent lands;
- Separate storage of fertile soil and its compliant reuse;
- Development and implementing the Contractor's health and safety management plan (including incident management, hazardous operations, emergency situations);
- Controlled storage of construction materials and waste generated during construction in specially arranged areas on the site

➢ **Water quality**

- The works over the Cahul river will be done when the river is dry or in the season with low water level. The riverbed to be inspected and cleaned daily during the work period;
- Maintaining the work sites in a clean state to avoid the transport/infiltration of polluting materials into the watercourses or into the groundwater;
- The compliant management of waste.

➢ **Noise and vibration**

- The use of machines equipped with engines with an admissible acoustic level;
- Carrying out activities only during the day and limiting the work schedule for sensitive areas (schools, kindergartens, churches, etc.);
- Llimiting the speed of transport equipment to reduce the level of noise and vibrations on the sites and in the vicinity.

➢ **Cultural, archaeological and historical resources**

- Development and implementation of the "Chance Find Protocol" (CFP). Ensuring that the personnel trained on the job are trained in its requirements.

➢ **Biodiversity**

- In the vicinity of the protected area the fossil site near village of Pelinei is forbidden to make noise or use the horn or any other source of noise, especially at night;
- Monitoring the lands in the construction area, to prevent damage to bird nests or animal burrows.

➢ **Waste management**

- All solid waste must be collected separately; recyclable waste will be sent under a contract to specialized companies and household waste will be transported to an authorized landfill with the consent of the LPA in the region.
- Workers will be trained on good waste management practices.
- A waste collection system will be in operation to handle solid wastes, oily rags, and used fuel and lube oil filters in a leak-proof container that will be stored and disposed off at the landfill site, to ensure effective management of solid wastes at the Project site.
- Contaminated solid waste such as oily rags, used fuel filters, engine oil residues, etc. will be collected in a sealed container that will be stored and disposed of properly.

➢ **Socio-economic**

- The local population will be informed about the works schedule and job opportunities in the local special announcement boards for the project and local mayor’s office.
- It will be ensured that there is the agreement of the private land owners before the start of its temporary use;
- As the private lands temporarily affected during the construction work are used in agriculture, it is recommended that the construction work to be carried out during the period when no agricultural work is being carried out on the land and landowners and their neighboring plots to be announced with 3 months in advance before the start of work, so they could plan accordingly the crops cultivation;

- For the privately owned land in Gavanoasa, Vladimirovca village the procedure for obtaining the right to cross the land will be done first;
- After the completion of the construction-assembly works, the natural conditions of the land will be restored;
- Exclusion of traffic safety issues;
  - Access to yards of residents for a limited period;
  - Implementation of a Traffic Mangement Plan mainly for the difficulty to access some households and other agricultural land located on the same side of the open trenches
  - Measures to avoid the impact of the health and safety of workers and local populations in terms of spread of among people of HIV/AIDS, Sexually Transmitted Diseases, Covid-19 and other infectious diseases and also the risk of occurring GBV and SEA/SH cases among people impacted by the subproject.

1.5. Environmental and Social Management Plan (ESMP)

The ESMP Plan outlines the mitigation, monitoring, and institutional measures to be taken during project implementation and operation to avoid or control adverse environmental impacts, and the actions needed to implement these measures.

In the ESMP plan, the responsibilities of the actors involved in its implementation were established (MIDR/PIU, Contractor/sub-Contractor, JSC ”Apa-Canal” Cahul, design company and Technical Supervision company). In particular, in the construction phase, both Contractor and the Supervisor will have to recruit skilled staff dedicated to management and implementation control of the environmental and social provision of the present ESIA. The measures identified for different phases, are tabulated in Table 10-1 which describes the nature of the potential environmental impact, the significance of the potential impact, the mitigation measures, which have or will be taken, the implementing organisations and responsible monitoring organization, the estimative costs and the monitoring frequency.

The monitoring plan will be implemented during preconstruction, construction and operation phases. In the construction phase, the monitoring will be mainly based on frequent visits of work sites, work camp and facilities; discussion with the Contractor’s staff, the nearby population and other stakeholders and monitoring of supervision indicators, some of which being actually non-observance of environmental requirements by the Contractor rather than classical quantitative indicators.

The PIU will ensure that the site-specific ESMP requirements are included in the employer's requirements for the construction works. As part of its regular monitoring activities, the PIU will monitor to ensure the Contractors' compliance with their contractual obligations.

The contractor together with environmental and social experts will prepare the Contractor's ESMP (CESMP) which will be approved by Supervision Company. The CESMP will encompass but not limited to the environmental and social requirements included in the tender and contract documentation.

According to the WB ESS10, the Stakeholder Engagement Plan (SEP) is implementing with a view of ensuring that appropriate project information on environmental and social risks and impacts is

disclosed to involved institutions and every person likely to be positively or negatively affected by the sub-project. The SEP will be implemented through:

a) Public consultations and information disclosure requirements. First Public Consultation was held on August 10, 2023 and the second one on February 28, 2024.
b) Online groups.
c) Discussion and in-depth interviews.
d) Distribution of leaflets/informative notes.
e) Informative boards.
f) The grievance mechanism for all citizens to lodge complaints.

2. INTRODUCTION

The objective of the present assignment is to support the P.I. National Office for Regional and Local Development under the Ministry of Infrastructure and Regional Development (MIRD) in *developing the Environmental and Social Impact Assessment and Environmental and Social Management Plan for the sub-project "Cahul – Vulcanesti Water Supply"*. The implementation period is July, 2023 – March 2024. The assignment is implemented by Tehno Consulting & Design SRL, Moldovan consulting engineers' company to whom the contract was awarded through a World Bank CQS tender procedure.

The sub-project *"Cahul – Vulcanesti Water Supply"* is already developed to the point of an available Detailed Design Documentation and BoQ's. The Detailed Design documentation is entitled "The Main Water Transmission Pipeline Cahul-Lebedenco-Pelinei - Gavanoasa Vulcanesti (villages) - Alexandru Ioan Cuza and the inner networks of the villages: Lebedenco, Hutulu, Ursoaia, Pelinei, Satuc, Gavanoasa, Vladimirovca and Nicolaevca, Cahul district" (Stage I and Stage II)".

In 2020 the design documentation for sub-project "Cahul – Vulcanesti Water Supply" has been environmentally checked by the Environmental Agency South and received an Environmental Permit (Ecological Expertise notice/approval) to further apply for a construction permit. However, the Environmental permit obtained is not in line with the framework of World Bank Environmental and Social Standards (ESS) and does not substitute the necessity to conduct a WB standard full Environmental and Social Impact Assessment and develop a Site-Specific Environmental and Social Management Plan within the area of concern. As part of another consulting contract, the company "Fluxproiect" SRL is updating the technical documentation.

As it was already mentioned above, the aim of this assignment is to prepare the Environmental and Social Impact Assessments (ESIAs) for sub-project "Cahul – Vulcanesti Main Water Transmission Pipeline" with associated site-specific Environmental and Social Management Plans (ESMP) (including Bill of Quantities for social and environmental expenses as well as environmental chapter of the Technical Specifications), following the WB Environmental and Social Standards requirements. These technical output (The ESIA and ESMP) will form part of the Bidding documents for civil works to be launched within the MWSSP.

The findings and recommendations of the ESIA and the ESMP will inform and guide the implementation of the Cahul-Vulcanesti water supply sub-Project. The ESIA and ESMP will make sure that the Cahul-Vulcanesti water supply sub-Project complies with the World Bank standards governing environmental and social aspects. This should ensure that any substantial negative environmental or social impacts are avoided or mitigated, and climate risks are identified and addressed, while environmental benefits are optimized, and social inclusion is enhanced.

3. LEGAL AND INSTITUTIONAL FRAMEWORK

3.1. National legal requirements

Currently, the legislation of the Republic of Moldova contains a series of normative acts that regulate the water supply and sewerage service. First of all, it is important to mention that art. 37 of the Constitution of the Republic of Moldova guarantee the right to a healthy environment. Therefore, the state is obliged to take the necessary measures to eliminate the dangers to life and health; for the WSS field, this translates into the development and maintenance of a functional, regulated and supervised system.

The EU-Moldova Association Agreement includes a commitment to improve Agriculture and Rural Development (Chapter 12 of the Association Agreement) and a commitment to improve Regional Development, Cross-Border and Regional Level Cooperation (Chapter 20 of the Association Agreement). In addition, the Agreement emphasizes the need to make progress on gender equality.

To ensure future sustainable development, the Government of Moldova developed the National Development Strategy „Moldova Europeana 2030"[3] – a national document with a long-term strategic vision which identifies the country's development directions, objectives, indicators and targets that were assumed by the Republic of Moldova.

The National Development Strategy specifies 10 key objectives:

1. *Increase revenues from sustainable sources and reduce economic inequalities*
2. ***Improve life conditions***
3. *Ensure quality education for all and promote life-long education*
4. *Increase cultural and personal development*
5. *Improve physical and mental health of the population*
6. *Building a solid social protection system and inclusive society*
7. *Efficient governance that is transparent and inclusive*
8. *Building an equitable judicial system that is independent and incorruptible*
9. *Promote a peaceful and safe society*
10. ***Ensure a healthy and safe environment***

The Strategy on Water Supply and Sanitation for 2014 – 2030 and the Law no. 303/2013 on the Public Service of Water Supply and Sewerage seeks to ensure gradual access to safe water and adequate sanitation for all. The overall policies in Moldova related to the WSS are:

- Exclusive competence for LPAs to establish, organize, coordinate and control public services;
- Improvement of the operational and financial performance of WSS service providers in order to enhance safety and quality of services;

[3] https://gov.md/ro/moldova2030

- Extension/regionalization of WSS systems and the provision of access to WSS services, as well as development of centralized/regionalized water supply systems and connections to nearby localities.

The most relevant national legal requirements for the Project are associated with the following aspects:

- Environmental Impact Assessment and environmental protection
- Access to Information and Public Participation;
- Social, Health and Safety Legislation and Regulation;
- Permitting for construction.

The basic legal framework for the development of special normative acts and instructions in special issues in the field of environmental protection is provided in the Law No. 1515 of 16.06.1993 on environmental protection.

At the legislative level, the field of water supply and sanitation is regulated by a series of acts developed, adopted, and modified according to the current conditions and provisions, but which still need to be improved, see the table below.

Table 3-1: National legal requirements for Environmental Protection, Access to Information and Public Participation

Legislative act	General Description
Law no. 1515/1993 on environmental protection *Last amendment on 11.01.2023*	The basic legal framework for the development of special regulatory acts and instructions of special issues, covering the field of environmental protection.
Low no. 86/2014 on Environmental Impact Assessment EIA *Partially transposes Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011* *Last amendment on 05.09.2022*	Provides mechanisms and criteria of evaluation of impacts of projects /planned activities to the environment.
Forest Code no. 887/1996 *Last amendment on 27.10.2017*	Regulates the sustainable management of the forest fund through rational use, regeneration, guarding and protection of forests, maintaining, preserving and improving forest biological diversity, ensuring with forest resources the current and future needs of society based on their multi-functionality.
Land Code no. 828/1991 *Last amendment on 02.09.2023*	Land relations are regulated by the Constitution of the Republic of Moldova, this Code and other legislative acts, issued in accordance with it.

Legislative act	General Description
	Relations in the sphere of the use and protection of other natural resources (subsoil, forests, waters, plant and animal kingdom, atmospheric air) are regulated by special legislation.
Law no. 272/2011 on waters *Partially transposes the provisions of the Directives 91/271/EEC of 21.05.1991; CEE/91/676 of December 12, 1991; 2000/60/EC of 23.11.2000; 2006/7/EC of 05.02.2006; 2007/60/EC of 23.10.2007;2008/105/EC of 16.12.2008.* *Last amendment on 22.10.2022*	- creating a regulatory framework for the monitoring, assessment, management, protection and efficient use of surface and ground water based on public participation in assessment, planning and decision-making; - establishing the water use rights and promoting investments in the field of waters; - establishment of mechanisms for the protection of the water conditions, prevention of any further degradation of the waters, protection and restoration of the aquatic environment, the gradual and systematic convergence of the protection and management thereof with the European requirements; - preventing further damage, conserving and improving the condition of aquatic ecosystems and, in terms of their water needs, of the terrestrial ecosystems and wetlands that are directly dependent on aquatic ecosystems; - ensuring a sufficient supply of good quality surface water and groundwater, which is necessary for a sustainable, balanced and equitable use of water; - establishing a legal basis for international cooperation in the field of joint management and protection of water resources.
Law no. 182/2019 on drinking water quality *Partially transposes the provisions of the Directives 98/83/EC of November 03, 1998; 2013/51/Euratom of 22.10. 2013* *Last amendment on 03.11.2023*	Establishes the legal framework regarding the drinking water quality, as well as the measures by the authorities responsible for ensuring the compliance of drinking water quality. The purpose of this law is to ensure the sustainable compliance of drinking water quality by creating a flexible and transparent legal framework, as well as by promoting adequate risk management.
Law no. 436 of 28.12.2006 on local public administration *Last amendment on 07.06.2023*	Determines and establishes the way of organization and operation of the public administration authorities in the administrative-territorial units
Law No. 98/2022 on atmospheric air quality Partially transposes Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008	This strengthens the institutional capacities for monitoring and assessing atmospheric air quality; to identify and implement effective measures to reduce air pollutant emissions to levels that minimise the harmful effects on human health and the environment, on ambient air quality and cleaner air for Europe.

Legislative act	General Description
Last amendment on 08.06.2023	
Law no. 1102/2002 on natural resources	Regulates the relations in the field of use, protection and reproduction of the natural resources in order to ensure the ecological security and sustainable development of the country.
Law no. 440/1995 on river and lake water protection areas and strips *Last amendment on 04.06.2023*	Regulates the way of creation of water protection areas and riparian water protection strips of rivers and water basins, the regime of use and protection activity thereof. All legal entities and individuals, including foreign ones, are covered by it.
Law No. 1536/1998 on hydrometeorological activity *Last amendment on 31.01.2022*	Regulates the hydrometeorological activity in the territory of the Republic of Moldova. It aims to provide hydrometeorological information concerning the needs of the population, economy and national defence, as well as of the public authorities.
Law No. 1102/1997 on natural resources *Last amendment on 05.09.2022*	Regulates the relations in the field of use, protection and reproduction of the natural resources, in order to ensure the ecological security and sustainable development of the country.
Law no. 1538 of 25.02.1998 on the fund of natural areas protected by the state *Last amendment on 01.07.2022*	Establishes the legal bases for the creation and operation of the fund of natural areas protected by the state, principles, mechanism and method of conservation thereof, as well as the attributions of central and local public authorities, non-governmental organizations and citizens in this field.
Law No. 239/2007 on vegetal kingdom *Last amendment on 11.01.2023*	Establishes the legal framework in the field of conservation, protection, restoration and use of objects of the plant kingdom, as well as the competences of public authorities at all levels and of scientific institutions in the field.
Law no. 325/2005 on the Red Book of the Republic of Moldova *Last amendment on 25.04.2022*	Restoration of extinct, critically endangered, endangered, vulnerable, rare and undetermined species of plants and animals, included in the Red Book of the Republic of Moldova, in order to prevent their disappearance and ensure the conservation of their genetic background, establishes the legal bases for keeping the Red Book, the attributions of public authorities at all levels and of scientific institutions in the field.

Legislative act	General Description
Law No. 209/2016 on waste *Last amendment on 07.06.2023*	It establishes the legal basis, the state policy and the necessary measures for the protection of the environment and the health of the population by preventing or reducing the adverse effects determined by the generation and management of waste and by reducing the general effects of the use of resources and increasing the efficiency of their use.

Specific Legislation and Regulation

- Law on Quality in Construction no. 721/1996, last amended on 08.06.2023;
- Law no. 303/2013 on public water supply and sewerage service, last amendment on 07.06.2023;
- Law on Construction Quality Assurance, no.361/1996, last amended on 18.02.2023;
- Law on authorization of the execution of construction works no. 163/2010, last amended on 12.12.2023;
- Law on Local Public Administration no. 436/2006, last amended on 18.11.2023;
- Law no. 91/ 2007 on delimitation of public property, last amended on 26.12.2022;
- GD no. 656/ 2002 on the approval of the Framework Regulation on the use of the communal (local) water supply and sewerage systems, last amendment on 17.06.2016;
- GD no. 1466/2016 on Sanitary Regulation on Small Drinking Water Supply Systems;
- GD no. 1063/2016 on the approval of the National Program for the implementation of the Protocol on Water and Health in the Republic of Moldova for the years of 2016-2025;
- GD no. 199 of 20.03.2014 on the approval of the Water Supply and Sanitation Strategy (2014 – 2028);
- GD for the Approval of the Regulation on Public Access to Environmental Information, no. 1467/2016, last amendment on 18.01.2019;
- GD no. 949/2013 for the approval of the Regulation on sanitary protection areas of water intakes, last amendment on 18.01.2019;
- GD no. 934/2007 regarding the establishment of the automated computer system "State Register of natural, potable mineral waters and bottled non-alcoholic beverages";
- GD no. 651/2023 for the approval of the Sanitary Regulation on the supervision and monitoring of drinking water quality (will enter into force on 13.04.2024);
- The urban planning and construction code of the Republic of Moldova (published in the Official Gazette on 30.01.2024 and coming into force on 30.01.2025).

Social, Health and Safety Legislation and Regulation

- Labour Code of Republic of Moldova, no. 154/2003, last amended on 10.08.2023
- Law on Access to Information, no. 982/2000, last amended 24.03.2023;
- Law on Transparency in the Decision-Making Process, no. 239/2008, last amended on 28.10.2016;
- Law on mediation no. 134/2007, last amended on 24.03.2023;
- Administrative Code no. 116/2018, last amended on 01.09.2023;

- Law no. 1402/2002 on public communal household services, last amendment on 07.06.2023;
- Law no. 64/2010 on freedom of expression, last amendment on 14.06.2021;
- Law on Security and Health at Work, no. 186/2008, last amended on 23.09.2023
- Law on Insurance for Work Accidents and Occupational Diseases no. 756/1999, last amended on 01.01.2021;
- Law on state supervision of public health, no. 10/2009, last amended on 03.11.2023
- GD on the Minimum Safety and Health Requirements for the Use by Workers of Personal Protective Equipment at the Workplace, no. 906 from 16.12.2020;
- GD on minimum health and safety requirements for temporary or mobile sites, no 80/2012, last amendemend 01.01.2021.

Climate change Legislation

- Law for the ratification of the Paris Agreement no. 78/2017;
- GD no. 1470/2016 regarding the approval of the Low Emission Development Strategy of the Republic of Moldova until 2030 and the Action Plan for its implementation, last amended on 18 Dec. 2021;
- GD no. 1009/2014 regarding the approval of the Strategy of the Republic of Moldova for adaptation to climate change until 2020 and the Action Plan for its implementation, last amended on 19 Jan. 2019.

At the moment, a process of development of the national normative basis has started in the Republic of Moldova. At the same time, it is mentioned that normative documents issued in the Soviet Union period are still valid in the country, despite the fact that they are outdated. This largely refers to documents and standards in the water supply sector. Given that the lifetime of a standard is 10 years, it is understood that the sustainable development of water and wastewater infrastructure on the basis of the documents published in 1984-1985 is not possible. The following table presents the data on the norms of design and construction of the infrastructure in the field of water supply and sewerage in the Republic of Moldova.

Table 3-2: List of the main national normative acts regarding the environment, water supply and sewerage

Normative act	Name
NCM A.07.02-2012 and amendment thereto	Procedure of drafting, development, approval, and content – framework of the project documentation for construction. Main requirements and provisions
NCM A.07.03-2002	Regulation on the monitoring of objectives under construction by the project author
NCM A.07.06:2016	Composition and content of the “Environmental protection” section in the project documentation
NCM A.08.02:2014	Occupational safety and health in the construction sector

Normative act	Name
NCM B.01.05:2019	Systematization and arrangement urban and rural localities
SNIP 2.04.02-84	Water supply. External networks and facilities. Water supply. Installations and networks
CP G.03.08:2020	The design and construction of external drinking water supply systems, with a flow rate below 200 m^3/day, for localities of up to 3000 inhabitants
NCM G.03.02:2015	External sewerage networks and installations
NCM G.03.01:2017	Low-capacity communal wastewater treatment plants
NCM L.01.01- 2012	Rules for determining the value of construction objectives
CP G.03.02-2006	Design and installation of pipes for water supply and sewage systems made of polymer materials
NCM L.01.07-2005	Regulation on the substantiation of investment projects in construction

3.2. International Requirements

Applicable standards and guidelines used for assessment in this Report are the following:

- The “EIA Directive” on the assessment of the effects of certain public and private projects on the environment (2014/52/EU);
- Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, 1998; ratified by the Republic of Moldova through Parliament Decision no. 346-XIV of April 7, 1999
- The Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat, ratified by Parliament Decision no. 504 -XIV of July 14, 1999
- Convention concerning the Protection of World Culture and Natural Heritage, 1972;
- Convention on the Safeguarding of Intangible Cultural Heritage, 2003;
- Labour Relations and Workers’ Rights;
- Good International Practice (GIP), particularly the IFC EHS General Guidelines, April 2007.
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds, OJ L 20, 26.1.2010;
- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, OJ L 206, 22.7.1992.

3.3. WB Environmental and Social Requirements

The following Environmental and Social Standards are considered relevant to the Project:

- ESS1 Assessment and Management of Environmental and Social Risks and Impacts
- ESS2 Labor and Working Conditions
- ESS3 Resource Efficiency and Pollution Prevention and management
- ESS4 Community Health and Safety
- ESS5 Land Acquisition, Restriction on land Use and Involuntary Resettlement
- ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources
- ESS8 Cultural Heritage
- ESS10 Stakeholder Engagements and Information Disclosure

The ESS that triggered for the project were ESS1, ESS2, ESS3, ESS5 and last but not least ESS4 and ESS10.. The main objectives and relevance of Environmental and Social Requirements for the "Cahul - Vulcanești Water Supply" Project are described in **Table 3-3**.

Table 3-3: Environmental and Social Standards relevant to the Project

ESS Name	ESS Objectives	Relevance for the project
ESS1 Assessment and Management of Environmental and Social Risks and Impacts	• Identify, assess, evaluate, and manage environment and social risks and impacts • Adopt a mitigation hierarchy: Anticipate and avoid risks and impacts; Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels; Once risks and impacts have been minimized or reduced, mitigate; and where significant residual impacts remain, compensate for or offset them, where technically and financially feasible. • Adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable • Utilize national environmental and social institutions, systems, laws, regulations and procedures where appropriate • Promote improved environmental and social performance, in ways which recognize and enhance Borrower capacity	This project involves the elaboration of **Environmental and Social Management Plan (ESMP)** (for the Contractor) which is an instrument that details: (i) the measures to be taken during the implementation and operation of a project to eliminate or offset adverse environmental and social impacts, or to reduce them to acceptable levels; and (ii) the actions needed to implement these measures. Also, the elaboration of **Environmental and social impact assessment (ESIA)** is an instrument to identify and assess the potential environmental and social impacts of this project, evaluate alternatives, and design appropriate mitigation, management, and monitoring measures.
ESS2 Labor and Working Conditions	• Promote safety and health at work • Promote the fair treatment, non-discrimination, and equal opportunity of project workers • Protect project workers, with emphasis on vulnerable workers	Workers hired by the Project Contractor have to understand and use GRM in case it will be needed and if their health and safety and/or rights are not respected. Also, this project might include the use of workers from the local

ESS Name	ESS Objectives	Relevance for the project
	• Prevent the use of all forms of forced labor • Support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law • Provide project workers with accessible means to raise workplace concerns	communities and they need to be hired according to national labor code and ensure them they will work in a safe and healthy environment.
ESS3 Resource Efficiency and Pollution Prevention and management	• Promote the sustainable use of resources, including energy, water, and raw materials • Avoid or minimize adverse impacts on human health and the environment caused by pollution from project activities • Avoid or minimize project-related emissions of short and long-lived climate pollutants • Avoid or minimize generation of hazardous and non-hazardous waste	The development of ESIA and ESPM will consider ambient conditions and apply technically and financially feasible resource efficiency and pollution prevention measures in accordance with the mitigation hierarchy. The measures will be proportionate to the risks and impacts associated with the project and consistent with GIIP[4], in the first instance the EHSGs[5].
ESS4 Community Health and Safety	• Anticipate or avoid adverse impacts on the health and safety of project-affected communities during project life cycle from routine and non-routine circumstances • Promote quality, safety, and climate change considerations in infrastructure design and construction • Avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials, and have in place effective measures to address emergency events • Ensure that safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities	The project will identify, evaluate and monitor the potential traffic and road safety risks to workers, affected communities and road users throughout the project life cycle and will develop measures and plans to address them. This project will incorporate technically and financially feasible road safety measures to prevent and mitigate potential road safety risks to road users and affected communities. In the project, the Contractor will monitor incidents and accidents, and prepare regular reports of such monitoring. The PIU will use the reports to identify negative safety issues and establish and implement measures to resolve them. Also, according to this ESS4 there will be included in the ESMP mitigations measures for the locals not to get involved in GBV cases, Sexual Harassment or HIV/STD cases

[4] Good International Industry Practice
[5] World Bank Group Environmental, Health and Safety Guidelines

ESS Name	ESS Objectives	Relevance for the project
ESS5 Land Acquisition, Restriction on land Use and Involuntary Resettlement	• Avoid or minimize involuntary resettlement by exploring project design alternatives • Mitigate unavoidable adverse impacts from land acquisition or restrictions on land use through timely compensation for loss of assets at replacement cost and assisting displaced persons in their efforts to improve, or at least restore, livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher • Improve living conditions of poor or vulnerable persons who are physically displaced, through access to services and facilities, and security of tenure • Ensure that resettlement activities are planned and implemented with appropriate disclosure of information, meaningful consultation, and informed participation	This project involves temporary loss of land (139 plots) and one permanent loss of land (Vladimirovca village) and therefore private owners and renters will have to be compensated (most likely) for the loss of crops, perennial crops or trees as well as let know 6 months in advance about plans of Contractor.
ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources	• Protect and conserve biodiversity and habitats • Apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity • Support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities	Animal species usually avoid the areas in and around the construction area so disturbance of wildlife species in their usual breeding, feeding or resting places may occur. It is important to evaluate sensitive areas and to propose specific measures to reduce the impact.
ESS8 Cultural Heritage	• Protect cultural heritage from the adverse impacts of project activities and support its preservation • Address cultural heritage as an integral aspect of sustainable development • Promote meaningful consultation with stakeholders regarding cultural heritage • Promote the equitable sharing of benefits from the use of cultural heritage	Following the development of the ESIA, archaeological sites and historical architectural monuments are superimposed on the MTP route and its associated infrastructure to eliminate any danger of destruction. When avoidance of impacts is not possible, will be identified and implement measures to address impacts on cultural heritage accordingly with the mitigation hierarchy.
ESS10 Stakeholder Engagements and Information Disclosure	• Establish a systematic approach to stakeholder engagement that helps PIU identify stakeholders and maintain a constructive relationship with them	First of all, for a smooth development of this project it is needed to identify and inform the interested stakeholders (and affected parties) about the main findings and proposed mitigation

ESS Name	ESS Objectives	Relevance for the project
	• Assess stakeholder interest and support for the project and enable stakeholders' views to be taken into account in project design • Promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life-cycle • Ensure that appropriate project information is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner	measures included in the ESIA. This will ensure that all stakeholders and affected parties are involved in the ESIA process and their views are incorporated in the final ESIA report.

3.4. Institutional Framework

According to the Constitution of the Republic of Moldova, the territory is organized, from administrative point of view, into villages, town, municipalities, districts and the Gagauzia Autonomous Territorial Unit. Central Public Administration is composed of ministries and other central administrative authorities such as the National Bureau of Statistics, Agency for Land Relations and Cadastre, National Agency for Energy Regulation, etc. For the water supply and sanitation sector the prerogatives are assigned to the Ministry of Infrastructure and Regional Development (MIRD). To ensure cooperation and coordination at different levels and on different components it is necessary to take into consideration the following institutional framework.

Institutions involved in the implementation of the Project:

Ministry of Infrastructure and Regional Development (the owner of the Project) is responsible to ensure that the Project is implemented in an efficient manner, consistent with the Project objectives and agreements signed, acting as Project Implementing Entity (PIE), through National Office for Regional and Local Development and PIU.

Regional Development Agencies (RDAs) are public institutions responsible for promoting socio-economic development in the country's five Development Regions. They were created to ensure the development and implementation of the evaluation framework for regional development policies. The ADRs operate under the coordination of the Ministry of Infrastructure and Regional Development of the Republic of Moldova. Development regions are established according to Law no. 438/2006 on regional development in Moldova. Within this Project, RDA South for the district of Cahul and RDA Gagauzia for the city of Vulcanesti are involved.

The Ministry of the Environment has the mission to analyze the situation and problems in the areas of activity managed, to develop effective public policies in the areas of environmental protection, climate change and sustainable management of natural resources, to monitor the quality of policies and normative actions and to propose justified interventions of the state. *Apele Moldovei" Agency* is the administrative authority responsible for management of the waters and lands of the water fund under the Ministry of the Environment.

The Ministry of Health - The Mission of the Ministry is the elaboration, promotion and implementation of the state policies in the field of health in order to ensure a quality and equitable health accessible to all the citizens of the Republic of Moldova.

The Ministry of Labor and Social Protection (MLSP) is the central specialized body of the public administration that ensures the implementation of the government policy in the fields of labor, social protection, demography.
The Ministry of Culture is a specialist central public authority, which ensures the implementation of government policy in the fields of culture, national heritage and tourism.

Local Public Administrations (district, commune, town) are the beneficiaries and newly created assets under Component 1 will be transferred to their ownership, and subsequently delegated to licensed WSS operators under delegation contracts. In addition to their role in the approval of design documents, issuance of construction authorization, and acceptance of works, LPAs will facilitate community consultation, citizen engagement, and social mobilization activities at the local level. In ensuring the management of the water supply and sanitation service, the local public authorities have the prerogatives granted by the Law No. 436/2002 and Law no. 303/2013.

JSC "Apa-Canal Cahul" and ME "Apa Canal Vulcanesti" are legal entities that have the capacity to provide the public water supply and sewerage service and to directly ensure the administration and operation of the public water supply and sewerage system, according to the provisions of Law no. 303/2013.

Institutions involved in Environmental and Social Assessment:

The Environmental Agency is responsible for issuing the environmental agreement under the terms of the Law no. 86/2014 and other permissive acts in the field of construction, waste management, etc. The Agency is responsible for implementing state policy in the areas of activity entrusted to it and performs functions in areas of activity such as prevention of environmental pollution, protection and regulation of water resources etc.

The National Agency for Public Health is an administrative authority subordinated to the Ministry of Health, with territorial subdivisions and performs functions in the following areas: state surveillance, promotion, and protection of public health; state control in health; monitoring and evaluation of the health condition of the population; accreditation of the activity of medical-sanitary and pharmaceutical institutions; occupational safety.

The National Archaeological Agency (ANA) is a specialized public institution, subordinate to the Ministry of Culture, which operates for the purpose of implementing state policy in the field of protection and valorization of archaeological heritage.

The National Inspectorate for Technical Supervision supervises the way in which public authorities and institutions, economic units, decision-makers, other categories of employees, as well as individuals comply with the legislation, standards, norms and fire protection rules.

Institutions involved in Environmental and Social Monitoring

- The territorial Environmental Protection Inspectorates (EPI) has the mission of implementing (enforcement) the state policy in the field of environmental protection and rational use of natural resources, exercising state control and supervision, preventing and counteracting violations in areas of competence to ensure a high level of supervision and protection of the environmental, public interests, ecological safety of the state and other values protected by legislation.
- The National Agency for Public Health, including through its territorial subdivisions, ensures audit monitoring of the quality of drinking water at any stage of water production (extraction, treatment, storage, distribution) to verify the conformity of the water to be distributed to the consumer with quality requirements and to prevent public health risks.
- The National Inspectorate for Technical Supervision exercise selective control over how design and construction organizations, economic units and individuals comply with fire protection regulations in the design, construction, reconstruction and technical re-use of facilities.

Table 3-4 shows the list of necessary permits/coordinations/approvals for the technical design stage and the list of necessary documents for the pre-construction, construction and operation stage.

Table 3-4: Mapping of the environmental legislations and permits for construction works

Permissive act/Approvals	Issuing authority	Explanation Status
Detailed design phase		
Planning certificate for the design	Local public administration authority Cahul district council – for MTP	MTP: Design certificate no. 63 dated 11.09.2017 (a new certificate was issued to update the project) Pelinei: Design certificate no. 04 dated 19.09.2023 Gavanoasa: Design certificate no. 05 dated 19.09.2013 Vulcanesti: Design certificate no. 33 dated 15.08.2023
Sanitary notice regarding the selection of land for construction	Cahul/Vulcanesti Public Health Center	MTP: Notice no. 21 dated 07.08.2017 Pelinei: Notice no. 15 dated 25.07.2017 Gavanoasa: Notice no. 16 dated 25.07.2017 Vulcanesti: Notice no. 20 dated 28.03.2019
Environmental notice of land approval for the location and design of the object	Cahul/Vulcanesti Ecological Agency	MTP: Notice no. 43-s dated 21.07.2017 Pelinei: Notice no. 42-s dated 17.07.2017 Gavanoasa: Notice no. 40-s dated 17.07.2017 Vulcanesti: Notice no. 103-S dated 22.07.2019
Civil Protection and Exceptional Situations Service Notice	Cahul/Vulcanesti Civil Protection and Exceptional Situations Service	MTP: Notice no. 54 dated 28.07.2017 Pelinei: Notice no. 48 dated 17.07.2017 Gavanoasa: Notice no. 49 dated 17.07.2017 Vulcanesti: Notice no. 8 dated 14.02.2018

Permissive act/Approvals	Issuing authority	Explanation Status
Public property land selection act	Cahul district council – for MTP LPA for internal water network	MTP: Act dated 20.07.2017 Pelinei: Act o dated n 06.07.2017 Gavanoasa: Act dated 06.07.2017 Vulcanesti: Act no. 9/7.4 dated 20.08.2019
Technical prescriptions from all utilities	JSC „Apa-Canal Cahul”	Technical prescription no.363 dated 02.08.17
	JSC “Red Union Fenosa”	Technical prescription for the entire system infrastructure
	MIRD (State Road Administration)	Technical prescriptions regarding the location of the objective in the area of the public road and or in its protection zones No. PT-08-4697 of 11.09.2023 for the undercrossing of the R32 road (km 8+621; km 8+880; km 9+430 and km10+040)
	“Cahul GAS” L.t.d.	The general scheme of the MTP is coordinated
Environmental inspection and sanitary inspections	Environmental agency National public health center	Act no. 05-5-6109/13 dated 14.02.2020
Verification of the project documentations	State Service for the Verification and Expertise of Projects and Constructions or individual certified verifiers	The sub-projects were verified in 2019
Coordination list with all utility’s owners	from all utilities (telecom, water, electricity, natural gas, road infrastructure, etc.)	Utility owners confirm that the Design is according to their requirements and technical conditions
Pre-Construction phase		
Construction permit	Local public administration authority Cahul district council – for MTP	It will be obtained in accordance with Law no. 163/2010
Any utilities realignments acceptance (if needed)	Presence of utility owners is mandatory (based on invitation)	Before the beginning of the excavation works, the representatives of the engineering networks (telecomunications, electricity, natural gas, etc.) will be invited and, in their presence, the networks will be identified and carried out the excavations in the intersected places.
Environmental Inspection – cutting trees authorization	Environmental Agency	According to art. 26 from Low no. 239/2007. The cutting of trees will be done in accordance with the Regulation regarding the authorization of cuttings in the forest fund and

Permissive act/Approvals	Issuing authority	Explanation Status
		forest vegetation outside the forest fund approved by GD no. 27/2004
Construction phase		
Finalization of works (aviz la terminarea lucrarilor), phase one, issues list and/or putting in operation	A team of representatives of: contractor, supervision, rayon architect, mayoralty, beneficiary, environmental inspection, sanitary service, firefighting. The designer is invited. The nonconformities and pending issues are noted in MoM and snag list.	In accordance with the Regulations for the reception of constructions and related installations approved by GD 295/1996
The final reception (aviz la receptia finala), phase two	Usually after one year of operation/ completion of works. Warranty period	In accordance with the Regulations for the reception of constructions and related installations approved by GD 295/1996
Operation Phase		
Sanitary authorization for the operation of the objectives	National Agency for Public Health	In accordance with the Law on state supervision of public health no. 10/2009
Environmental authorization for the special use of water	Environmental agency	In accordance with the Water Law no. 272/2011
Water safety plan	Implemented by Operator Coordinated with National Agency for Public Health and aproved by LPA	Based on the National guide on the development of the water safety plan, approved by the joint order of the Ministries of Health and Environment no. 609/65 of July 21, 2017

4. ESIA – APPROACH AND METHODOLOGY

In order to comply with national legislation and the requirements of international financial institutions for the proposed project, the ESIA was developed in order to fulfill the following main objectives:

- compliance with the general environmental and social framework of international financial institutions;
- public consultation / involvement of interested parties in the development of the proposed project;
- establishing the environmental and socio-economic baseline conditions specific to the analysis area and examination of alternatives to exclusion of impacts or identifying appropriate mitigation measures to be incorporated into the design and construction process in order to reduce potential impacts;
- the inclusion of all identified impact reduction measures in an Environmental and Social Management Plan and monitoring of environmental and social aspects in order to facilitate the construction and implementation of the Project.

The purpose of the present assessment is to identify the forms of potential negative impact and the measures to prevent/reduce/compensate these effects. Establishing the impact and mitigation measures is done in correlation with the technologies used.

The procedure for defining the scope of the Project focused on the main environmental and social aspects such as:

- physical environment: geology, geomorphology and geological risks, soil, water, air quality and climate change, noise and vibration, landscape and visual environment;
- the biological environment: flora, fauna, natural areas protected by the state;
- socio-economic environment: communities, infrastructure, cultural and archaeological heritage, public health, safety and occupational health, land use.

As part of the scoping phase, a number of actions aimed at involving stakeholders were undertaken, such as:

- identification of target groups, including interested public, directly involved parties and vulnerable and disadvantaged groups;
- establishing the main stages of the public dissemination process;
- consultation and involvement of directly and indirectly interested parties for the assessment of the Project's potential influence area and potentially affected parties.

The method used to identify the significant potential impacts of the Project in the scoping stage consisted of:

- familiarization with the set of received documents and available project data;
- site visit in the first week of August, 2023 by the ESIA expert team to see the areas possibly affected by the construction of the main aqueduct and associated infrastructure and for the preliminary identification of environmental, biological and socio-economic aspects;

- initial consultations with the public organized in the second week of August, 2023 in Gavanoasa village and Vulcanesti city, where the key environmental and social aspects related to the implementation of the project were discussed;
- analysis of reports on the existing environmental, biological and socio-economic conditions of the Republic of Moldova;

For the analyzed Project, detailed analyzes were carried out in order to establish the socio-economic and environmental reference conditions, as follows:

- **Statistical database,** National Bureau of Statistics of the Republic of Moldova (https://statistica.gov.md/en/statistic_domains);
- **Reports on the state of the Environment in the Republic of Moldova,** the Environment Agency (https://am.gov.md/ro/content/rapoarte-starea-mediului-0**);**
- **The state of atmospheric air quality on the territory of the Republic of Moldova,** State Hydrometeorological Service (http://www.meteo.md/index.php/clima/);
- State supervision of public health in the Republic of Moldova (National report, 2022), National Agency for Public Health (https://ansp.md/wp-content/uploads/2023/10/RAPORT-ANUAL-activitatea-ANSP-2022-FINAL-16.10.2023.pdf);
- **Cadastre of State Protected Natural Areas,** Institute of Ecology and Geography, Academy of Sciences of the Republic of Moldova (https://ieg.md/cadastrul-ariilor-protejate);
- Cadastral maps, land use, elevation, geology, Land and Cadastre Relations Agency (https://moldova-map.md/#/);
- The national fund of geospatial data with data on soils, core areas of the ecological network, archaeological sites, relief, public infrastructure, etc.. (https://geoportal.md/ro/default/map#lat=204865.500000&lon=201581.000000&zoom=0);
- Information about permanent and intermittent watercourses in the area, Moldavian Water Agency, (http://www.apelemoldovei.gov.md/pageview.php?l=ro&idc=134&id=1172).

The method proposed for the present ESIA determines the **significance of an impact** on an environmental / social component (the impact receptor) according to three (3) criteria:

(i) *intensity* (determined according to the value/vulnerability of the impact receptor and the magnitude of the effect),
(ii) *duration* (the temporal aspect)
(iii) *extent* (spatial aspect).

The significance of an impact is decided by evaluating its intensity, duration, extent and the likelihood of an impact occurring within the certain context (geographic scope and scale).
The decision about the significance of impact is proposed to be taken by using the following approach / logic:

Significance of impact = Intensity of impact + Duration (temporal aspect) + Extent (spatial aspect),
where

Intensity of impact = Magnitude of effect + Receptor value,

where

Magnitude of effect - the magnitude of effect assesses the extent to which the structural and functional characteristics of the component are adversely affected (*High*: where the effect results in the loss or modification of the whole or the main characteristics of the receptor, to the extent that it risks losing its identity: for example, destruction of fertile layer of soil, irremediably eroded (washed away) by devastatingly powerful runoff; *Moderate:* when the effect results in the loss or modification of certain characteristics of the affected component, thus reducing its qualities though without compromising its identity: for example, wind erosion of soil; *Low:* when the effect does not significantly alter the characteristics of the affected element, so it retains its identity and its qualities are not excessively degraded: for example, dust being deposited on plants affecting its photosynthetic function until the first rain which will re-establish totally this function).

Receptor value - environmental/social value expresses the relative importance of an impact receptor. It is determined by considering the environmental and/or social value of the receptor as established by the regulations or the judgement of the assessor or other specialists.

Duration - Duration indicates the temporal aspect of the impact. It assesses, in relative terms, how long the impact will interact with the receiving environment. The terms “long-”, “medium-” and “short-term” are used to describe this period of time.

Extent - Extent refers to the spatial aspect of the impact. For practical reasons, as with duration (the temporal aspect), we need to categorize this dimension. Three levels of extent are thus defined: Regional, Local, and Limited.

Below is presented the semi-quantitative method of assessment of *impact significance*.

Table 4-1: Determining the significance of impact (for certain, probable and possible impact)

Duration	Extent	Intensity		
		High	Moderate	Low
Long-term	Regional	H	H	M
Long-term	Local	H	M	M
Long-term	Limited	M	M	L
Medium-term	Regional	H	M	M
Medium-term	Local	H	M	L
Medium-term	Limited	M	L	L
Short-term	National	H	M	M
Short-term	Regional	M	L	L
Short-term	Local	M	L	L

Yellow = Low (L), Orange = Moderate (M), Red = High (H)

The intensity, duration and extent will determine the significance of the impact. The latest will be than categorized in three classes: high, moderate or low, according to the grid set out in **Table 4-1** above.

5. PROJECT DESCRIPTION

5.1. Project location

The sub-project "Cahul – Vulcanesti[6] Water Supply", hereafter the Project, consists in the construction of the main transmission pipeline with a length of 46.3 km from the city of Cahul to the village of Alexandru Ioan Cuza. The study area is located in the Southern region of the Republic of Moldova. The project area includes 5 local public administrations (LPA) from Cahul district and one LPA from Vulcanesti (UTAG). The project area covers 409 km^2. The location of the project is shown in **Figure 5-1**.

Figure 5-1: Project Location

[6] The Vulcanesti district is part of the Gagauzia Territorial Autonomous Administration. Its autonomy is ethnically motivated by the predominance of the Gagauz people. On December 23, 1994, the Parliament of the Republic of Moldova adopted the "Law on the special legal status of Gagauzia".

The main water transmission pipeline crosses the public territories of the towns: Crihana Veche - Cahul - Lebedenco - Pelinei - Gavanoasa - Vulcanesti - Alexandru Ioan Cuza. The list of localities included in the Project at this stage is shown in **Table 5-1**.

Table 5-1: Localities included in the Project area

Locality	TAU	District
Pelinei	Pelinei	Cahul
Satuc		
Alexanderfeld	Alexanderfeld	
Gavanoasa	Gavanoasa	
Vladimirovca		
Nicolaevca		
Alexandru Ioan Cuza	Alexandru Ioan Cuza	
Or. Vulcanesti	Vulcanesti	Territorial Administrative Unit Gagauzia
Vulcanesti Railway and the Free Economic Zone (FEZ)		

The area of the study in the ESIA report occupies 16.6% of the area of Cahul district and 8.2% of the total area of TAU Gagauzia, see the table below.

Table 5-2: The share of areas in relation to the total area of the RM

	Surface, km^2	The share in relation to the total area of the RM	Share in relation to the total district area
Cahul disctrict, total	1545	-	-
TAU Gagauzia, total	1848		
Total	**3393**		
Study area for Cahul	256.3	0,76%	16.6%
Study area for TAU Gagauzia	152.6	0.45%	8.2%
Study area, total	**408.9**	**1.2%**	**12.02%**

Source: Developed by a consultant based on NBS information

In the **Figure 5-3** it is presented the scheme of the Cahul - Lebedenco - Vulcanesti - Alexandru Ioan Cuza main transmission pipeline and the water supply system. In the Table below, the locations in the project are described.

Table 5-3: Location and land data

The designed infrastructure	Cadastral Nr.	Landowner	Mode of use[7]	Location	Coordinates	Altitude
Platform A PS 2a	1720208.700	The existing Cahul water treatment plant	For construction	Cahul district, Crihana Veche village	45°52’30” N 28°10’44” E	33m
PS-5	1701121.050	Public property	For construction	Cahul	45°53’51” N 28°12’50” E	115m
Platform B	9414101.201	Public property	Agricultural*	Cahul district, Alexanderfeld	45°47’47” N 28°21’41” E	52m

[7] According to the central data bank of the Public Services Agency, https://www.cadastru.md/ecadastru/f?p=100:1:523028888023323

The designed infrastructure	Cadastral Nr.	Landowner	Mode of use[7]	Location	Coordinates	Altitude
Sodium hypochlorite preparation station disinfection station				village, extravilain		
Platform C Rezervoir Sodium hypochlorite preparation station SPR 1	9417208.670	Public property	For construction	Cahul district, Gavanoasa village	45°45'03" N 28°23'17" E	62m
Platform D Water disinfection station	9603206.245	Public property	For construction	ATU Gagauzia, Vulcanesti city, street Vorosilova, 11	45°41'25" N 28°25'06" E	88m
Platform E Sodium hypochlorite preparation station	1727303.674	Public property	Garden use*	Cahul district, com. Lebedenco, village Ursoaia	45°51'01" N 28°18'32" E	113m
Platform F SPR 2	is not registered in the real estate register***			intravilain Alexandru Ioan Cuza village	45°35'27" N 28°26'40" E	11m
SPR 3	9603308.095	Public property	For construction	ATU Gagauzia, Vulcanesti city, extravilain	45°41'27" N 28°25'59" E	48m
Water tank Pelinei**	1736205.417	Public property	For construction	Cahul district, com. Pelinei, Pelinei village	45°49'52" N 28°19'33" E	98m
	1736205.356	Public property	For construction			
Water tank Water disinfection station Sătuc	1736202.231	Public property	For construction	Cahul district, com. Pelinei, sat. Satuc	45°48'18" N 28°21'14" E	67m
Water tanks Vladimirovca	9417210.244	Public property	Agricultural*	Cahul district, com. Gavanoasa, extravilain	45°47'06" N 28°21'44" E	83m
Water tanks Nicolaevca	9417209.460	Public property	Agricultural*	Cahul district, com. Gavanoasa, extravilain	45°47'38" N 28°22'24" E	54m
Water tanks Gavanoasa	9417208.672	Public property	For construction	Cahul district, com. Gavanoasa, Gavanoasa village	45°45'35" N 28°23'17" E	69m

The designed infrastructure	Cadastral Nr.	Landowner	Mode of use[7]	Location	Coordinates	Altitude
Water tanks	9603311.152	Public property	Agricultural*	ATU Gagauzia, Vulcanesti city, extravilain	45°41'14" N 28°28'30" E	87m

** The lands require a change of use (for construction) until the start of construction-installation works[8];*
*** Following the update of the subproject, the designers established the need to merge the lands with cadastral numbers 1736205.417 and 1736205.356 for the location of the water towers, the disinfection station and related facilities;*
**** The land requires the delimitation and registration until the start of construction-installation works.*

The main transmission pipeline Cahul - Vulcanesti crosses several sections of national roads[9], including:

- National Road R32.2 (Access Road to Cahul city) on KM 4+200 m
- National Road R32 (M3 – Vulcanesti – Cahul – Taraclia) on KM 15+400 m
- National Road R32 (M3 – Vulcanesti – Cahul – Taraclia) on KM 14+100 m
- National Road R32 (M3 – Vulcanesti – Cahul – Taraclia) on KM 9+500 m
- National Road R32 (M3 – Vulcanesti – Cahul – Taraclia) on KM 0+450 m
- Express Road M3 (Chisinau – Comrat – Giurgiulesti –Romanian border) on KM 175+400 m
- Regional Road G142 (M3–Vulcanesti–Etulia) on KM 5+400 m.

The main pipeline crosses the railway in the southern part, up to the entrance to the village of Alexandru Ioan Cuza, on Vulcanesti - Etulia section.

The transmission pipeline's intersections with the Cahul River and its tributaries are shown in the **Table 5-5**.

5.2. Alternative locations of the Project

Alternative "Do nothing"

The "Do Nothing" alternative considers that the proposed Project will not be developed. Failure to implement the project will exclude potential negative impacts on the environmental and social components. However, access to quality drinking water, sanitation and hygiene is the most fundamental human need for health and well-being. Water is essential for human health and well-being, energy and food production, healthy ecosystems, climate adaptation, poverty reduction and more.

Other alternative locations

Until the completion of the detailed design documentation, several alternatives for providing water to the localities targeted in the project were proposed and analyzed. Both the location of the water infrastructure (reservoirs, pumping stations, etc.) and the layout of the adductions and water distribution networks were coordinated with various experts in order to make the water system more

[8] The legal basis for changing the use of land is GD no. 1170 of 25.10.2016 for the approval of the Regulation on the method of transfer, change of destination and exchange of land, with the latest amendments of 14.10.2023.
[9] The location of MTP intersections with national roads was identified using the map available on the website of the State Road Administration https://www.asd.md/harta-interactiva/ . The exact location will be identified by the experts at the time of issuing the technical prescriptions by MIRD.

efficient but also to minimize the destruction of fertile soils, terrestrial habitats, etc. The final location schemes of the designed water system were coordinated at the initial stage and after the completion of the design work with the following authorities and representatives of the institutions:

- Cahul District Council;
- Chief Architects of Cahul and Vulcanesti district;
- LPAs and cadastral engineers from the localities of Cahul, Crihana Veche, Lebedenco, Pelinei, Gavanoasa, Alexandru Ioan Cuza and Vulcanesti;
- Department of Land and Cadastre Service;
- Cahul and Vulcanesti Public Health Center;
- Cahul and Vulcanesti Emergency Situations Directorate;
- Ecological Agency of Cahul and ATU Gagauzia;
- Representatives of electrical networks;
- Representatives of Telecommunications Networks;
- "Cahul Gaz" Ltd;
- JSC "Drumuri Cahul" and JSC "Drumuri Comrat";
- JSC "Cahul Apa Canal" and ME "Apa Canal" the city of Vulcanesti.

The ongoing detailed design update will minimize impacts on pipeline overlap with private land and minimize potential impacts to soils and other recepients of impacts.

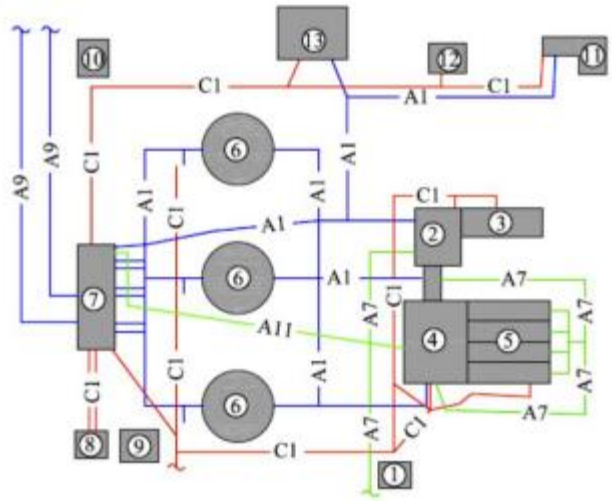
5.3. The existing infrastructure

The source of the water supply system is water captured through a siphon pipe from the Prut River into a circular raw water well located just outside the flood protection dam. This well then feeds the raw water pumps located in the level 1 pump station (SP 1).

The riverbed of the Prut River is relatively clean (not covered by aquatic plants), the bottom is irregular, covered with sand and gravel. Sandy islands and sandbanks contribute to intensive water mixing. The average depth of the river is 1-2 m, reaching 6.4 m at its deepest point. The flow speed is 0.4-2.0 m/s. Regular monitoring of the water quality of the Prut River (on the territory of the Republic of Moldova) is done in Criva, Lipcani, Braniste, upstream Ungheni, Valea Mare, Leova, Cahul and Giurgiulesti.

The water level in the Prut River drops too low at some times of the year, so a pump called Pumping Station 0 (SP 0) was installed near the riverbank. It draws the water from the river and pumps it into the shalow well. The raw water pumps of SP 1 transport the water through an 8.2 km DN 700 transmission main to the water treatment plant (STA) which is located on the southern edge of Cahul. The water treatment plant has a capacity of 17400 m^3 per day.

The water undergoes conventional treatment i.e. coagulation, flocculation, sedimentation, filtration and disinfection and is then stored in clear water tanks near the STA.

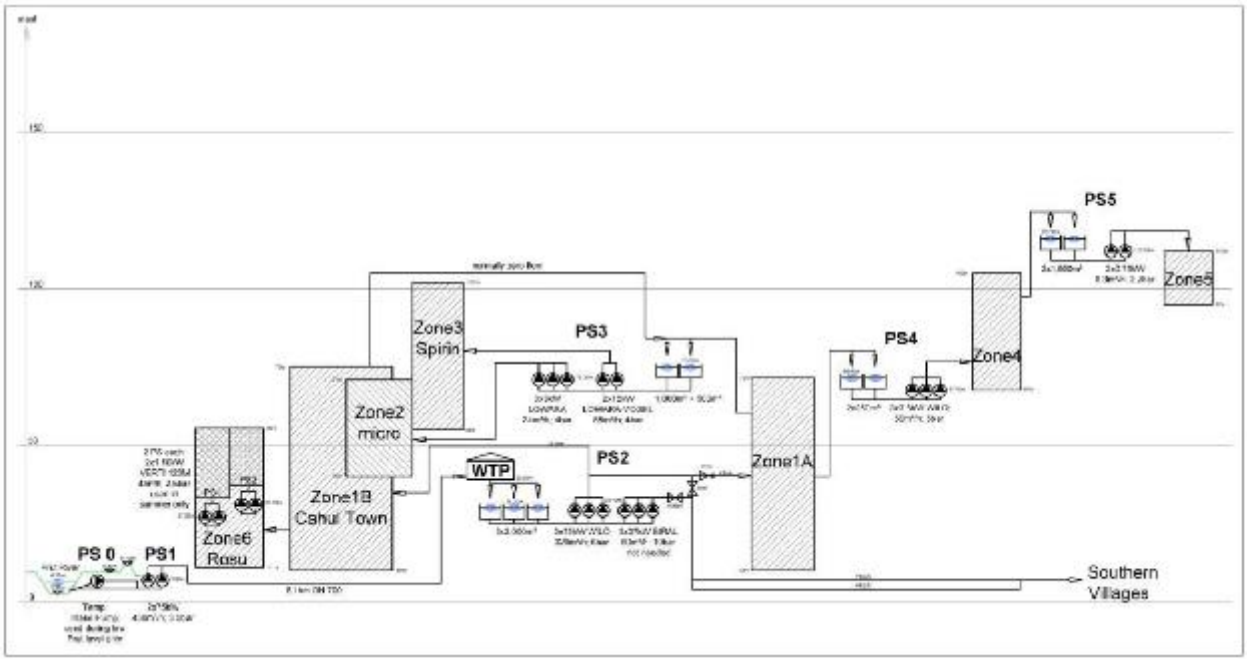


Legenda:

1 - Punct de trecere
2 - Laborator
3 - Secţia de reagenţi chimici
4 - Sala de filtrare
5 - Decantoare
6 - Rezervoare cu apă potabilă
7 - SP treapta II
8 - SP canalizare menageră
9 - Decantor apă menageră
10 - Depozit de clor lichid
11 - Secţia mecanică
12 - Cazangerie
13 - Casă de locuit
A1 - Conductă apă potabilă
A9 - Conducte de aducţiune
A7 - Conducte apă brută
A11 - Conducte apă potabilă pentru spălarea filtrelor
C1 - Conducte canalizare

Water treatment scheme, Cahul

Figure 5-2: Vertical diagram of the water supply system of Cahul city



Source: Feasibility study Water Supply and Sanitation in Rayon Cahul, Posch & Partners Consulting Engineers, 2016

According to the physico-chemical and microbiological analyses, the water treated and distributed to consumers is potable and falls within the provisions of HG 934 of 15.08.2007, see the laboratory results in Annex 1.

At the moment, the water supply system from the Prut River supplies the municipality of Cahul, the villages of Rosu, Crihana Veche, Pascani, Manta and Lebedenco.

The Pumping station level 2 (SP 2) is located near the treated water tanks in the STA complex. The SP 2 pumps the water from the treated water tanks into the distribution system. A set of pumps discharges into two main inlet lines. Line A serves some customers along the route and discharges most of its water to Pumping Station Level 3 (SP 3) and Pumping Station Level 4 (SP 4) tanks. Line B supplies most of the distribution system of the city of Cahul, including the Roșu village in the north of the Cahul city. A connecting line leads from the city distribution area to the SP 3 reservoirs.

- SP 3 provides two smaller feeder areas i.e. Micro district 15 and Spirin road area.
- SP 4 feeds zone 4 and also tanks of SP 5.
- SP 5 feeds the small feed area no.5.

At this stage, there are three concrete tanks for storing drinking water, with a volume of 2000 m^3. The total storage volume is 6000 m^3. Within this facility there is also a sanitary and bacteriological laboratory for monitoring the quality of drinking water. The technical characteristics of the 5 pumping stations are shown in the following table.

Table 5-4: Technical characteristics of water pumping stations

Pumping Station	Capacity	Water tanks	Last renovation
SP2	960 m^3/h	-	2006
SP3	336 m^3/h	2x2000 m^3	2005
SP4	97,5 m^3/h	2x500 m^3	2005
SP5	32 m^3/h	2x3000 m^3	2004

The water supply system in the city of Vulcanesti includes two water sources, from which intake no. 1 has 8 artesian wells. Water outlet no. 2 has 5 shallow catchment wells. For outlet no. 1, out of the 8 wells, only two are functional: no. 6 and no. 7. A serious problem in water harvesting is the lack of water flow in wells no. 2, 3 and 8. Wells no. 4 and 5 are preserved. Two pumping stations of the wells drilled at the "Vulcanesti Station" water intake (currently 1 is operating) pump water to the consumers of the station directly into the network and a water tower. The design capacity of the water supply system is 1.8 thousand m^3/24 hours.

The total length of the distribution networks in the analyzed localities is 110.7 km, of which over 65% are located in the city of Vulcanesti. As can be seen in the **Table 5-5**, the rural localities in the sub-project have a large deficit of drinking water, being connected to the public water system only 1044 households out of the total of 2945 rural households. Moreover, the water from the existing public system in the localities of Alexandru Ioan Cuza and Alexanderfeld does not meet the needs of the population both in terms of quantity and quality of water.

Table 5-5: The existing water infrastructure in the localities targeted in the Project

Locality	Length of water distribution networks, km	Number of households connected to public water service	Total number of households	Connection rate, %
Pelinei	1.0	20 (deep well) 38 (Prut river sistem)	735	7,9

Satuc	1.0	-	31	-
Alexanderfeld	12.0	512 households	512	100
Gavanoasa	-	-	447	-
Nicolaevca, com. Gavanoasa	-	-	238	-
Vladimirovca. Com. Gavanoasa	-	-	115	-
Alexandru Ioan Cuza	25.1	474	746	63.5
Vulcanesti	72.6	3739	5483	68.2
Vulcanesti Railway and the Free Economic zone	-	-	121	-

Source: Information collected from the LPAs by the consultant

The situation regarding the drinking water supply of the localities in the sub-project area is described below.

The village of Pelinei has a small water system fed from the artesian well located on the territory of the gymnasium. 22 households and public institutions are connected to this system. The water quality is according to the norms, but the small water flow of the well does not allow the expansion of the system. The water system is managed by JSC "Apa-Canal Cahul".

The village of Satuc in Pelinei commune has built a water supply system that is not in operation. The water was collected from the artesian well and distributed to the residents. For several years, the system is not in operation because the artesian well is silted up.

The village of Alexanderfeld is supplied with water collected from 4 artesian wells. The water pumped from the wells is brought to the town with tow pumping stages and a 5 km transmission pipeline. The water supply system was built in 1970-1982. At the moment, the construction of the new water transmission pipeline with a length of 5 km (from the wells in the locality) and the distribution networks for the entire locality with a length of 12 km is in the process of completion. The project is financed by the local development program "European Village" financed by NFRLD.

In Gavanoasa commune there is no centralized water supply system in the locality. The population uses water from existing shallow wells. As in the whole country, the quality of the water in the wells is unsatisfactory. Regarding the required amount of water, the inhabitants of the commune have insufficient water during the dry period of the year.

The water supply system in the **city of Vulcanesti** includes two water intakes, of which intake no. 1 has 8 artesian wells. Water outlet no. 2 has 5 shallow catchment wells. For outlet no. 1, out of the 8 wells, only two are functional: no. 6 and no. 7. A serious problem in water harvesting is the lack of water flow in wells no. 2, 3 and 8. Wells no. 4 and 5 are preserved. Two pumping stations of the wells drilled at the "Vulcanesti Station" water intake (currently 1 is operating) pump the water to the station's consumers directly into the network and a water tower. The design capacity of the water supply system is 1.8 thousand m^3/24 hours.

5.4. Existing Water and Sanitation Operators

The Joint Stock Company "APA-CANAL CAHUL" is created as a result of the reorganization by transformation of the Municipal Enterprise "APA-CANAL" Cahul, in accordance with the legislation of the Republic of Moldova, being successors in patrimonial rights and obligations.

The main scope of activity of JSC "APA-CANAL CAHUL" is the public water supply and sewerage service, according to 2 components: 1. Raw waterpumping, water treatment and distribution 2. Wastewater collection and treatment. The activity is carried out under License series AC No. 000526 issued by the National Energy Regulatory Agency, valid until 30.07.2040.

Headquarters of JSC "Apa - Canal Cahul" are located in the city of Cahul, and the operating area for water supply services covers the following territorial administrative units in the district of Cahul: 1. the city of Cahul; 2. the village of Crihana Veche; 3. Manta commune, which includes the localities of Manta and Pașcani; 4. Rosu village; 5. Alexandru Ioan Cuza village; 6. the village of Pelinei; 7. Lebedenco commune, wich includes the localities of Lebedenco, Ursoaia and Hutulu.

JSC "Apa Canal Cahul" holds Sanitary Operation Authorization no. P-0435/2019 of March 6, 2019 valid until February 21, 2024, see Annex 2.

173 employees work within the enterprise, including: water department – 51 employees; channel section - 34 employees, energy-mechanical section - 32 employees, dispatch section - 8 employees, technical section - 5 employees, control and records section - 29 employees, administrative section - 9 employees and accounting section - 5 employees[10].

The water supply system in the city of Vulcanesti is managed by the Municipal Enterprise "Apa Canal" Vulcanesti, registered at the State Registry in 1997. The main type of activity is the capture, purification and distribution of water. ME. "Apa Canal" Vulcanesti holds License No. 000531 of September 4, 2015, issued by ANRE.

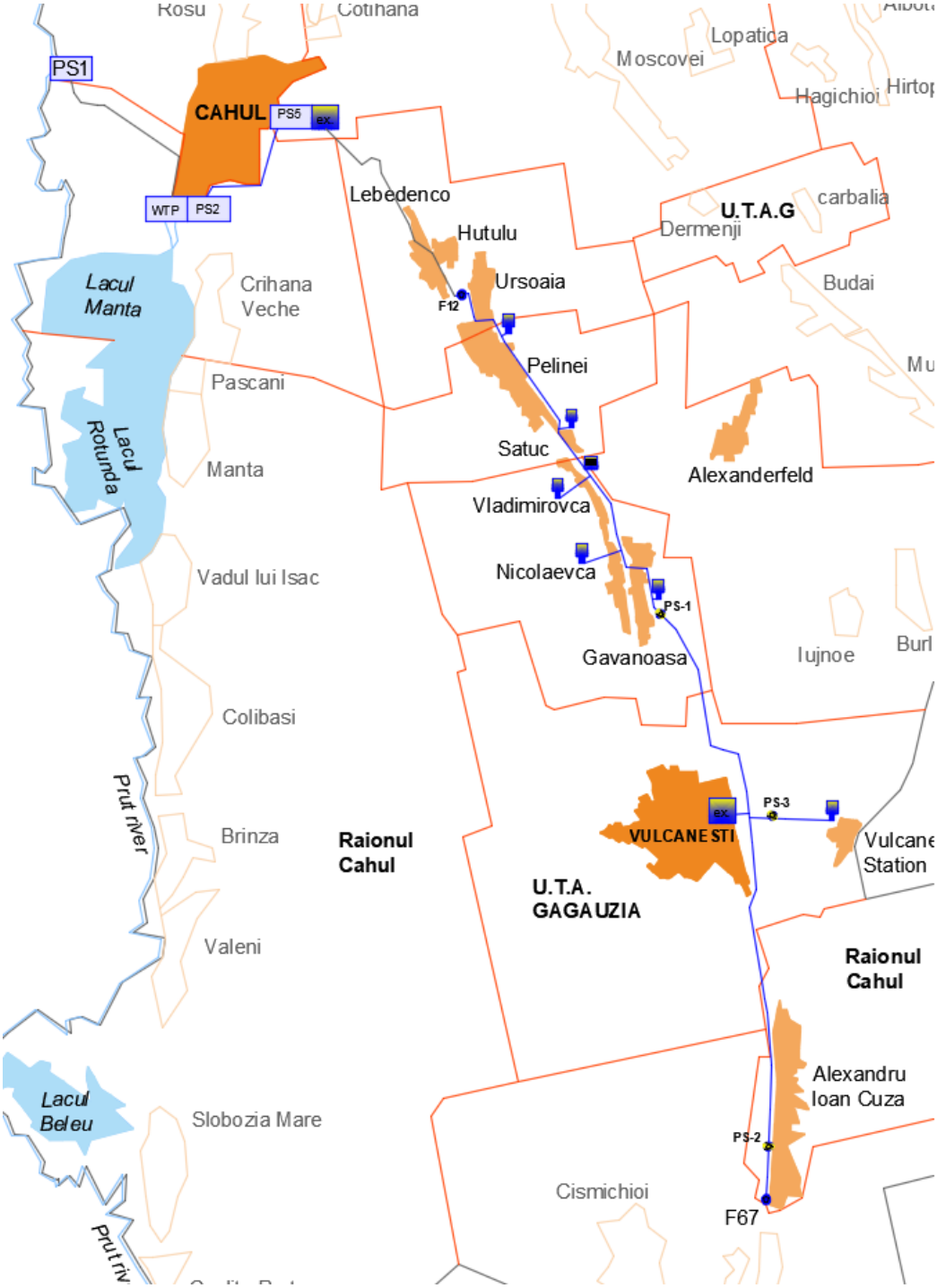
5.5. Designed Infrastructure

The main design measures for the main transmission pipeline Lebedenco – Vulcanesti – Alexandru Ioan Cuza:

- Construction of 46.3 km of main water pipes;
- 4 disinfection stations in the towns of Ursoaia, Gavanoasa, Alexanderfeld and Vulcanesti;
- 3 pumping stations in the localities of Gavanoasa, Vulcanesti and Alexandru Ioan Cuza.

[10] Information extracted from the organizational structure document of 29.06.2023 provided by JSC: "Apa-Canal Cahul"

Figure 5-3: Overview of the main transmission pipeline Cahul - Lebedenco – Vulcanesti – Alexandru Ioan Cuza and the water supply system



Source: Developed by the consultant

The scheme of the main transmission pipeline for this stage provides for the supply of drinking water to the localities in the Cahul district, as follows:

- The supply of potable water from the designed water pumping station SP-2 (Platform A) to the existing water pumping station SP-5 is supplied under pressure. The pumping group is sized to supply water to the towns of Cluster A, B, C and D in the Cahul district with a total number of inhabitants of 71482. The calculated flow rate of the pipeline is 6913.8 m^3/day.
- The supply of drinking water from the designed manhole F-12 (Ursoaia village) to the designed water pumping station SPR-1 (Platform C) is fed by gravity.
- The supply of potable water from the designed water pumping station SPR-1 to the connection point for the localities of Etulia, Etulia Noua and Cismichioi is supplied under pressure. The design of the water repumping station SPR-1 is provided for the drinking water supply of the towns in Cluster D: Iujnoe, Burlaceni, Greceni, Vulcanesti town, Alexandru Ioan Cuza, Etulia, Etulia Noua and Cismichioi.
- The design of the water re-pumping station SPR-2 (Platform F) is provided for the drinking water supply of the existing drinking water reservoir in the village of Alexandru Ioan Cuza.
- The connection point for Pelinei village - the designed F-15 manhole, from which water will be transported under gravitational pressure through a supply pipe and stored in two above-ground water tanks designed with a volume of V=50m^3 each.
- The connection point for the village of Satuc - the F-18 designed manhole, from which water will be transported through a pipeline under gravitational pressure and stored in a designed water castle with a tank volume of 25m^3 and a tower height of support of 15m.
- The connection point for the village of Alexanderfeld - the designed F-21 manhole, from which water will be transported under gravitational pressure to the existing water reservoirs in the locality through a pipeline.
- The connection point for the village of Vladimirovca - the designed F-28 manhole, from which water will be transported through a pipeline under gravitational pressure and stored in two above-ground water tanks designed with a volume of V=25m^3 each.
- The connection point for the village of Nicolaevca – the F-35 designed manhole, from which water will be transported under gravitational pressure through a pipeline and stored in two water castles designed with the volume of the tank of 25m^3 and the height of the support tower of 15m.
- The connection point for the village of Gavanoasa – the designed manhole F-38, from which the water will be transported through a supply pipe under gravitational pressure and stored in two water castles designed with the volume of the tank of 50m^3 and the height of the support tower of 15m.
- The connection point for Iujnoe, Burlaceni and Greceni villages – the designed manhole F-43.
- The connection point for the city of Vulcanesti - the designed F-47 manhole, from which water will be transported under gravitational pressure to the existing Fex-2 manhole through a pipeline.
- The connection point for the localities of Etulia, Etulia Noua and Cismichioi – the designed manhole F-67.
- Drinking water supply from the designed water pumping station SP-2 to the existing water pumping station SP-5; from the designed manhole F-12 (see DD.19/17-AE "Design and construction of the main transmission pipeline Cahul-Lebedenco-Pelinei-Gavanoasa-

Alexandru Ioan Cuza district of Cahul (Stage 1)") to the designed manhole F-67 are designed in two lines:

- a pipe is dimensioned for 1/3 of the average calculation flow;
- the second pipe is dimensioned for 2/3 of the average calculation flow.

The **Table 5-6** below shows the water infrastructure to be built for the Cahul-Vulcanesti main transmission pipeline.

Table 5-6: The infrastructure designed for the main Cahul-Vulcanesti aqueduct.

Platform	Infrastructure	Location
Main transmission pipeline (MTP)	Pipes PEHD PE100 RC triple-layered (type 2) DN[11] 315 – 6,0km; DN 250 – 8,6km DN 225 – 7,0km; DN 200 – 10,0km DN 180 – 14,1km; DN 160 – 17,9km DN 140 – 7,6km; DN 110 – 16,3km DN 75 – 1,6km; DN 63 – 0,7km DN 50 – 1,8km	The administrative territory of localities: Crihana Veche, Cahul, Lebedenco, Pelinei, Gavanoasa, Vulcanesti and Alexandru Ioan Cuza.
Platform A	Existing Water disinfection station SP-2 with Q_{total} 289,0m^3/h, Hp-110,0m	Cahul district, Crihana Veche village
Platform B	Water disinfection station	Cahul district, Alexanderfeld village, extravilain
Platform C	Rezervoir Water disinfection station SPR-1 with Q_{total} - 138,0m^3/h, Hp-55,0m	Cahul district, Gavanoasacommune, Gavanoasavillage
Platform D	Existing Water tank Water disinfection station	TAU Gagauzia, Vulcanesti city, street Vorosilova, 11
Platform E	Water disinfection station	Cahul district, com. Lebedenco, Ursoaia village
Platform F	SPR 2 with Q_{total} – 10,4m^3/h, Hp-60,0m	intravilain Alexandru Ioan Cuza village

The main infrastructure for the systems in the inner villages of the targeted localities consists of adduction pipes, water castles, water disinfection stations, water pumping stations and distribution networks. The water distribution networks are provided for the localities: Pelinei, Satuc, Gavanoasa, Vladimirovca and Nicolaevca, Cahul district and for the Vulcanesti railway station area and the Economic Free Zone.

Table 5-7: Designed water infrastructure

Locality	TAU	District	Designed infrastructure
Pelinei	Pelinei	Cahul	• Water adduction pipe – 36m • Water Tanks 2x50 m^3 • Water disinfection station • Water distribution network - 22,8km

[11] DN – nominal pipe size

Locality	TAU	District	Designed infrastructure
			• Connection points - 735
Satuc			• Water adduction pipe – 24m • 2x25 m^3 Water Tanks • Water disinfection station • Water distribution network – 2,2km • Connection points - 31
Alexanderfeld	Alexanderfeld		• Water adduction pipe • Water disinfection station
Gavanoasa	Gavanoasa		• Water adduction pipe – 59m • Pumping Station SPR-1, Q-138m^3/h, Hp-55m • 2x25 m^3 Water Tanks • Water disinfection station • Water distribution network – 17,2km • Connection points - 447
Vladimirovca			• Water adduction pipe – 47m • Above-ground reservoirs - 2x25 m^3 • Water disinfection station • Water distribution network – 6,9km • Connection points - 115
Nicolaevca			• Water adduction pipe – 89m • Water Tanks 2x25 m^3 • Water disinfection station • Water distribution network – 8,2km • Connection points - 238
Alexandru Ioan Cuza	Alexandru Ioan Cuza		• Water adduction pipe • Pumping Station SPR-2, Q-10,2m^3/h, Hp -60m
Or. Vulcanesti	Vulcanesti	Territorial Administrative Unit Gagauzia	• Water adduction pipe – 0,8km • Water disinfection station • Pumping Station SP-3, Q – 10,252m^3/h, Hp – 25m
Vulcanesti Railway and the Free Economic zone			• Water adduction pipe – 5,5km • Water disinfection station • Water Tank – 2x50m^3 • Water distribution network – 3,5 km • Connection points - 121

Disinfection stations

To ensure water supply to the consumers with quality criteria according to GD no. 934 of 15.08.2007 regarding the establishment of the automated information system "State Register of natural, potable mineral waters and bottled non-alcoholic beverages" provides for water disinfection with sodium hypochlorite to ensure the concentration of free chlorine in tap water from 0.1 to 0.5 mg/l. Disinfection stations are designed:

- after the designed F-12 manhole (Platform "E");
- on the territory of the existing water reservoirs for the water supply of the village of Alexanderfeld (Platform "B");
- on the territory of the designed SPR-1 water pumping station (Platform "C");
- on the territory of the existing water reservoirs for the water supply of the Vulcanesti city (Platform "D");
- inside the SPR-2 water pumping station designed for water supply of Alexandru-Ioan-Cuza village (Platform "F");
- also, in each locality, before the designed or existing water reservoirs, before the designed or existing water castles.

Auxiliary Constructions

Underground manholes equipped with valves are provided in all nodes of the potable water intake, the dimensions of which are determined based on the dimensions of the component fittings.

At the highest points of the potable water intake, automatic aeration-deaeration valves were provided, mounted by inspection chambers. At the low points of the potable water intake, there are manholes with emptying fittings.

Pressure reducer is provided to reduce the pressure in water distribution networks where necessary. The pressure reducer is mounted in the manhole.

The discharge valve is a device, which opens automatically at a certain pre-set pressure lower than the nominal pressure of the pipe (PN) and is recommended in exceptional cases, such as the outage of pressure reducers to avoid cracking of main pipes in downstream of them.

Connecting consumers to water distribution networks

The design documentation will provide for the connection of consumers to the water distribution networks designed according to the property boundary at a distance of 1.00m and which will include the following: PE manhole with cover and anchoring base H=1000mm, DN540mm; Electrowelding kit adjustable 360 with concession valve and street box anchored in a concrete slab class B12.5 500x500mm; PEHD pipes Ø25mm Lmed=6.00-12.00m (the connection of the connecting pipes will be made with the electroweldable plug); meters.

5.6. Sanitary protection zones

Sanitary protection zones are developed in accordance with the provisions of СНиП 2.04.02-84 “Water supply. External networks and structures", СанПиН 2.1.4.027-95 "The rules and regime of use

of the areas included in the protection zones". In the design execution documents, the sanitary protection zones[12] for the following were established:

A. Water reservoirs;
B. Water tanks
C. Water pumping stations;
D. Adduction networks.

The following borders and parameters (radius) are provided for the sanitary protection zones:

- Water reservoirs – 30m;
- Water tanks – 15m;
- Water pumping stations - 15 m;
- The width of the sanitary protection sheet for adduction in dry soils - 10 m;
- The width of the sanitary protection sheet for adduction in wet soils - 50 m.

The following rules and regimes of activity are established for the first-degree sanitary protection area:

a) the territory of zone I must allow the discharge of meteoric waters outside the established area, be green and fenced; the sidewalks to the buildings must be paved;
b) it is forbidden to plant trees with tall stems; all types of construction, which are not related to the water supply system, human habitation, the use of harmful products and fertilizers are prohibited;
c) as an exception, the construction of the WC for the operating personnel outside the perimeter of zone I with a cistern is allowed, which will not allow the infiltration of wastewater into the ground and their evacuation will be organized in a place coordinated with the Public Health Center;
d) the buildings located on the given territory need to be equipped with such facilities, so as not to allow the infiltration of harmful elements into the manholes.

Sanitary protection zones for water intakes are created within three perimeters:

a) perimeter I – sanitary protection zone with severe regime, includes the fenced territory of the water intake (100m);
b) perimeter II – sanitary protection zone with restriction regime;
c) perimeter III – sanitary protection zone with observation regime, includes the adjacent territories where water protection measures against pollution are foreseen.

In accordance with GD No. 949/2013 for the approval of the Regulation on sanitary protection areas of water intakes, the arrangement and maintenance of the sanitary protection area for perimeter I is the responsibility of the user of the water intake, JSC "Cahul Apa-Canal". The arrangement and maintenance of the sanitary protection zones for perimeters II and III is the responsibility of the local public authorities - Rosu commune, Cahul district.

[12] Sanitary protection zone - the territory and water surface, in which a special sanitary anti-epidemic regime is established, to prevent the deterioration of water quality of water supply sources and for the protection of water supply facilities.

5.7. Construction site work

The representatives of the organizations that exploit the underground communications are obliged to mark the territory with clearly visible indicators of the axes and borders of these communications until the beginning of the earthworks. Soil processing in trenches in the case of intersections with all types of underground communications is allowed with the presence of permission in written form by the organization operating these communications.

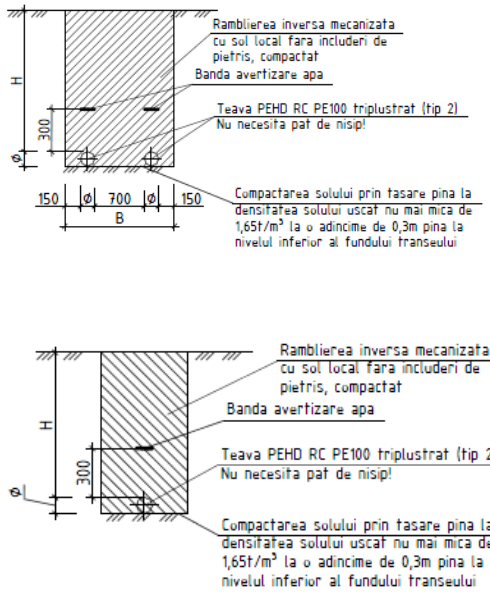
The way of laying the pipes in the trench will be done according to the geological characteristics of the soil, see Figure below. The installation of elements for strengthening trenches and foundation pits, during excavation, must be carried out from top to bottom.

Respectively, the dismantling of the elements for strengthening the trenches and foundation pits will be carried out in the presence of the site manager from bottom to top to the extent of plugging with earth, 2-3 planks in soil with normal humidity, and no more than one plank in the soil wet. If the dismantling of elements for strengthening trenches and foundation pits poses a danger to workers or to the construction (wetlands, etc.), then they can be left in the ground.

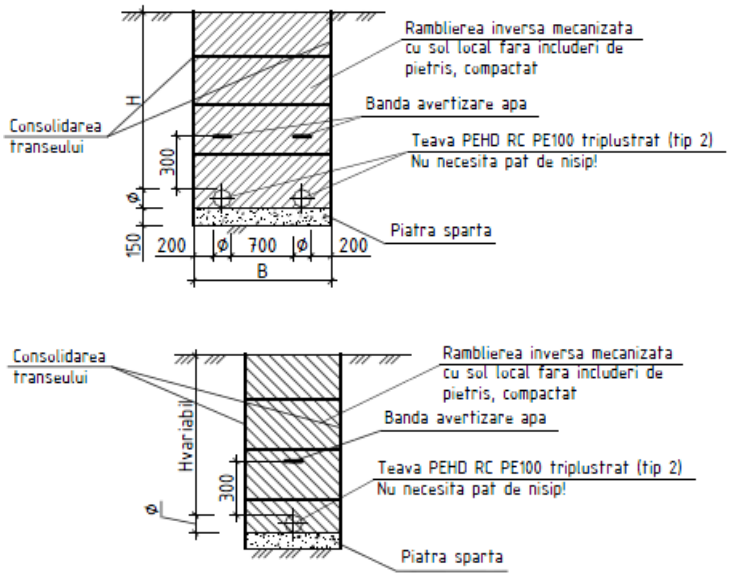
The installation of the pipes will be carried out:

- in dry soils - on existing soil;
- in wet soils - on a bed of broken stone h=150mm, with subsequent mechanized plugging with soft local sandy clay that does not contain hard additions (stone, pebbles and gravel).

Figure 5-4: Laying of water pipes in trenches



Laying the pipes in the trench in dry soil



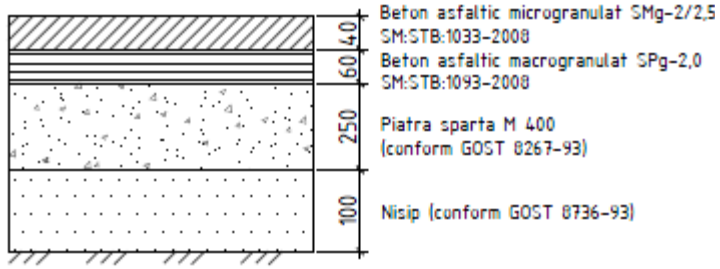
Laying the pipes in the trench in wet soil with bank reinforcements

Consolidation of trenches and foundation pits up to a depth of 5.0 m must be carried out, as a rule, with inventory elements. In the absence of inventory items, the details for strengthening the trenches and foundation pits will be executed on site, respecting the following:

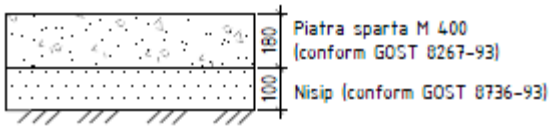
- in soils with natural moisture (apart from sandy ones), a board with a thickness of at least 40 mm will be used, and in moist soils - at least 50 mm; the boards will be placed and reinforced with spacers (vertical support) glued to the ground;
- proptels (vertical supports) will be mounted at a minimum distance of 1.5 m from each other;
- the distance between vertical spacers must not exceed 1.0 m;
- the upper boards will exceed the edge of the trench by at least 15 cm, to form a parapet to prevent materials from falling into the trench or the foundation pit.

Restoration of asphalt roads and gravel roads will be carried out in accordance with the requirements of Chapter 6 of СНиП 2.07.01-89 "Градостроительство. Планировка и застройка городских и сельских поселений" (Urban planning. Planning and development of urban and rural settlements); CP D.02.08-2004 "Dimensioning of the road structure" and CPD 02.11-2014 "Urban and rural road design". The vertical profiles proposed in the detailed technical project of the road surface for restoration are represented in the Figure below.

Figure 5-5: Construction of used roads



Asphalt concrete road surface



Broken stone road wear

6. NATURAL AND SOCIO-ECONOMIC FRAMEWORK

6.1. The physical environment

6.1.1. Geographical location

The Cahul district is located in the southwestern part of the Republic of Moldova, on the Lower Prut Plain (campia raului), at an altitude of 119 m above sea level. The seat of the district is the city of Cahul, which is the largest economic, cultural and curative center in the south of the Republic of Moldova and is located 175 km from the city of Chisinau - the capital of the Republic of Moldova. The district is bordered to the north by Cantemir district, to the northeast by UTA Gagauzia, to the south by Ukraine, to the east by Taraclia district and to the west by Romania. The total area is 1545 km^2, which is 4.6% of the country's territory. The territory represents a varied complex of physical-geographical and natural areas. The relief descends in steps from north to south, includes in the central part - the Cahul Plain, to the north - part of the hilly area of the Tigheci Hills, and to the east - the depressions of the Cahul, Salcia and partially of the Ialpug rivers.

Pelinei is a commune in Cahul district located at latitude 45.8269 longitude 28.3219. The municipality includes the locality of Pelinei and the locality of Satuc. The distance to Cahul is 16 km. The distance to Chisinau is 130 km.

Gavanoasa is a commune in Cahul district located at latitude 45.7655 longitude 28.3833. The commune includes the localities of Gavanoasa, Nicolaevca and Vladimirovca. The distance to Cahul is 25 km. The distance to Chisinau is 133 km.

The village of **Alexandru Ioan Cuza** is a locality in Cahul district located at latitude 45.5991 longitude 28.4494. The distance to Cahul is 41 km. The distance to Chisinau is 145 km.

The town of **Vulcanesti** is a locality in Comrat municipality located at latitude 45.6841 longitude 28.4027. This locality is under the administration of Comrat municipality. The distance to Comrat is 67 km. The distance to Chisinau is 139 km.

According to the engineering-geological zoning of the territory of the Republic of Moldova, the land intended for the design and construction of the transmission pipeline, is part of the Tigheci Hills characterized by an almost flat relief but with numerous slopes affected by numerous fragments resulting from soil erosion by meteoric waters and the Bugeac River Plain characterized by flat lands with large stretches and slopes affected by erosion. From the point of view of the division of the territory of the Republic of Moldova into engineering-geological zones, the given location is part of zone III and consists of loessoid alluvial clays, clayey sands, sands and compact clays. The land intended for the construction of the given objective is characterized by two forms of relief, one with slopes affected by planar and linear erosions and another with flat lands where the upper layer is formed by the eroded rocks from the slopes represented by vegetable soils with considerable thicknesses and plant roots, the consistency of the rocks in the meadow is plastic.

Figure 6-1: The geomorphological districting of the Republic of Moldova

9 – The Lower Prut Plain; 10 – The Tigheci Plateau; 11 – The Western Plain of the Black Sea
Source: N. Bobok, A. Levadniuc, 1979

6.1.2. Geological feature

The geological structure of the southern part of Moldova consists of terrigenous and marine formations of different ages of the Pre-Cambrian, Paleozoic, Mesozoic and Cainozoic. Neogene and Quaternary (Cenozoic) age rocks come to the surface. Among the Neogene deposits, the terrace-type formations of the Middle and Upper Pliocene have the largest surface area. In the Quaternary deposits profile, eluvial-deluvial formations and the alluvium of the river terraces above the meadows are mainly present.

The Sarmatian Level (N_1S) is represented by a polyfacial layer of sedimentary rocks, spread over the entire southern part of the interriver territory between the Dniester and the Prut.

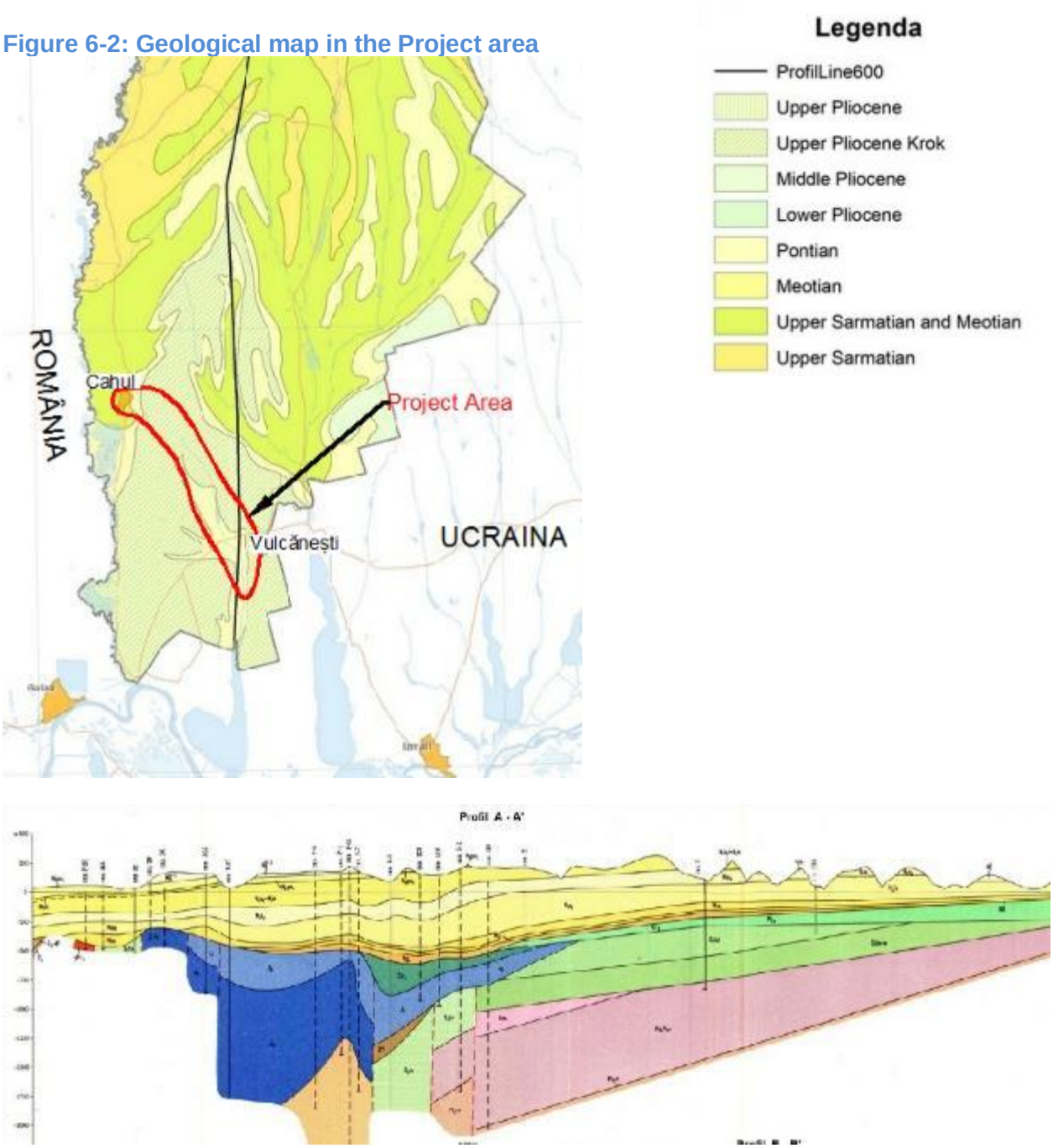
The middle Sarmatian sub-level (N_1S_2). From a lithological point of view, the formations are presented by gray-green and blue-gray clays with intermediate layers of gray-yellow sands with mica and they sink in a southern direction.

Upper Sarmatian sub-level (N_1S_3). The deposits come to the surface in the valley of the river Prut, they sink suddenly in the southern direction. The deposits are represented exclusively by terrigenous deposits. Gray-blue, gray-green clays prevail, and sands and siltstones are present in smaller quantities. Landslides are highly developed in these deposits. The thickness of the layer reaches 40 m.

Upper Sarmatian-Meotian (N_1S_3 – m). The deposits are spread in the area of the water balance, below the latitude of Cahul, they sink below the Pontian deposits. From a lithological point of view, they are represented by gray-blue and gray-green continental clays with intermediate layers and sand lenses. The total thickness of the deposits is up to 200 m.
Pont (N_2p). The deposits are spread over the entire territory up to the latitude of the city of Cahul, further north presenting a sporadic spread. They come to the surface in the beds of rivers and valleys, on the inter-river surfaces they are overlain by deposits of the middle and upper Pliocene of significant thickness. From a lithological point of view, they are represented by gray-green clays and fine-grained sands. The total thickness of the deposits is 60-70 m.

The geological map of the Project area is presented in the figure below.

Figure 6-2: Geological map in the Project area



Source: Agency for Geology and Mineral Resources, https://agrm.gov.md/en/contact/harti

Dangerous geological processes such as landslides, collapses or rockfalls have not been observed on the land intended for the construction of the pipeline networks, instead there are regions affected by massive erosions that form gullies and ravines, located more on steep slopes, on both sides of the Cahul river meadow. Gutters were found in all the investigated localities. Their depth varies between 0.4 - 4.5 m. The given land is largely represented by easily erodible rocks with a thickness of up to 6 m, represented by loessoid clays and sands.

The water table in the borehole interval (3.0-6.0 m) was intersected at the depth represented in the geological columns of the boreholes. The aquifer layer can suffer level fluctuations of up to 1.50 m from the level established on the drilling date in other researched areas. The rocks do not possess inflatable properties, are not salinized and are not aggressive to concrete.

6.1.3. Hydrogeological feature

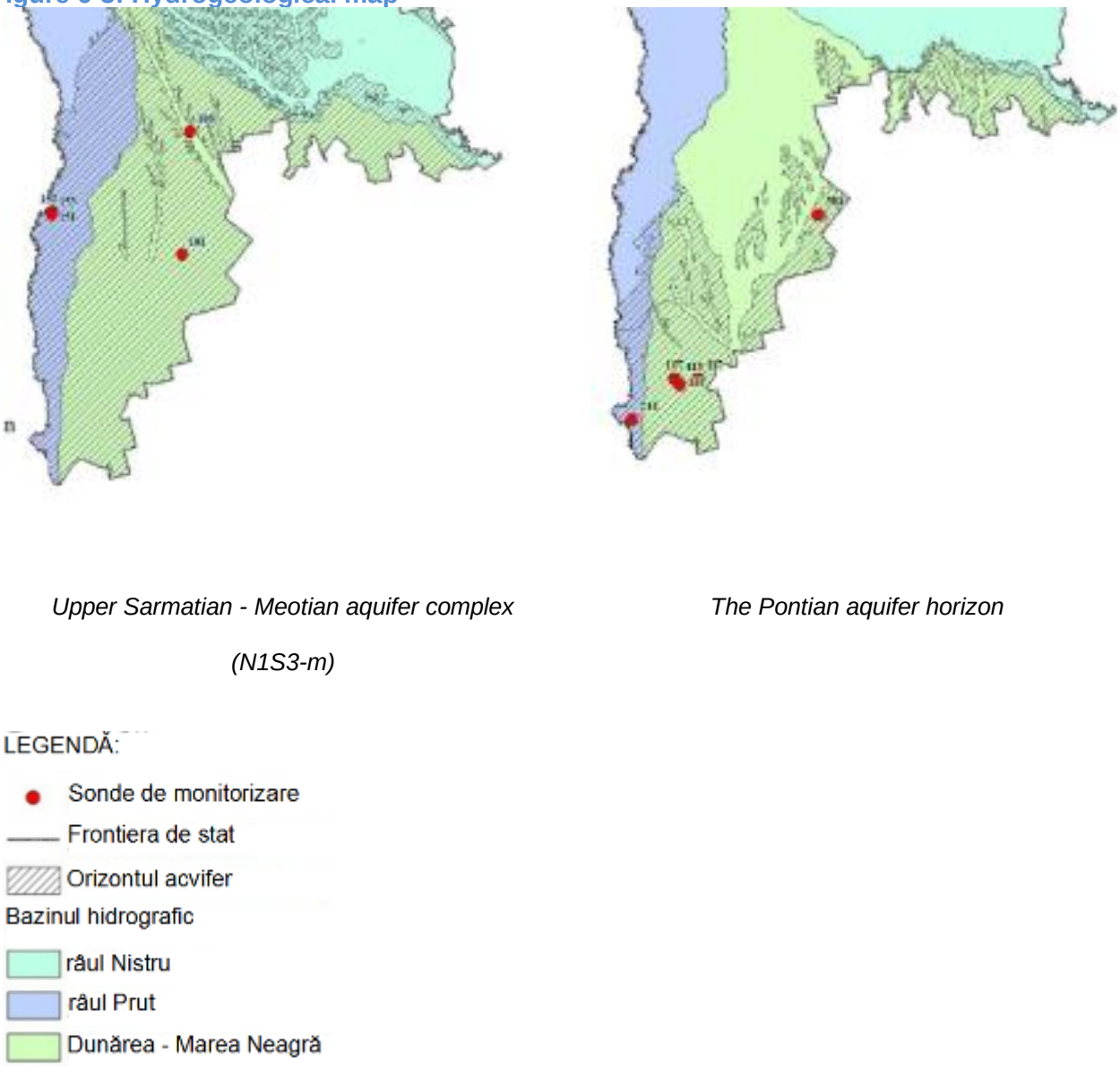
From a hydrogeological point of view, the given land belongs to the Prut and Danube River basin (Cahul river basin). The main hydrogeological subdivisions are aquifer horizons and complexes, weak aquifer and impermeable:

Alluvial-Deluvial aquifer horizon (aA3). The waters of the alluvial-deluvial sediments are widespread and are used for the drinking water supply of the majority of localities in the Republic of Moldova (through wells).

Upper Sarmatian - Meotian aquifer complex (N_1S_3-m). The thickness of the aquifer rocks is uneven and varies from 20m to 300m (in the southern part). The aquifer rocks are the fine and small-grained sands, siltstones with intercalations of clays, limestones and sandstones with a thickness from 2m to 28m. The basic rocks are represented by sandy clay sediments stratigraphically assigned to the level of the middle Codr. The waters underground in this complex do not have pressure, but with the sinking of the sediments to the south, they acquire piezometric pressure, the height of which can reach 65-100 m. Despite the fact that the water quality does not correspond to sanitary standards, they are widely used for the purpose of supplying drinking water of localities. Groundwater reserves are obtained as a result of direct infiltration of atmospheric precipitation and water flow from horizons and superimposed aquifer complexes.

The Pontian aquifer horizon. The Pontian aquifer horizon is spread in the southern part of the Republic of Moldova. The aquifer rocks are sediments of the novorosiisk basement, represented by granular sands, with limestone - shelly content in the lower part of the section. In some sectors, several (up to 4) sand intercalations are noted, studied as separate aquifer horizons that have a specific pressure and level (intercalations from 3-5cm to 25cm, the total thickness is 80-100m). The level of the underground waters of the Pontian aquifer horizon are recorded at a depth of 1-5m (Giurgiulesti village), 5-10m along the Prut (Slobozia-Mare – Suvorova villages). Observations on the regime of the underground water level show that it remains unchanged, so its exploitation does not affect the regime of the underground water.

Figure 6-3: Hydrogeological map



Upper Sarmatian - Meotian aquifer complex (N1S3-m)

The Pontian aquifer horizon

Source: S.E. The Hydro-geological Expedition from the Republic of Moldova

The results of the laboratory test reports carried out by the territorial Public Health Committee laboratories of the National Agency for Public Health from the subordinate institutions reveal that the proportion of samples not conforming to sanitary standards to the chemical parameters taken and examined from the artesian wells constituted in 2022 - 72%, or 761 samples out of 1082[13]. The causes that determined this situation are primarily related to the presence of elements such as - fluorine in the physical-geological composition of the soil; the high content of nitrates is conditioned by the

[13] State supervision of public health in the Republic of Moldova (National report, 2022), https://ansp.md/wp-content/uploads/2023/10/RAPORT-ANUAL-activitatea-ANSP-2022-FINAL-16.10.2023.pdf

insanity of the localities, the non-compliance by the population with the principle of cleanliness and the disposal of animal waste; location of latrines, toilets near water sources. National Agency for Public Health also found that the share of samples that do not correspond to the microbiological parameters in the wells was 29% in 2022 compared to 2021- 26.2%.

In the drilling process, the aquifer layer was intersected, at depths such as:

- 1.9m – borehole 5 from the village of Pelinei
- 1.1m and 1.7m – boreholes 8 and 10 from the village of Gavanoasa
- 2.0m – drilling 15 from or. Vulcanesti
- 1.0m and 2.3m – boreholes 16 and 17 from the village of Alexandru Ioan Cuza

Negative forms of relief such as gullies and ravines due to the action of meteoric and vadose waters were observed in the perimeter of the land intended for the construction of the aqueduct network and water towers (reservoirs). The aquifer layer can suffer level fluctuations of up to 1.50m depending on the amount of atmospheric precipitation and snowmelt. A large part of the land intended for the construction of the aqueduct is located in the Cahul river meadow, which is an area where the aquifer is close to the surface and is variable depending on the amount of precipitation. In the event of heavy rainfall, flooding of the Cahul river meadow may occur. Lands located on side slopes are not prone to the aquifer being close to the surface.

6.1.4. Seismic intensity

According to the seismic zones updated in 2010 by the approval of the Minister of Construction and Regional Development Order no. 25 of 23.12.2009 with the publication of the Seismic Zoning Map of the Republic of Moldova as a supplement to the normative document СниП II-7-81 " Construction in seismic areas" developed by the Institute of Geophysics and Geology of the Academy of Sciences of Moldova, the seismic intensity in degrees MSK-64 for the project area is 8 degrees. According to the MSK-64 scale and taking into account the geological conditions of the rocks and the construction land (category II) the seismic degree of the given site should be taken equal to 8, according to SNiP II-7-81, table 1.

Figure 6-4: Seismic zoning of the Republic of Moldova

Source: Institute of Geology and Seismology

6.1.5. Topography

The localities targeted in the Project are located on the Tigheci Hills, characterized by many flat lands, valleys and slopes affected by massive land erosion, both linear and flat, and on the Bugeac River Plain, represented by easily erodible sediments located on practically vertical slopes that represent the slopes of the river terraces of water crossing the region. To the east of the Cahul district and in the Taraclia district are the depressions of the Cahul, Salcia and Ialpug Rivers. The maximum altitudes of the territory in the Project area are 120m in the city of Cahul and 100m south of the extravilain of Gavanoasa village. The minimum altitude being 10 m in the meadow of the Cahul river in the village of Alexandru Ioan Cuza. The slopes are oriented mainly to the south and east.

6.1.6. Soil characteristics

In the Republic of Moldova, the main type of soil is chernozem, called the "king of soils", which is characterized by a relatively high content of humus in the upper layer, and which occupies approx. 75% of the surface of the Republic of Moldova. As mentioned in the Table below, the soil quality in the Project area is evaluated on average at 57.8 points, the best quality referring to the Alexanderfeld locality.

Table 6-1: Soil quality in the localities from the project area

TAU	Total agricultural land, ha	Soil quality (points)	Eroded lands			
			Total	Weak	Moderate	Strong
Cahul town	3415	57	941	495	286	160
Alexandru Ioan Cuza	6054	60	1983	1048	739	151
Alexanderfeld	6227	62	2848	1603	865	380
Gavanoasa	6120	56	2540	1284	943	313
Pelinei	3818	54	1897	811	882	204
Vulcanesti town	15264	58	6172	3653	1348	1171

Source: Land cadastre according to the situation on January 1, 2022[14],

From the point of view of the types of soil found in the Project area, we can distinguish carbonate chernozem (predominantly), ordinary chernozem, alluvial soils (on the route that crosses along the Cahul river) and deluvial soils, see the **Table 6-2** and **Figure 6-5** below.

Carbonate chernozems are specific to steppe areas with grass, sedge and wormwood, which are found on loessoid clays; this type of chernozem occupies the lower terraces of the rivers, the lower parts of the slopes and the lowlands with the same altitudes as the terraces.

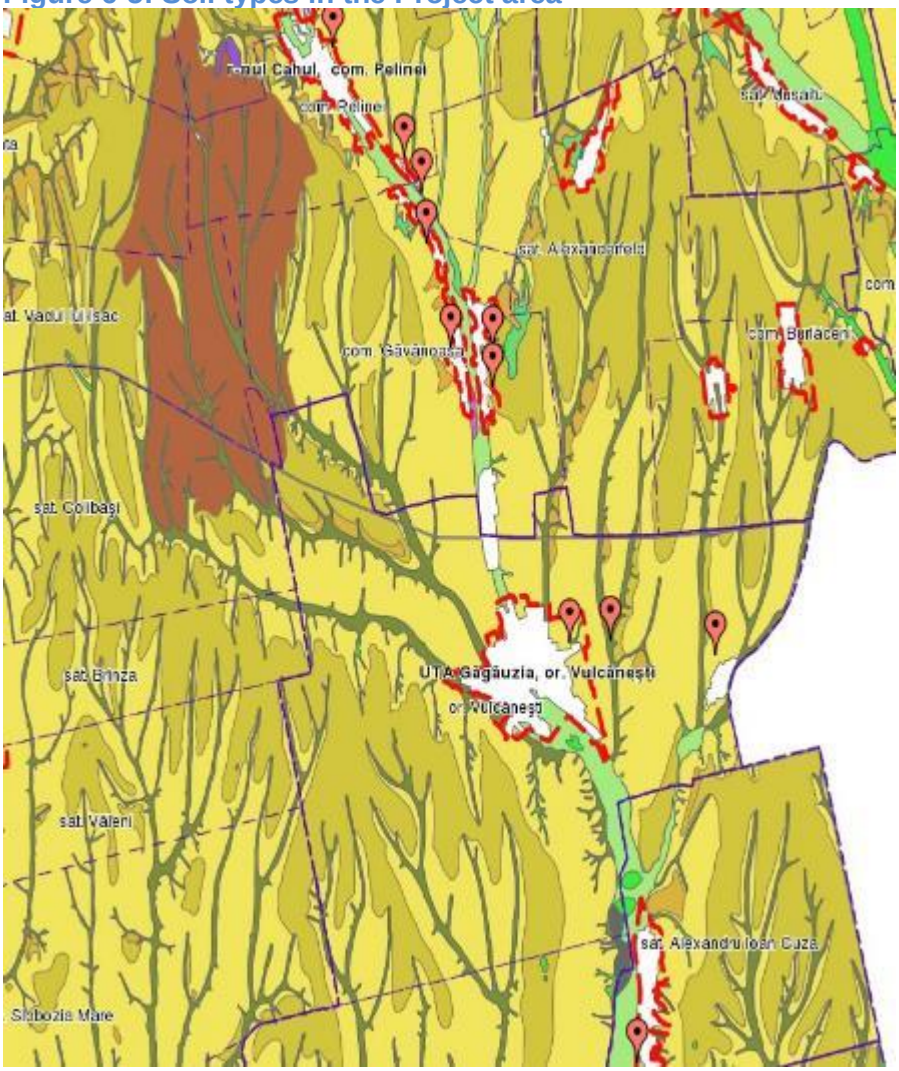
Table 6-2: Soils in the Project area [15]

Platforms	Soil sub-type	Soil texture	Eroded soils
Platform A Cahul	Carbonate chernozem	clayey	-
Platform B Alexanderfeld	Carbonate chernozem	clayey	-
Platform C Gavanoasa	Ordinary chernozem	clayey	Poorly eroded
Platform D Vulcanesti	Carbonate chernozem	clayey	Poorly eroded
Platform E Ursoaia	Carbonate chernozem	clayey	-
Platform F Alexandru Ioan Cuza	Stratified alluvial soil	luto-argiloase	Moderately eroded
SPR 3 Vulcanesti	Soft deluvial soil	clayey	-
Pelinei Water Towers	Carbonate chernozem	clayey	-
Satuc Water Tower	Carbonate chernozem	clayey	-
Vladimirovca Water Reservoir	Carbonate chernozem	sandy loamy and sandy	Heavily eroded
Nicolaevca Water Tower	Carbonate chernozem	sandy loamy and sandy	Heavily eroded
Gavanoasa Water Tower	Ordinary chernozem	clayey	Poorly eroded
Vulcanesti Water Tower	Carbonate chernozem	clayey	-

[14] https://gov.md/sites/default/files/document/attachments/subiect-09-nu-203-arfc-2022.pdf

[15] https://geoportal.md/ro/default/map#lat=65481.732731&lon=215622.931384&zoom=2&markers=1%7C194263.88362958%7C77015.992956924%7CPelinei%20Water%20tawer%0D%7C1%7C196410.66198846%7C74129.557127592%7CSatuc%20WT%7C1%7C197089.04430707%7C71878.609628376%7CVladimirovca%20WR%7C1%7C197839.46560535%7C69131.702139923%7CNicolaevca%20WT%7C1%7C199098.59218449%7C69076.84041999%7CGavanoasa%20WT%7C1%7C199088.48837476%7C68094.698006784%7CPl%C8%99atform%20C%7C1%7C196940.97751555%7C73228.000367514%7CPlatform%20B%7C1%7C201436.69375425%7C61346.003048342%7CPlatform%20D%7C1%7C202643.04839902%7C61439.927678399%7CSPR%203%20Vulcanesti%7C1%7C205840.54311654%7C61033.43249579%7C%20Gara%20Vulcanesti%20WT%7C1%7C203472.19348772%7C50304.972588538%7CSPR%202%20Al%20Cuza%7C1%7C192931.95912347%7C79148.365993262%7CPlatform%20E%20Ursoaia%7C

Figure 6-5: Soil types in the Project area



Legend:

Source: Geospatial Data Fund

In order to identify the engineering-geological conditions in the area proposed for the Project, geotechnical surveys were carried out by "GEOLUX PRIM" in 2017. The geological section in the project area consists of:

I. Black layer of topsoil with plant roots between 0.2 and 1.1m deep
II. Man-made soil layer with gravel and asphalt

III. Yellow sandy clay with intercalated carbonate content
IV. Yellow and yellow-brown clayey sand with sand and clay substrates
V. Sandy
VI. Fine and medium yellow and yellow-brown sand, with lumps of clay

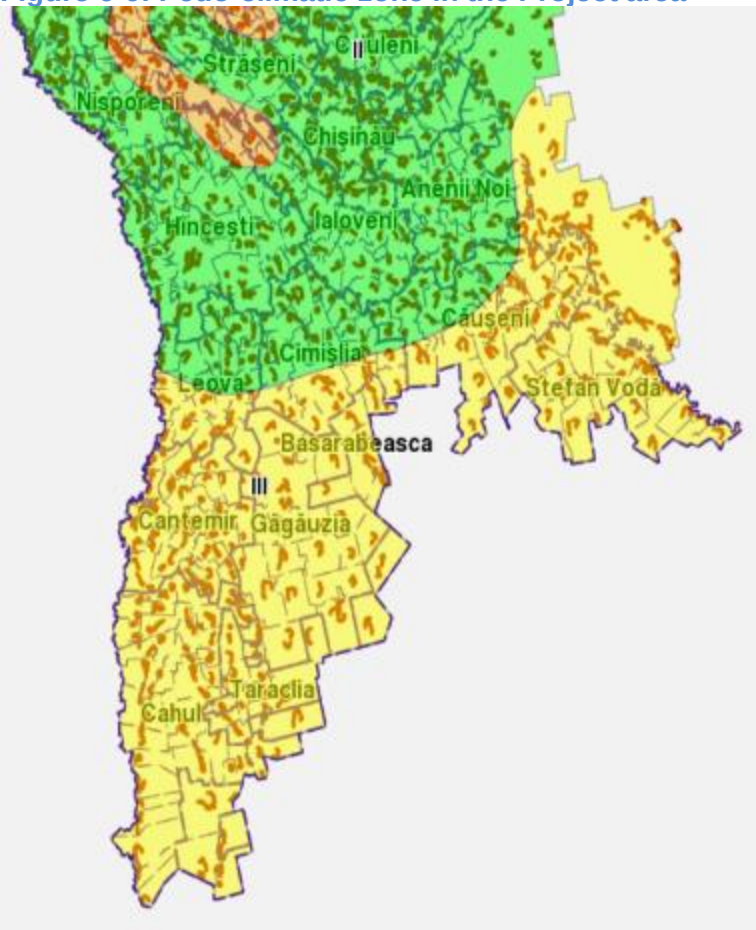
The geotechnical probes executed on the side slopes of the Cahul River, namely on the slope of the right bank of the river, discovered alluvial deluvial sediments represented by sandy clays and sands. The slopes of the slope are scarred by linear erosions of medium and large extent, in the slopes of which the lithological structure similar to that of the wells can be observed. During the construction of the water towers and reservoirs in this area, it was recommended to carry out engineering works to consolidate the construction area, and engineering measures to exclude leaks from the planned constructions.

The slope of the left bank is characterized by a gentler relief, but also on its slope there are numerous planar and linear erosions of small and medium scale, for 2/3 of the section from the north and linear and planar erosions of large scale located mostly in area of Alexandru Ioan Cuza village and Gavanoasa village. All the eroded rocks on these slopes and in the gullies are deposits in the river meadow forming the cover of vegetable soil with plant roots.

6.1.7. Climate and meteorology

From the point of view of temperatures and precipitation, the Republic of Moldova can be divided into three major agro-ecological zones: the Northern zone, the Central zone and the Southern zone. The project is located in the South area, respectively: pedo-climatic zone III: the plain of Southern Moldova, the lower terraces of the Dniester and Prut rivers (see the figure below).

Figure 6-6: Pedo-climatic zone in the Project area



Source: National Geospatial Data Fund

The Republic of Moldova has a temperate-continental climate characterized by short winters and long, hot summers. In the Project area, according to data recorded in 2022 by the Cahul weather station, the average annual temperature was approx. 12.5°C. Annual precipitation in the area was approx. 352 mm, the highest values being recorded in August (69 mm). The average wind speed in the Project area is approx. 3.2 m/s, the highest monthly value being recorded in January (3.8 m/s).

Table 6-3: Temperature, precipitation and wind speed, 2022, Cahul meteorological station

Parametres	Monthly values												Annual values
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	
Air temperature, monthly and annual average values (^{0}C)	1.1	4.4	3.7	11.4	17.5	22.3	24.5	24.1	17.6	13.5	7.3	2.5	12,5
Atmospheric precipitation, monthly and annual	6	3	7	79	28	29	14	69	53	7	38	19	352

Parametres	Monthly values												Annual values
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	
quantities (mm)													
Wind speed, monthly and annual values (m/s)	3.8	3.5	3.5	3.8	2.7	2.9	3.0	3.0	2.9	2.5	3.1	3.5	3.2

Source: Moldova Statistical Data Bank

Climatic changes

Since the 1980s, droughts have represented a major problem for the Republic of Moldova, especially in the southern area; the extreme droughts recorded in 2007 and 2012 affected more than 70% of the country's surface and drastically reduced the agricultural production.

Also, floods periodically affect the Republic of Moldova; in the last 70 years, 10 major floods have occurred in the area of the Dniester and Prut Rivers and in the area of smaller rivers in the country. The project is located in pedo-climatic zone III which, from the point of view of climate change, has the following characteristics:

Pedo-climatic zone III: high risk of erosion, soil salinization, desertification and medium risk of increased frequency and intensity of floods.

In the Third Communication of the Republic of Moldova to the United Nations Framework Convention on Climate Change (2013), 3 emission scenarios were presented to estimate expected climate changes (temperature and precipitation).

All the general atmospheric circulation models (GCM) used predict for the following periods (2050s and 2080s) increases in average annual temperature and decreases in annual amounts of precipitation, compared to the reference periods 1961-1990.

The expected climate trends in the area proposed for the location of the Project (the southern part of the Republic of Moldova), compared to the reference periods 1961-1990, are as follows:

- the average annual temperature will increase by 2.2–2.8 °C by the 2050s and by 2.7–4.2 °C by the 2080s;
- the average winter temperature will increase by 2.0–2.5°C by the 2050s and by 2.6–3.9°C by the 2080s;
- the average summer temperature will increase by 2.5–3.2°C by the 2050s and by 3.1–5.2°C by the 2080s;
- precipitation reduction varies from -1.1% to -6.9% until the 2050s and from -1.8% to -13.5% until the 2080s, depending on the climate scenarios;
- the largest reductions in precipitation are predicted during summer, ranging from -3.3% to -15.9% by the 2050s and from -8.4% to -26.4% until the 2080s, depending on the climate scenarios;

- the period with temperatures above 0°C is expected to increase, by 32-45 days by the 2050s and by 37-66 days by the 2080s, depending on climate scenarios.

6.1.8. Air quality

Currently, in the Republic of Moldova, air quality monitoring is carried out by the Environmental Reference Laboratory, within the Environment Agency, https://am.gov.md/ro/node/215.

The air quality monitoring is carried out through the network consisting of 17 stationary stations, installed in the years 1970-1978, which operate according to the schedule 3 times/24h. The following indicators are analyzed: solid suspensions, sulfur dioxide, carbon monoxide, nitrogen dioxide, including the specific indicators: soluble sulfates, nitrogen oxide, phenol, formic aldehyde.

Stationary stations are located in 5 industrialized centers of the Republic of Moldova (Chisinau - 6 stations, Balti - 2 stations, Bender - 4 stations, Tiraspol - 3 stations, Ribnita - 2 stations). The nearest air quality monitoring station is located in the city of Chisinau.

As can be seen in the table below, 2% of the total emissions of polluting substances in the Republic of Moldova come from Cahul district, and 3.4% come from TAU Gagauzia.

Table 6-4: Emissions of polluting substances into the atmospheric air from stationary sources of economic agents

Name	Total per country	Cahul District	TAU Gagauzia
Solids	2202	27	85
Total gases and liquids	15278	336	511
Sulphur dioxide	1043	8	4
Carbon monoxide	5128	48	224
Nitric oxide	1630	27	22
Total	**17480**	**363**	**596**

The main sources of pollution in the southern region of the Republic of Moldova are natural (dust storms) and anthropogenic. No data are known about air quality in the area strictly adjacent to the Project site. Taking into account the fact that the project area is surrounded by land with agricultural use and agro-industrial settlements and objectives, and there are no industrial activities generating significant emissions in the area, it can be appreciated that the site area is not significantly polluted.

The main contribution to background pollution is due to traffic on the R32 national republican road. This contribution is mainly found in the concentrations of nitrogen oxides in the ambient air.

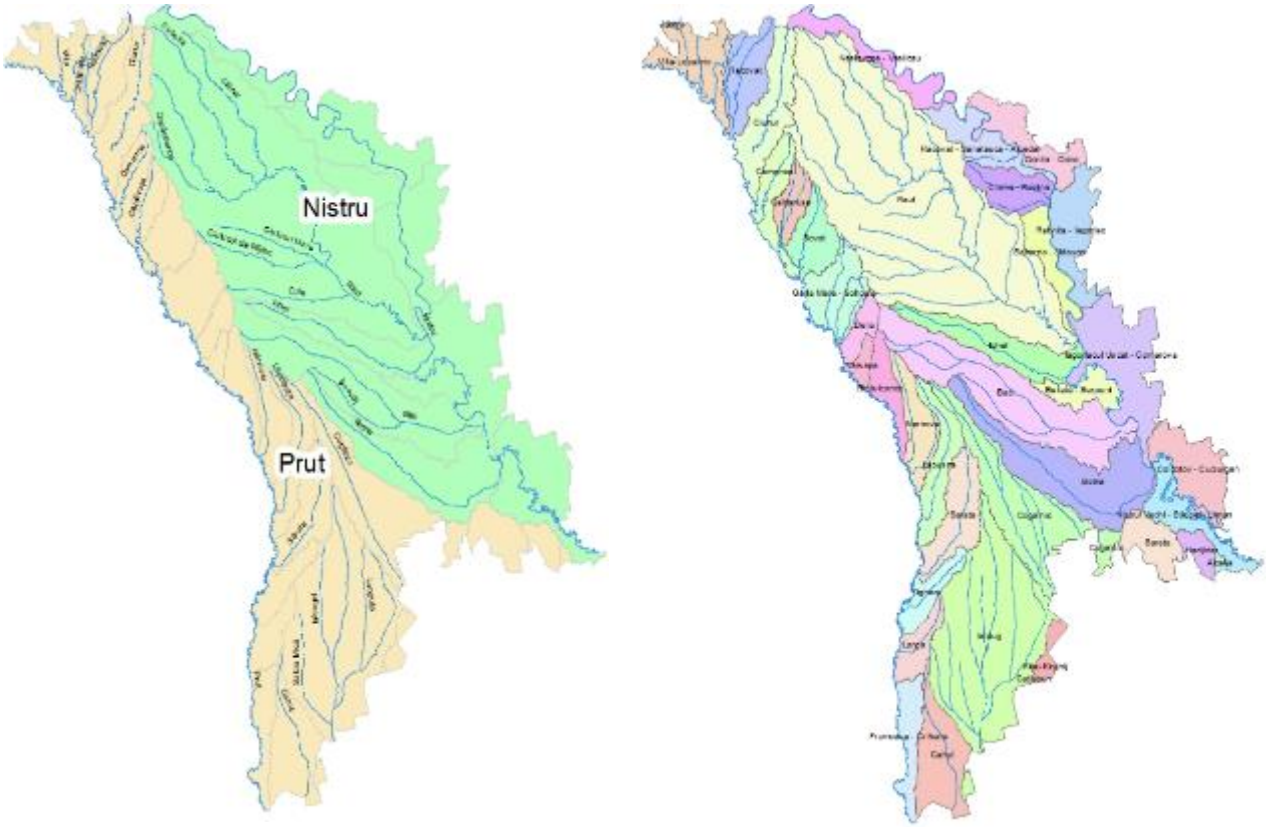
6.1.9. Surface and underground waters

The main hydrographic arteries of the Republic of Moldova are represented by the Prut and Dniester Rivers, which mark the border between the Republic of Moldova, Ukraine and Romania. The general orientation of the landforms determines that the two rivers (Prut and Dniester) receive their main tributaries from the north and northwest. According to their characteristics, the rivers can be grouped

as follows: the rivers of the Dniester basin, the rivers of the Danube basin and the small southern rivers that flow into the estuaries of the Black Sea.

The hydrographic network in the Project area is represented by the Prut River and the Danube River, which form meadows, ponds, and natural lakes along the courses. In the district there are the biggest lakes in Moldova: Manta and Beleu. Access to the Black Sea and the water basin of Central and Eastern Europe is ensured through the 1200-meter section of the Danube. The Project area is located in the Cahul watershed (see Figures below).

Figure 6-7: Map of Watershed Districts and Watersheds



a) Watershed Districts ***b) Watersheds***

Source: SE "Apele Moldovei" Agency

The analyzed project crosses the Danube Prut and Black Sea hydrographic districts, more precisely the Danube River basin (the Cahul river basin). The figure below shows the water bodies in the Project area consisting of the Prut and Cahul rivers, Manta Lake and Beleu Lake.

Figure 6-8: Water bodies in the Project area

The Cahul River rises near the village of Lebedenco in the Cahul district, then passes through the territory of TAU Gagauzia and flows into the Cahul lake near the village of Etulia Noua. It has a length of 39 km and a basin area of 605 km². The average flow is 0.3 m³/s and the average annual discharge is 9.2 million m³. In the upper course, the transverse profile is symmetrical, downstream of Pelina, a rightward asymmetry can be observed, with steep slopes.

The basin is located in the middle of the Bugeac steppe. The reception basin is asymmetrical, more developed in the central part and on the left bank, relatively narrow (5 km) in the lower course, slightly elongated from the northwest to the south.

The main tributaries of the Cahul river are: from the left - Vilceaua Gavanoasa (13 km long); on the right - nameless River (22 km long).

Water quality monitoring of the Cahul River was carried out in the section of the Etulia-Noua village in 2014. During the year, there were no cases of high and extremely high pollution.

The pipeline of the main aqueduct intersects in several places with the Cahul River and its tributaries, see the locations unfolded in the following table.

Table 6-5: The intersection of the water pipe with the Cahul river and its tributaries

Water course	Locality	The total length of the water course, m	Crossing point Coordinates
Ursoaia valley, tributary of Cahul river	Ursoaia village	4110	45°50'20"N 28°18'53"E
Unnamed tributary Cahul river	Satuc village	3934	45°48'19"N 28°20'59"E
Unnamed tributary Cahul river	Satuc village	3934	45°48'15"N 28°20'59"E
Water channel	Satuc village	data unavailable	45°47'58"N 28°21'21"E
Cahul River	Vladimirovca village	48259	45°47'07"N 28°22'15"E
Gavanoasa valley, tributary of Cahul river	Gavanoasa village	5565	45°46'26"N 28°22'35"E
Water channel	Gavanoasa village	data unavailable	45°46'03"N 28°22'48"E
Water channel	Gavanoasa village	data unavailable	45°46'00"N 28°22'52"E

Water course	Locality	The total length of the water course, m	Crossing point Coordinates
Razasie valley, tributary of Cahul river	Gavanoasa village	6777	45°45'53"N 28°22'54"E
Cahul River	Gavanoasa village	48259	45°45'52"N 28°22'48"E
Cahul River	Gavanoasa village	48259	45°45'27"N 28°22'48"E
Water channel	Gavanoasa village	data unavailable	45°45'28"N 28°22'53"E
Unnamed tributary Cahul river	Vulcanesti city	3682	45°39'41"N 28°26'04"E
Carabiber valley, tributary of Cahul river	Alexandru Ioan Cuza village	7100	45°38'03"N 28°26'51"E

The dimensions of the water protection zone of rivers and water basins are established in Article 6 of Law no. 440/1995. Thus:

- Along the banks of rivers and water basins, a water protection zone with a width of at least 500 m is established from the river slope to the bed on the banks;
- For streams (with permanent or temporary water current) along the banks, the water protection zone is established with a width of at least 15 m on both banks.
- The width of the water protection zones of the Prut rivers is at least 1000 m.

The width of the riparian strips for water protection is established, depending on the length of the rivers, in the following sizes:
• for small streams and rivers (Cahul river) - at least 20 meters;
• for large rivers (Prut river) - at least 100 meters.

The largest water bodies in the southern region of the Republic of Moldova are Lakes Manta, Rotunda and Beleu.

Lake Manta, near the village of Manta, is located in the south-western part of the Republic of Moldova, between the villages of Crihana Veche and Vadul lui Isac in Cahul district, at a distance of 1.6 km from Platform A of the Project. Manta is located on the lower part of the Prut River meadow, on the state border between the Republic of Moldova and Romania.

Lake Manta is one of the largest natural lakes in the Republic of Moldova, with an area of 21 square kilometers, which was formed after the merging of old natural lakes: Dracele, Badelnic, Fontana, Vulpea, Hidraru and Lisita. In fact, this lake is a mixture of ponds, canals and streams, partly natural, partly artificially arranged for fishing purposes. Summer swan, white stork, pelican, egret, egret, gull, turtle, wild boar, deer, white water lily, yellow water lily and other water plants and aquatic life can be found on Manta Lake.

Lake Rotunda is a natural lake in the Prut meadow, in the south of the Republic of Moldova (Cahul district), 10 km from the main pipeline. The surface of the lake is 2.08 km².

Lake Beleu is located 22.0 km from the designed main pipeline and is the main geographical component of the Lower Prut reserve. The average surface of the lake mirror is 9.5 km², Beleul being one of the largest natural lakes in the Republic of Moldova. The volume of water is 8.39 million m^3. According to its provenance, Lake Beleu is a relict of the Danube estuaries formed 5-6 thousand years ago and was, in this case, blocked by the alluvium of the Prut. The length of the lake is 5 km, the width is 2 km, the average depth is 0.5-1.5 m, the maximum depth is 2.5 m. The water level in the lake largely depends on the water level of the Danube and the Prut rivers.

Beleu Lake

Prut River

The following water bodies can be found near the Project area:

- 12 m east and north of the pipes - water storage basin in Ursoaia village with an area of 21100 m^2.
- 310 m south-west of the pipeline - water storage basin in Ursoaia village with an area of 93,800 m^2.
- 680 m west of the pipeline - water storage basin in Vulcanesti city with an area of 830700 m^2.

6.1.10. Cultural, archaeological and historical resources

Cultural heritage is distinguished by the following forms:

Tangible cultural heritage includes movable cultural heritage (e.g. paintings, sculptures, manuscripts, etc.) as well as immovable cultural heritage (e.g. monuments, archaeological sites, cave dwellings, historic buildings, etc.) that are of outstanding universal value from a historical, artistic or scientific point of view or are of outstanding universal value from a historical, aesthetic, ethnological or anthropological point of view[16].

Intangible cultural heritage includes living traditions or expressions inherited from ancestors and passed on to descendants, such as oral traditions, performing arts, social practices, rituals and festive events.

Natural heritage includes natural sites with cultural aspects, such as cultural landscapes, physical, biological or geological formations that have outstanding universal value in terms of aesthetics, science, conservation or natural beauty.

[16] UNESCO, http://whc.unesco.org/en/conventiontext/

In the Republic of Moldova there are thousands of cultural or natural sites, including architectural monuments, settlements from different historical eras and medieval fortresses. This cultural and natural heritage is relatively evenly distributed throughout the country.

Important archaeological sites as well as cultural monuments protected by the state are included in the national registers by the National Archeology Agency. According to the available information of the National Geospatial Data Fund[17] in the area of the Project site there are several archaeological sites (see the table below).

Table 6-6: Archaeological sites in the Project area

Pelinei village

1 - Archaeological site: Pelinei III

RAN code: 1736.3

Dating of the archaeological site: Late Roman period/c. III-IV AD

2 - Archaeological site: Pelinei I

RAN code: 1736.1

Dating of the archaeological site: Eneolithic/4th millennium BC.

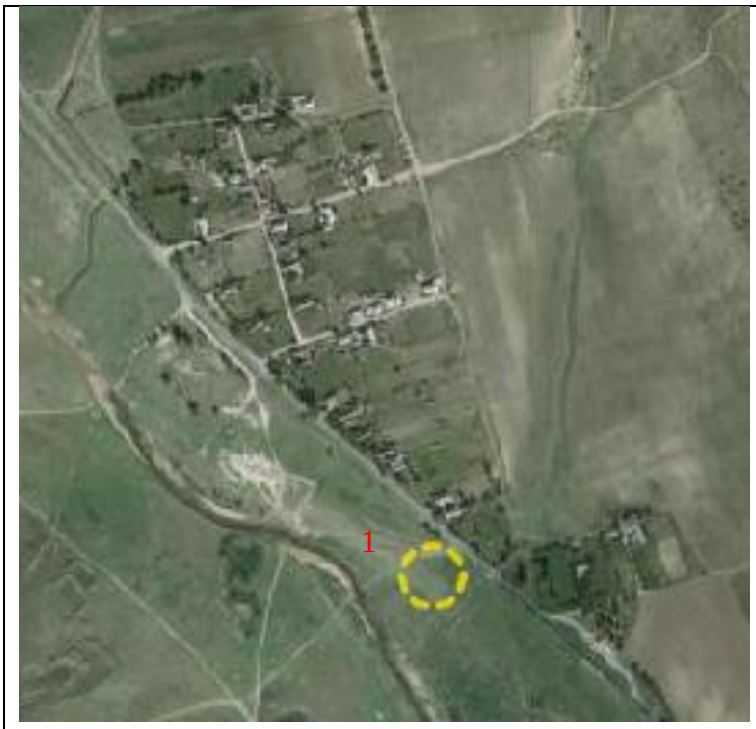
3 - Archaeological site: Pelinei II

RAN code: 1736.2

Dating of the archaeological site: Late Roman period / c. III-IV AD.

It is required to perform a discharge of the archaeological works, see the opinion of the archaeological expertise no. 335 of October 27, 2023, Annex 4.

[17] https://geoportal.md/ro/default/map#lat=44703.771873&lon=200574.109893&zoom=3



Satuc village

1 - Archaeological site: Satuc I

RAN code: 1737.1

Dating of the archaeological site: Late Roman period / c. III-IV AD.

Vulcanesti city

1 - Valul lui Traian de Jos, Sector II - Vulcanesti, Gavanoasa, Alexanderfeld, Iujnoe, Burlaceni

RAN Code: 1700/9600.S2

Dating of the archaeological site: Roman era / c. II-III AD.

In order to avoid the danger of destroying the archaeological heritage, it is necessary to carry out of the archeological works in the area of the crossing of the main aqueduct from the southern direction that turns to the east, see the Archaeological Expertise Notice No. 335 of October 27, 2023.

2 - Gavanoasa Tumulul 29

RAN code: 9417.31

Dating of the archaeological site: Eneolithic / 4th millennium BC - Medieval era / century XVII

3 – Gavanoasa II

RAN code: 9417.2

Dating of the archaeological site: Late Bronze Age period / c. XV/XIV-XIII BC.

4 – Vulcanesti Tumulul 3

RAN code: 9603.6

Dating of the archaeological site: Eneolithic / 4th millennium BC - Medieval era / c. XVIII

1 - Vulcanesti Tumulul 28

RAN code: 9603.31

Dating of the archaeological site: Eneolithic / 4th millennium BC - Medieval era / c. XVIII

2 - Vulcanesti Tumulul 27

RAN code: 9603.30

Dating of the archaeological site: Eneolithic / 4th millennium BC - Medieval era / c. XVIII

3 - Vulcanesti Tumulul 1

RAN code: 9603.4

Dating of the archaeological site: Eneolithic / 4th millennium BC - Medieval era / c. XVIII

4 – Vulcanesti Tumulul 2

RAN code: 9603.5

Dating of the archaeological site: Eneolithic / 4th millennium BC - Medieval era / c. XVIII

The ”Lower Valul lui Traian” archaeological site is considered to have been raised in the c.III by Romanians on a length of about 126 km from Prut (village Valul lui Isac, Moldova) to Lake Sasac (near Tatarbunar, Ukraine). Trajan's wave are the remains of some fortifications, their height varies between 3 and 6 meters. On it we can see the ruins of various fortifications, war camps and settlements during the battles. Undoubtedly, at the time, this was a whole structure of fortifications

that fascinate archaeologists with its imposing length. The main aqueduct project crosses the archaeological site longitudinally for a length of approx. 1.2km, north of the town of Vulcanesti (land with cadastral no. 94172060106). In order to avoid the destruction of the archaeological heritage in the project area, the technical project is being modified by mounting MTP parallel to the archaeological site. Thus, the site will be affected only through an intersection of it with initial archaeological works.

Based on the interviews conducted in the localities, the protected monuments are generally found in the central areas of the villages near the town hall. The table below presents a list of protected monuments in the communes and villages targeted in the project.

Table 6-7: List of architectural and historical monuments in the area

Locality	Monument	Tipe	Importance [18]	Location
Pelinei village, Cahul district	Church „Acoperamantul Maicii Domnului", 1914	architectural	N	45.828312245949 °N 28.320352524437 °E
Ursoaia village, Lebedenco commune, Cahul district	Monument to the grave of the fallen soldier in 1941	historic	N	-
Alexandru Ioan Cuza village, Cahul district	Church „Sf. Nicolae", din sec. XIX	architectural	N	-
Alexandru Ioan Cuza village, Cahul district	Monument to fallen heroes in war (1941-1945)	historic	L	-
Vulcanesti city	Column "Battle of Cahul 1770, from 1849	historic architectural	N	45.688333333333 °N 28.426388888889 °E
Vulcanesti city	The obelisk of Count Semen Voronțov, from 1849	historic architectural	N	45.688333333333 °N 28.426388888889 °E

Source: Register of monuments of the Republic of Moldova protected by the state https://mc.gov.md/ro/content/patrimoniu-arheologic

The monuments protection zone is legislated in art. 12 of Law 1530/1993:

- in urban areas - 100 m radius;
- in the countryside of rural towns - 200 m radius;
- and in the outskirts - 500 m radius.

In order to maintain the authenticity and integrity of the monuments, their owners are obliged to take measures that ensure the protection of the monuments, not to admit their demolition, mutilation, damage, non-maintenance or abandonment.

[18] Importance: L- local, N - national

6.2. Biodiversity

According to the requirements of the World Bank, environmental assessment studies are necessary to assess the risks and potential impacts of a project on biodiversity, natural protected areas in its area of influence.

Also, the Republic of Moldova is part of 18 international conventions in the field of the environment, 10 of which directly promote the conservation of biodiversity and natural heritage. Thus, all the requirements of the international treaties on biodiversity conservation are recommended for execution, especially for the construction of some economic objects, as this Project provides.

The main international treaties related to protection of species of flora and fauna and their habitats are as follows:

1) Convention on the Conservation of European wildlife and natural habitats (Bern, 19 September 1979), ratified by Parliament Decision No. 1546/1993;
2) Convention on Biological Diversity (Rio de Janeiro, 5 June 1992), ratified by Parliament Decision No. 457/1995;
3) Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar, 2 February 1971), ratified by Parliament Decision No. 504/1999;
4) Convention on the conservation of migratory species of wild animals (Bonn, 1979) and Agreement on the conservation of populations of European Bats and Agreement on the conservation of African-Eurasian migratory waterbirds, ratified by Law No. 1244/2000;
5) Convention on international trade in endangered species of wild fauna and flora (CITES) (Washington, 1973), ratified by Law No. 1246/2000.

6.2.1. Flora and forest ecosistem

Currently, the forest vegetation in the Republic of Moldova is unevenly distributed and strongly fragmented, and the Central Moldavian Plateau, with the highest altitude (maximum 429 m), has the most significant areas of forests - Codrii. The majority of the forest vegetation is included and managed within the national forest fund, while the vegetation outside it is predominantly represented by protective forest curtains, green spaces or spontaneous forest vegetation on agricultural land (often abandoned) or other land properties.

Most of the forests are managed by the "Moldsilva" Agency (approx. 84%), which is the central authority for forestry and hunting. Local public administration authorities practically manage the other forests (about 16%). Private forests are on small areas (about 0.3%). The total area covered with forests is estimated at 371.0 thousand ha and can be distributed, according to the managers, through the following figures:

1) "Moldsilva" Agency - 303.2 thousand ha;
2) UTA – 50.5 thousand ha;
3) private - 2.7 thousand ha;
4) other managers (territory on the left of the Dniester) – 14.6 thousand ha.

The project implementation area is located in the forests of the south part of the country and is managed by the State Enterprise " Silva-Sud Cahul" and Enterprise for Silviculture Comrat. The forests of Southern Moldova, being composed of less valuable species and located at the border of

the vegetal zone, are vulnerable to a series of biotic and abiotic factors. They are forests of rare consistency, which do not offer a stable habitat for mammal species.

Figure 5-8: View of de Cahul and Vulcanesti forests

View of the Cahul forest

View of the Vulcanesti forest

The forests and constituent lands of the forestry fund of State Enterprise " Silva-Sud Cahul", located within the limits of five forests holds: Cociulia, Baimaclia, Moscovei, Taraclia and Slobozia and has an area of approx.18307.4 ha and have 233 forest bodies.[19]

The arborets of the forest fall into the following phyto-climatic types:
- FD2 – The hilly floor of oaks with hill saddles;
- FD1 – The hilly oak floor;
- Ss – Silvo-step

The information about the Forest Bodies, managed by SE" Silva-Sud Cahul", with the number of plots, located near the Project area, is included in the Tabel below.

Table 6-8: The Forest Bodies managed by SE" Silva-Sud Cahul", located near the Project area

Forest bodies name	Forest Plots	Distance to the Project area
Gavanoasa	75-77	more than 5km
Pelinei	61-70	more than 4km
Lebedenco	58-59	more than 3km

The forestry plantations in this forest plot are artificial with a high percentage of Black logust (Robinia pseudoacacia) trees. Through the shrubs species predominant are Hawthorn (Crataegus curvisepala), European field elm (Ulmus campestris L.), Honey logust (Gleditsia triacanthos), Common Walnut (Juglans regia) and Spindle (Euonymus europaea).

[19] Source: http://cahul.silvicultura.md/public/files/documente/Detalii_descrierea_IS_Silva_Sud_Cahul.pdf

The forests and constituent lands of the forestry fund of State Enterprise Comrat included[20]: Comrat forestry - 5772 ha, Ciadir-Lunga forestry - 1950 hectares, Vulcanesti forestry - 1950 ha.

Near the Project area in the Vulcanesti district, there is a forest near the village of Alexandru Ioan Cuza, plot 82, administered by SE "Comrat". The forestry plantations in this forest plot are artificial with a high percentage of Black logust (Robinia pseudoacacia), trees. Through the shrubs species predominant are Hawthorn (Crataegus curvisepala), Spindle (Euonymus europaea). The main representative species of the forest bodies are developed in Annex 6.

In the areas adjacent to the project, the following herbaceous plants are most often spread: Goldmoss Stonecrop (Sedum acre) and Large Sedum (Sedum maximum); ephemeroids: Solomon's Seal (Polygonatum latifolium), Violet (Scilla bifolia), Figwort Vernal (Ficaria verna); sciafils: Wood Cow-wheat (Melampyrum nemorosum), Dog's Mercury (Mercurialis perenis), Meadowrue (Thalictrum minus), Solitary Clematis (Clematis integrifolia) and heliofils: Lesser Honeywort (Cerinthe minor), Lady's Bedstraw (Galium verum), mezoxerophytes: Clustered Bellflower (Campanula glomerata), Wallroth's Valerian (Valeriana collina).

6.2.2. Fauna

The fauna of the Republic of Moldova includes about 14,800 species of animals, among which:

- Vertebrates – 461 species (mammals – 70 species, birds – 281 species (of which 104 are migratory aquatic species), reptiles – 14 species, amphibians – 14 species, fish – 82 species).
- Invertebrates – 14,339 species, including insects (approx. 12,000 species).

Analysis of scientific data on populations of fauna species protected on the RM territory, as compared to the IUCN[21], AEWA[22], CMS[23], BERNE[24] data and establishing the potential impact on these species at the construction and operational stages of the Project.

The list of representative fauna species, which have the areal of the Project area in Cahul and Vulcanesti districts, is presented in the table.

Table 6-9: List of representative species of fauna, which have the areal in the Cahul and Vulcanesti districts

No.	Scientific name	Protection status					
		International			National		
		Bern Convention	Bonn Convention	CITES	Law no. 1538/ 1998	IUCN Categories	Red Book of RM
MAMMALIA							
1.	*Apodemus agrarius*						

[20] Source: http://comrat.silvicultura.md/
[21] IUCN: International Union for Conservation of Nature https://www.iucn.org/resources/conservation-tool/iucn-red-list-threatened-species
[22] AEWA: African-Eurasian Migratory Waterbirds
[23] CMS: Conservation of Migratory Species
[24] BERNA: Conservation of European Wildlife and Natural Habitats

No.	Scientific name	Protection status					
		International			National		
		Bern Convention	Bonn Convention	CITES	Law no. 1538/ 1998	IUCN Categories	Red Book of RM
2.	*Apodemus flavicollis*						
3.	*Cricetus cricetus*	+					
4.	*Crocidura leucodon*				+	II	+
5.	*Crocidura suaveolens*				+	IV	
6.	*Erinaceus europaeus*				+	VIII	
7.	*Eptesicus serotinus*				+	IV	
8.	*Felis silvestris*			+	+	III	+
9.	*Lepus europaeus*						
10.	*Lutra lutra*	+		+	+	II	+
11.	*Martes foina*			+	+	VIII	
12.	*Microtus arvalis*						
13.	*Myotis daubentoni*				+	IV	
14.	*Myoxus glis*						
15.	*Pipistrellus pipistrellus*						
16.	*Rattus norvegicus*						
17.	*Sciurus vulgaris*				+	VIII	
18.	*Sorex araneus*				+	VIII	
19.	*Sorex minutus*				+	IV	
20.	*Spermophylus suslicus*						
21.	*Talpa europaea*				+	VIII	
22.	*Vulpes vulpes*			+		VIII	
REPTILIES, AMPHIBIES							
1.	*Anguis fragilis*						
2.	*Bufo bufo*						
3.	*Bufo viridis*	+					

No.	Scientific name	Protection status					
		International			National		
		Bern Convention	Bonn Convention	CITES	Law no. 1538/ 1998	IUCN Categories	Red Book of RM
4.	*Bombina bombina*	+			V		
5.	*Coronella austriaca*	+		+	IV	+	
6.	*Emys orbicularis*	+		+		+	
7.	*Lacerta viridis*	+					
8.	*Lacerta agilis*	+					
9.	*Natrix natrix*			+	III		
10.	*Pelobates fuscus*	+			IV	+	
11.	*Rana dalmatina*	+					
12.	*Rana ridibunda*						
13.	*Rana esculenta*						
14.	*Triturus vulgaris*						
15.	*Triturus cristatus*	+			IV	+	
16.	*Hyla arborea*	+					
17.	*Vipera berus*						

SPECIFICATIONS:
Bern Convention - Convention on the Conservation of European wildlife and natural habitats (Bern);
Bonn Convention - Convention on the conservation of migratory species of wild animals (Bonn);
CITES- Convention on international trade in endangered species of wild fauna and flora.

Specific fauna for the Cahul and Vulcanesti districts for the construction/re-construction activities of the Cahul – Vulcanești water supply will not have an important impact on the species of fauna existing in the project site.

➢ *Fish species*

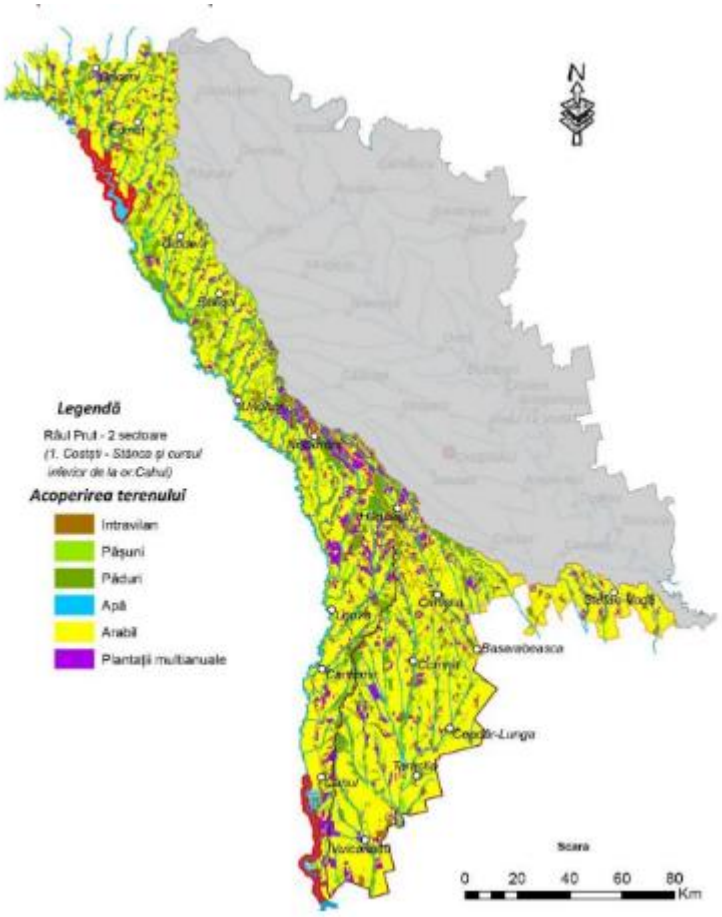
Areas with valuable fish species are identified in the Project area, in the Danube, Prut and Black Sea hydrographic basin, which are indicated on the map in fig. 5-10.

44 species of fish have been identified in the Prut River basin; the most widespread species are the following:

- Abramis brama danubii (L) - The Danube bream
- Abramis sapa (Pallas) - White-eye bream

- Acipenser ruthenus (L) – The sterlet
- Alburnus alburnus (L) - Common bleak
- Alosa caspia nordmanni (Ant.)- Small Danubian Shad
- Aristichthys nobilis (Rich.) The bighead carp
- Aspius aspius (L) - The asp
- Barbus barbus (L.) – The common barbel

Figure 6-9: Areas with valuable fish species in the Danube, Prut and Black Sea hydrographic basin



Source: Moldova: Danube-Prut&Black Sea, Full River Basin Management Plan (cycle II), 2020, https://www.euwipluseast.eu/en/component/k2/item/1334-moldova-danube-prut-black-sea-full-river-basin-management-plan-cycle-ii-2020-ro

Figure 6-10: Images of fish from the Prut River Basin area

Acipenser ruthenus (L)

Aristichthys nobilis (Rich.)

Abramis brama danubii (L)

Barbus barbus (L.)

Alosa caspia nordmanni (Ant.)

Aspius aspius (L)

Alburnus alburnus (L)

Abramis sapa (Pallas)

According to the Danube – Prut and Black Sea watershed district management Program, cycle II (2023-2028), for the protection of aquatic animal species, as part of the biological monitoring of water bodies, 68 monitoring sections (56 surveillance and 12 operational) were established in the Prut - Danube water basin[25]. Based on the results of chemical monitoring for the period 2015-2019, data are available for 23 sections.

- ***Melliferous insect's species (honey and others)***

In the RM, there is a large number of *melliferous species of insects*. Most widely spread species of pollinators in the Republic of Moldova may be seen in the **Table 6-10**.

Table 6-10: Most widely spread species of pollinators in the Republic of Moldova

Order	Family	Species	
		Scientific name	English name
Diptera	*Sarcophagidae*	*Sarcophaga carnaria*	Common flesh fly
	Caliphoridae	*Lucilia caesar*	Blow fly
	Syrphidae	*Syrphus ribesii*	Common holarctic
		Eristalis tenax	Hoverfly
		Spherophoria scripta	Long hoverfly
	Tachinidae	*Tachina fera*	Tachinaire sauvage
Hymenoptera	*Apidae*	*Apis mellifera Spp.*	European honeybee
	Andrenidae	*Andrena bucephala and other 48 Spp*	Bucephala males
	Scoliidae	*Scolia hirta*	Big-headed Mining Bee
	Formicidae	*Formica rufa*	Red wood ant

[25] Source: The Danube – Prut and Black Sea watershed district management program, cycle II (2023-2028) - https://www.legis.md/cautare/getResults?doc_id=132734&lang=ro

Order	Family	Species	
		Scientific name	English name
		Lasius niger	Common black ant
	Helicidae	*45 Spp.*	
	Vespidae	*Katamenes arbustorum*	Potter wasps
Coleoptera	*Coccinelidae*	*Coccinella septempunctata*	Seven-spot ladybird
		Adalia bipunctata	Two-spot ladybird
		Adalia quadrimaculata	Red four Spotted
		Harmonia axyridis	Harlequin
	Cantharidae	*Rhagonycha fulva*	Bloodsucker beetle
	Scarabeidae	*Cetonia aurata*	Green rose chafer

6.2.3. Species included in the Red Book

In the Republic of Moldova, 3 editions of the Red Book were published, the last one is from 2013.

The legal regulations regarding the creation and maintenance of the Red Book, the protection measures and the monitoring of the species of flora and fauna included in the RB, are established by Law on Red Book of the Republic of Moldova, No. 325/2005.

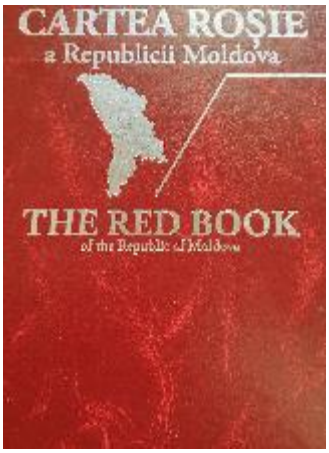
Also, the list of endangered species, included in the 3rd edition of the Red Book of the Republic of Moldova, is included in Law no. 1538/1996 on the Fund of natural areas protected by the state.

In Annex 6 of the present ESIA Report it is listed:

- IUCN Red data Book listing for RM IUCN 2012. Red List of Threatened Species of Fauna
- Fish and other aquatic species included in the Red Book and IUCN 2012 Red list
- The bats species listed in the Red Book (RB) of the Republic of Moldova (2015) with different rarity criteria.

The 3rd edition of the Red Book of the Republic of Moldova includes:

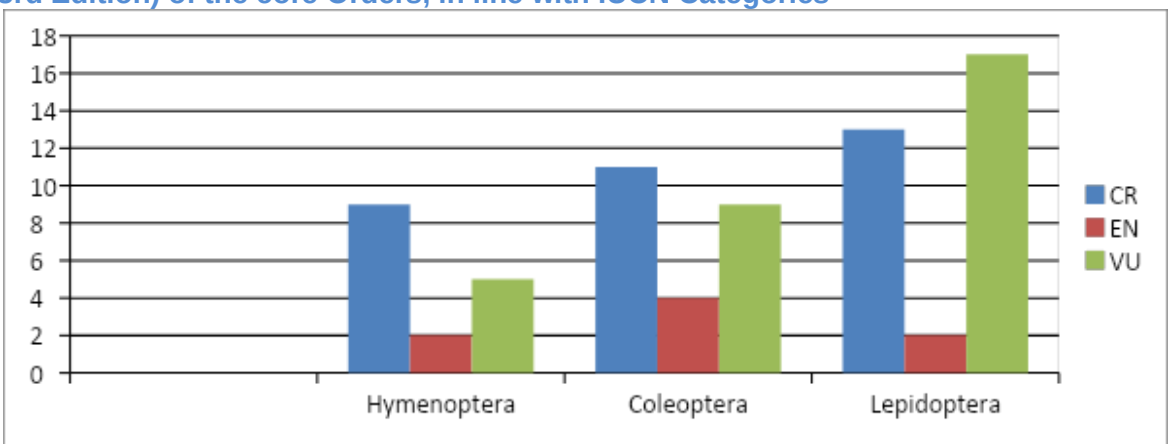
- 208 Plant species of which 150 are angiosperms,
- 219 Animal species: 30 mammals, 62 birds, 9reptilian, 23 fish, 80 insects etc.



➢ *Invertebrates and Melliferous species*

In the RM, there is a large number of *invertebrate species:* (CR), (EN) and (VU), which have been included into the 3rd Edition of the Red Book of the Republic of Moldova and are important for plants' pollination. The largest ones come from the *Apidae fam.* (13 Spp.) - *Ord. Hymenoptera; fam. Carabidae* (8 Spp.) *and fam. Cerambycidae* (6 Spp.) – *Ord. Coleoptera and fam. Nymphalidae* (8 Spp.) – *Ord. Lepidoptera.* In the diagram (**Figure 6-11**) it is well-demonstrated that the largest number of critically endangered species of invertebrates is from the *Ord. Lepidoptera.*

Figure 6-11: Distribution of pollinators' species from the Red Book of the Republic of Moldova (the 3rd Edition) of the core Orders, in line with IUCN Categories



The protection of bees and other melliferous species of insects is of great importance, according to international treaties on Biodiversity and the EU Habitats Directive.

- ***Bats species***

There are 21 species of bats in the Republic of Moldova, which belong to 2 families: Rhinolophidae and Vespertilionidae. Bats are present everywhere: in forests, gardens, caves, abandoned mines, towns, near water bodies. Due to their nocturnal lifestyle, they are discreet and almost invisible, so it is necessary to monitor the appearance of these species in the Project construction area. According to field investigations, no species of animals and plants, included in the Red Book, were identified in the project area.

The risk of the appearance of these species is minimal, especially during the construction period.

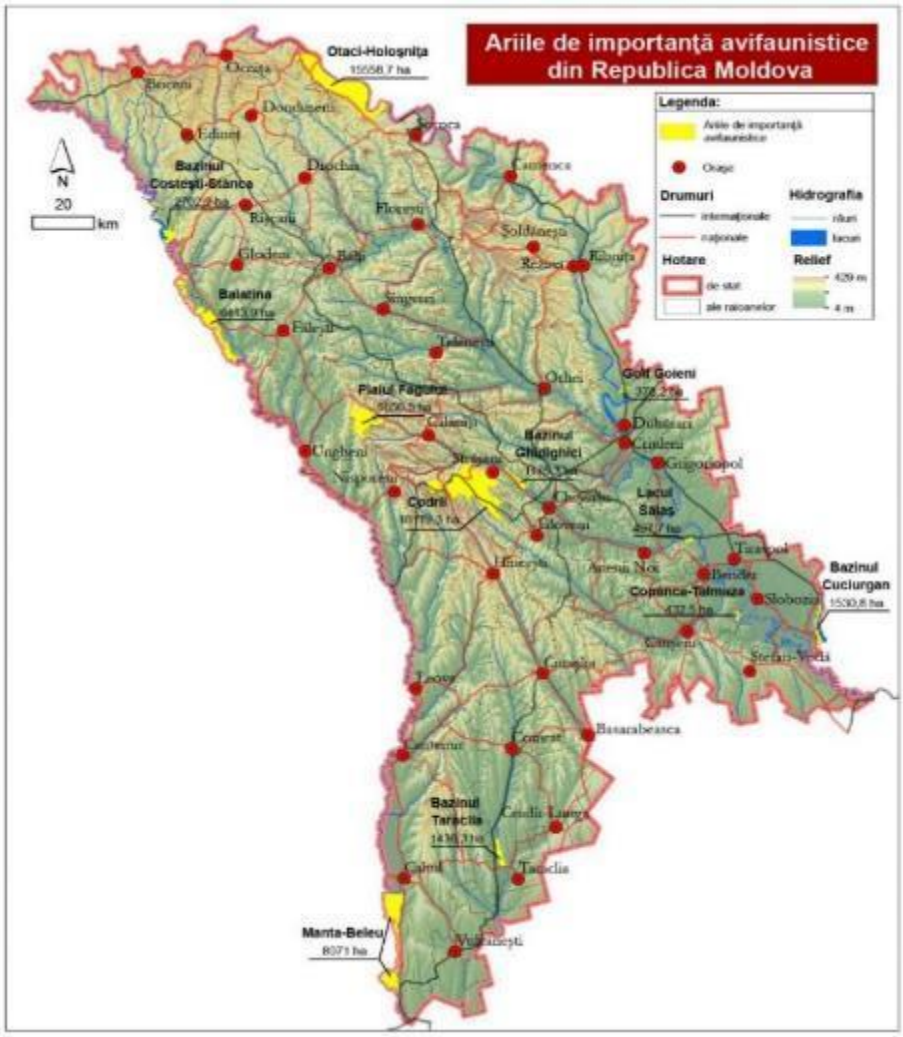
At the same time, it is a moderate risk for aquatic biological species in the area of the Prut River basin and for migratory water bird species. Monitoring is necessary for these species during construction and operation.

6.2.4. Important areas for birds

Due to geographic positioning and the presence of diverse habitats on the territory of the RM, optimal conditions area ensured for a big number of species of birds, many of them being critically endangered, endangered and vulnerable not only on the territory of the Republic of Moldova, but also at the European and world level. Moreover, many characteristic species of birds are at the limit of their areal, being much more vulnerable and endangered than other populations of these species from

the Republic of Moldova neighboring states. The Map of Important Bird Areas in the Republic of Moldova can be seen in Figure 6-12.

Figure 6-12: The Map of Important Bird Areas in RM[26]



The status of birds' species in the RM, registered at the international level in the Red List of IUCN, sets forth 3 Endangered species, 7 Vulnerable species and 5 Near Threatened species.
Table 5 from Annex 6 provides for the status of birds' species in the RM included in the IUCN List (IUCN Red list of threatened species of birds[27]), being the most endangered species at the world level.

The sector located between Cahul and Vulcanesti districts is mainly crossed by agricultural fields, vineyards, orchards, pastures and grass meadows. The zone represents the area of the following species of birds, protected by international treaties: hen harrier *(Circus cyaneus L.),* goshawk *(Accipiter gentilis L.),* sparrow hawk (*Accipiter nisus L.),* common buzzard *(Buteo buteo L.),* common kestrel *(Falco tinnunculus L.),* honey buzzard *(Pernis apivorus L.),* short-toed snake-eagle *(aboutetus*

[26] Source: Birdlife International (2017) Important Bird Areas factsheet: Taraclia Basin.
[27] www.iucnredlist.org

gallicus Gm), Montagu's harrier *(Circus pygargus L.),* lesser spotted eagle *(Aquila pomarina L.),* golden eagle *(Aquila chrysaetos L.),* lesser eagle *(Hieraaetus pennatus Gm.), Saker falcon (Falco cherrug L.).*

Republic of Moldova is crossed by three migration segments: Sarmatic, Pontic and East-Elbic, which represent the main East-European migration ways for wild birds.

In the southern part of Moldova, the three routes get intercrossed, hence being the zone registering the most intense migration in the country.

- *Migration bird`s periods***.** Some research was carried out in relation to the migration periods related to the climate conditions on the territory of the Republic of Moldova by the Ornithological Lab under the Institute of Zoology. Radio-localization of the birds was obtained with the assistance of the П-37 radar, implanted on Chisinau Airport.

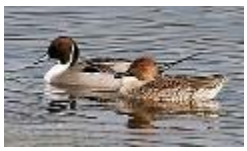
- *Spring Migration.* The spring migration activities are focused mainly during the months of March and April. The pick of migration phenomenon corresponds to some migration waves (or "ruches" of certain birds' groups). From 4 to 5 migration waves are registered.

- *Autumn Migration.* The autumn migration activities are included in the period from the end of August until the end of October – beginning of November: about 5 main migration waves are registered.

Monitoring. The responsibility for the evidence and monitoring of bird species is the competence of the Institute of Zoology, subordinated to the State University of Moldova.

The most preferred places for water migratory birds in the Project area are the Cahul lake and the Cahul river. The specific bird's species for Cahul-Vulcanesti Districts are included in the Table below.

Table 6-11: Specific birds' species for Cahul-Vulcanesti Districts

No.	Birds Species	Pictures of species	No.	Birds Species	Pictures of species
1.	*Anas acuta*		6.	*Ardea cinerea*	
2.	*Anas streptera*		7.	*Aythya nyroca*	
3.	*Anas penelope*		8.	*Larus canus*	

No.	Birds Species	Pictures of species	No.	Birds Species	Pictures of species
4.	*Anser anser*		9.	*Cygnus Cygnus*	
5.	*Anser albifrons*		10	*Cygnus olor*	

Agricultural areas, due to the fact that they have numerous plots in the fallow stage, can provide places of shelter or even feeding for species such as Anthus, Circus aeruginosus, Coracias, Crex, Lanius, but also for many other species that are components of the avicenosis trophic networks in the area. Some pass only for a short time, and others, especially winter guests, can be strongly influenced more by environmental factors.

The pictures of the birds from the Prut River - basin Cahul Lake area are presented in the Figures below.

Figure 6-13: The pictures of the birds from the Prut River basin

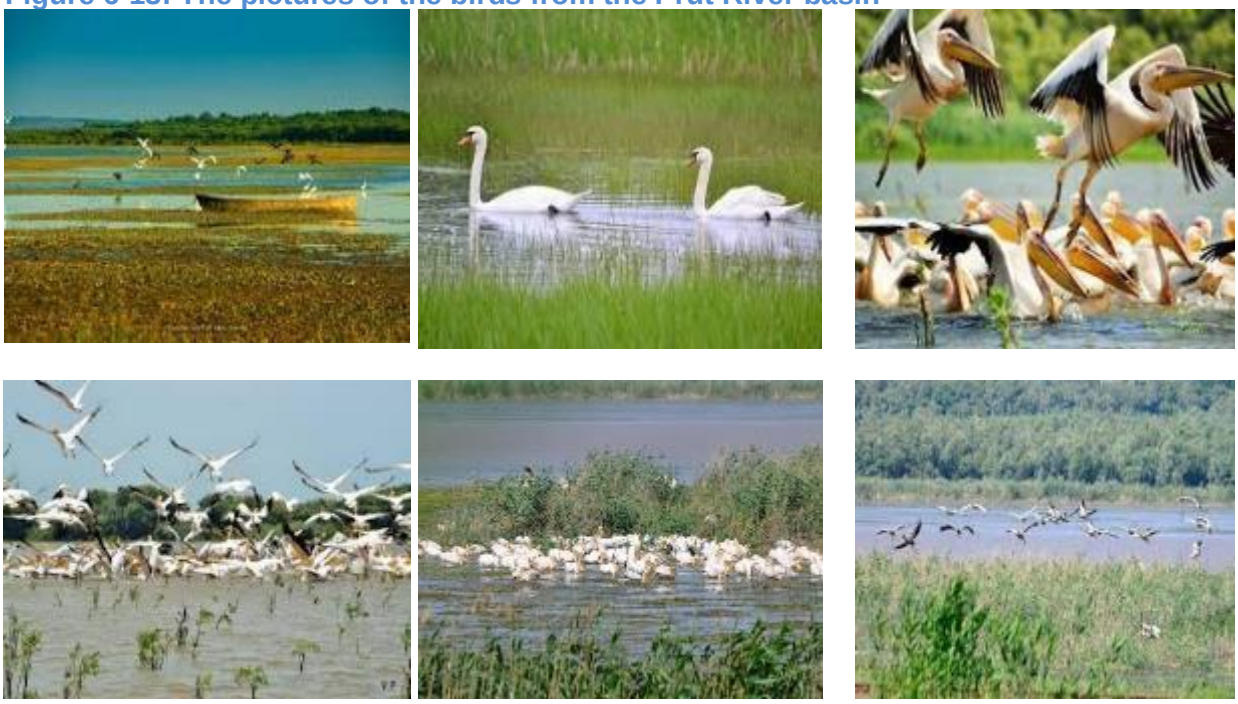
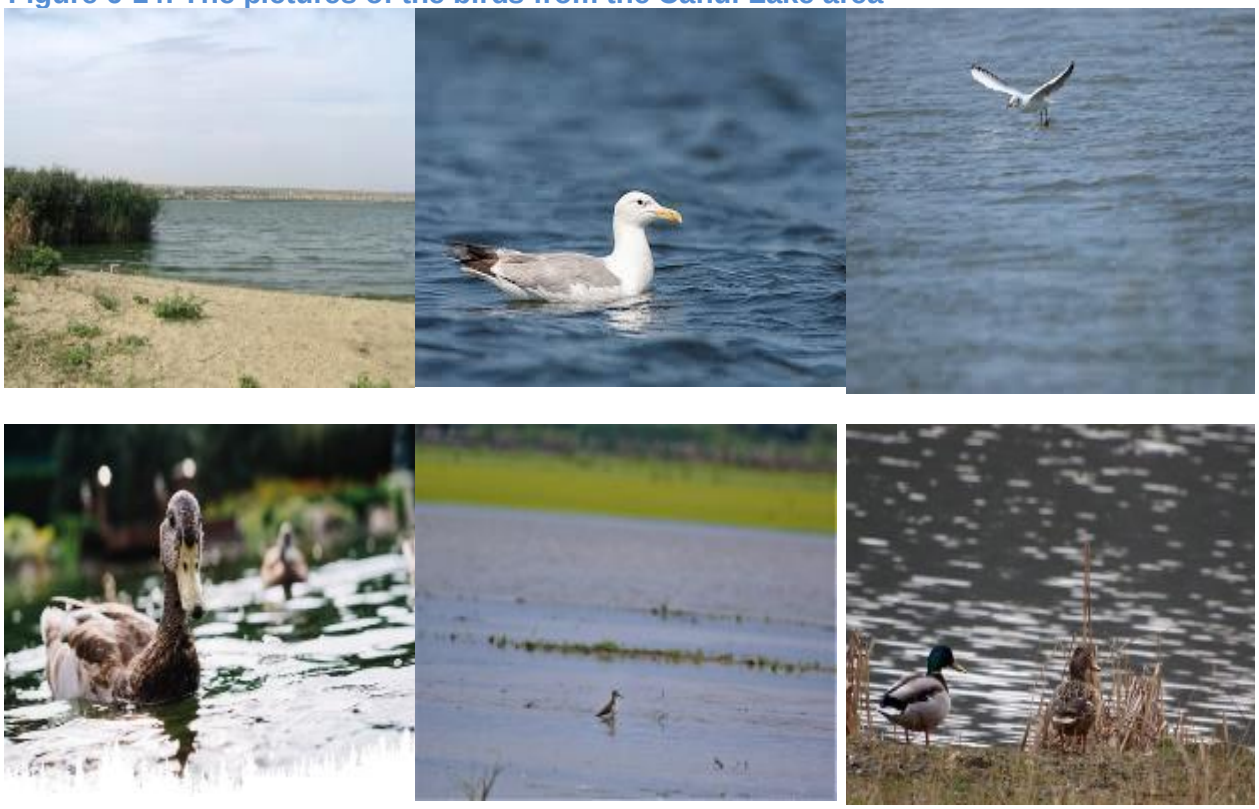


Figure 6-14: The pictures of the birds from the Cahul Lake area



The Environment Agency, as a subdivision of the Ministry of the Environment, is responsible for secure the functioning of animal kingdom, according to the provisions of the Law on Animal kingdom No. 439/1995 and Regulation of the State Cadaster of the animal kingdom, approved by Government Decision No. 1005/2004.

This Report suggests monitoring the areas with high potential risk during the construction stage of the water supply, such as: important areas for birds, including those with high population levels and increased share of migrating species, especially during migrations, such as river meadows, valleys between hills, canyons, habitats of wintering and passage species, as well as of migrating species.

6.2.5. Natural protected areas

Total surface of the natural protected areas in the RM is 189,4 thousand ha (5.64% of the country's territory) and includes 313 natural objects and complexes. The national legal framework (*Law No. 1538/1998 on Fund of natural areas protected by State*) sets forth 12 categories of SPNAs, out of which 6 categories comply with IUCN classification, 3 categories are of national, and 2 categories are of international importance (Ramsar sites and biosphere reserves). Out of the 313 SPNAs in RM, 66 are included in the IUCN Official List of protected areas. RM has 5 scientific reserves („Codrii", „Plaiul Fagului", „Padurea Domneasca", „Prutul de Jos", „Iagoric"), 1- National Park "Orhei" and 1- biosphere reserve "Prutul de Jos" (UNESCO).

To assess the potential impact on biodiversity, during the construction and operational stages, there were considered the protected natural areas already included in the national network of the Emerald Network.

In the Republic of Moldova 52 Emerald Sites and 30 Emerald Habitats have been established to protect 152 Emerald Species (Figure 6-15).

Figure 6-15: Emerald Network Protected Areas (in orange) in the Republic of Moldova[28]

The Emerald Network is a system of protected areas throughout Europe which aims to conserve wild flora, fauna, and their associated natural habitats. It was launched in 1989 by the Council of Europe as part of its work under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) that came into force on 1 June 1982.

In this regard, the Republic of Moldova partially transposes the provisions of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and species of wild fauna and flora, published in the Official Journal of the European Union L 206 of 22 July 1992 in the Law no. 94/2007 regarding the Ecological Network and will come in force from November 4, 2023.

The object of the law is the creation of a legal framework for the establishment and development of the national ecological network, as an integral part of the pan-European ecological network, and local ecological networks, for the establishment of a management and protection regime for the national ecological network and local ecological networks, such as and the powers and obligations of public administration authorities in this field.

Thus, all the nature areas protected by the state are included in the Emerald Network.

[28] Source: https://app.mapx.org/static.html?project=MX-PCT-RJS-KW6-SGU-IP1&views=MX-TV4I8-4WE5P-FEP02&storyAutoStart=false&language=en&theme=classic_dark

The protected natural areas, which are at the closest distance to the Project area, were evaluated. The characterization of more important protected areas near the Project area is included in the **Table 6-12**.

Table 6-12: The characterization of more important protected areas near the Project area

LPA (district, TAU)	Category of protected area[29]	Name of protected area/ for SPNA – no. of annex from Law No.1538/1998	Place where it is located / including the location in the forest fund	The surface of the protected object	Distance from Project Area (km)	Possible impact
Cahul	Geological monument of nature	The fossil site near– village of Pelinei - Annex 3 of Law no. 1538/ 1998	Near the village of Pelinei, the forestry bypass of Pelinei-IV, plot 11 of the SE "Silva-Sud, Cahul"	5,0	2-3	There is no potential negative impact.
Cahul	Geological monument of nature	Fossil site near - Moscovei village – Annex 3 of Law no. 1538/ 1998	Located: between villages Moscovei and Dermengi, Moscovei forestry body, FF- parcel 18, sub-parcels 2, 3	10,00	15,05	There is no potential negative impact.
ATU Gagauzia Vulcanesti	Geological monument of nature	Ripa Cismichioi, – Annex 3 of Law no. 1538/ 1998	Located: Near village Cişmichioi, on the left side of the Cahul lake	3,0	20,2	There is no potential negative impact.

- ***Monument of natural geological section Fossil site near Pelinei village***

The Monument of natural geological section is located between village Pelinei and is managed by the forestry bypass of Pelinei-IV, plot 11 of the SE "Silva-Sud, Cahul". It has an area of 0,5 ha.

The main values of the protected area are unique faunal discoveries of specific and very interesting representatives of the Moldovian Complex from the Lower Pliocene, among which the skeleton of the limbs of the camel Paracamelus alexeevi, the skull of the wild boar Propotamochoerus provincialis, the masses of the mastodon Anancus arvernensis, of the rhinoceros Stephanorhinus megarhinus, of real horse, the genus Equus, etc., which is of particular scientific and cognitive interest. Also recorded were Testudo sp., Pliolagomis gigas, Proochotona exemia, Vulpes sp., Paracamelus alexejevi, Equus sp., Procapreolus sp., Cervus ramosus.

[29] ***Legend**: **MNGP**: Geological and paleontological monuments of nature; **RNS**: Nature Forest reserves; **MNBSRVS**: Natural monuments biological sectors with forest vegetation representative; **AMMSRVS**: Areas with multifunctional management representative sectors steppe; **RP**: Landscape reserves; **GZ**: Zoological Garden; **GB**: Botanical Garden*

The territory of the protected area is covered with acacia forest plantations and mixed forest (**Figure 6-16**).

Figure 6-16: The general view of the protected area - Fossil site near Pelinei village

- **Monument of nature geological section - Fossil site near Moscovei village**

The Monument of nature geological section is located between villages Moscovei and Dermengi, managed by Moscovei forestry body, FF- parcel 18, sub-parcels 2, 3. It has an area of 10 ha.

The main values of the area are the Pliocene alluvial deposits containing important fossils of some characteristic and significant representatives of the Moldovian Faunal Complex (Lower Pliocene), among which the rabbit Alilepus lascarevi, Ochotona antiqua, the orb Nannospalax macoveii, the rodent Pliomys kowalski, the flying squirrel Pliopentaurista moldaviensis (the second discovery in the Republic of Moldova of this new species for science) etc.

Fossil animals highlighted in the protected area: *Reptilia*: Testudo sp., Clemmys sp.; Mammalia: Lagomorpha: Alilepus cf. lascarevi (Khomenko, 1914), Ochotona antiqua Pidoplitshko, 1930, Ochotonidae indet.; *Rodentia*: Castoridae indet., Dipodidae indet., Nannospalax macoveii Simionescu, 1930, Cricetus sp., Pliomys kowalskii Schewtschenko, 1965, Pliopentaurista moldavicus Baranova et Konkova, 1964; *Carnivora*: Martes sp.; Artiodactyla: Paracamelus alexejevi Havesson, 1950, Cervus sp., Gazela sp.In the adjacent area there are no constructions, industrial objects, but there are forest plantations of acacia and mixed forest (**Figure 6-17**).

Figure 6-17: The general view of the protected area - Fossil site near Moscovei village

- **Monument of nature geological section Rîpa Cismichioi**

Rapa Cismichioi is a natural monument of geological or paleontological type in Vulcanesti district. It is located in the eastern part of the village of Cismichioi. It has an area of 3 ha. The outcrop consists of a ridge with several branches. The most developed and valuable deposits are the alluvium of the eighth terrace of the Prut River, which consist of 2 layers (packages) of the same geological age, each being composed of sand at the top, and gravel mixed with sand at the base.

As a result of the laboratory research of the bones collected in the alluvial deposits of the Cismichioi turnip outcrop, a faunal association composed of over 50 species of terrestrial vertebrates - reptiles, birds and mammals - was established. The most numerous and varied are the micromammals - about 20 species. The reptiles are represented by 12 species, including the turtle Emys antiqua, the lizards Lacerta agilis, Pseudopus pannonicus, etc., the snakes Coluber gemonensis, Coronela austriaca, Natrix longivertebrata, Vipera ammodytes, etc. Among the birds, we mention two new species for science - Gallus moldaviensis and Anas ganii. Among the macromammals, the elephant Archidiskodon tamanensis (early form), the horse Equus (Allohippus) aff. sussenbornensis, the rhinoceros Stephaorhinus etruscus, the elk Cervalces galicus, the bison Bison cf. tamanensis etc.

The given fauna is of particular scientific interest, being highlighted in a special Cismichioi subcomplex of the Tamanian Faunal Complex (**Figure 6-18**).

Figure 6-18: The general view of the protected area geological section of the Rapa Cismichioi

Due to the large distance from the natural areas to the Project area, no impact on their ecosystems is expected. Animal migration routes may be slightly disturbed, especially during the construction period.

6.3. Socio-cultural environment

6.3.1. Demographic characteristics of the population

From a geographical position, Cahul rayon is located in the south-western part of Republic of Moldova, on the left bank of the Prut River, with an area of 1,545 km² and a present population of 113,332 inhabitants, that includes the migrants that were abroad not more than 12 months (as of January 1, 2022).

The administrative structure of Cahul district in 2022 includes a network comprising 55 localities organized into 37 first-level administrative territorial units. Cahul district, like most second-level administrative-territorial units, is facing the phenomenon of population decline. Thus, at the beginning of the year 2014, the population with usual residence in the district was 97,961 people, and by the beginning of 2022, it had decreased to 82,867, indicating a decline of 15%, the latest number are the inhabitants that actually, de facto, permanently reside in the district (the difference between 113,332 and 82,867 is the number of migrants that are not included in the number). The population decline is more pronounced in rural areas, both due to a negative natural growth rate and migrational outflows[30].

In terms of gender distribution, the percentage of women is slightly lower than that of men, specifically 47.4% compared to 52.6%. It's noteworthy that in the period from 2015 to 2020, the natural population growth was generally negative, changing from +27 in 2015 to -374 in 2021.

[30] Source: https://cahul.md/wp-content/uploads/2023/02/3.-Strategia-DSE_Cahul_2023-2030.pdf

Data regarding the number of citizens that live at the moment in the beneficiary localities were collected from the local public administrations during October 2023.

Table 6-13: Number of the population from the project localities

Settlement	Total population	Women	Men
Vulcanesti	15213	8157	7056
Vulcanesti Railway Station Zone	234 people	130	104
Pelinei (including Satuc)	2187/de facto 2163 people	970	1193
Gavanoasa	2405/de facto 2109	1076	1033
Alexanderfeld	1316 people	694	622
A.I. Cuza	2468 people	1280	1188

Source: Local Mayoralties

In the process of obtaining the final data from mayoralties and family doctors' offices, we obtained different statistics that are due to the fact that more people in the localities have residence, but *de facto* fewer live there, possibly due to migration abroad as well. That is why in the section 'total population' of the locality we have mentioned two final numbers.

All the localities included in the project over the past three years have registered a negative trend in birth rate, except the year of 2021, when a positive trend was registered in Vulcanesti city.

Table 6-14: Birth and death rates in the localities included in the project area

Settlement	2023		2022		2021	
	Born	Deceased	Born	Deceased	Born	Deceased
Vulcanesti	167	196	140	178	**195**	**186**
Pelinei	7	15	13	32	20	25
Gavanoasa	16	17	15	27	19	32
Alexanderfeld	10	11	10	19	8	19
A.I. Cuza	14	27	21	37	16	26

Source: Local mayoralty

6.3.2. Ethnic structure, minorities

The ethnic structure of the population of Cahul rayon, according to the 2014 Population and Housing Census, is as follows: 71.3% - Moldovans; 11.6% - Romanians; 4.9% - Ukrainians; 4.6% - Bulgarians; 4.1% - Russians; 2.7% - Gagauz; 0.8% - Roma and 0.6% - Other ethnic groups.We note that Pelinei and Alexandru Ioan Cuza localities have mono-ethnic structure; in Alexanderfeld locality, basically 50% of the population is made up of ethnic minorities and in Gavanoasa 40% of the population are Ukrainians and Gagauzians and almost 1% are Roma people. The town of Vulcanesti is mostly inhabited by ethnic Gagauz and other ethnicities and only 11% of the city's population are Moldovans.

Table 6-15: Ethnic structure of the project settlements

Settlement	Nationality	Number of people	Total percentage
Vulcanesti	**Gagauzians**	11234	73.8%
	Moldovans	1709	11.2%
	Bulgarians	604	4.0%
	Russians	985	6.5%
	Ukrainians	600	3.9%
	Other nationalities	81	0.5%
Pelinei	**Moldovans**	2163	100%
A.I. Cuza	**Moldovans**	2468	100%
Alexanderfeld	**Moldovans**	657	49.9%
	Ukrainians	209	15.9%
	Gagauzians	107	8.1%
	Russians	186	14.1%
	Bulgarians	118	9%
	Other	39	3%
Gavanoasa	**Moldovans**	1267	60.1%
	Ukrainians	458	21.7%
	Russians	35	1.7%
	Gagauzians	288	13.7%
	Bulgarians	38	1.8%
	Roma	16	0.8%
	Other	7	0.3%

Source: local mayoralty

6.3.3. Economic activities and population's income

According to the data available on the site of the National Bureau of Statistics, the average monthly gross salary in 2022 was MDL 8725.7 in Cahul and MDL 7714.0 in TAU Gagauzia. The lowest salary was registered in agriculture and the highest salary was registered in public administration. More details about the salary per economic sector are provided in the table below.

Table 6-16: Average monthly gross salary by economic activity for 2022, MDL

	All industries	Agriculture	Industry &construction	Public administration, social insurance	Education	Other activities and services
Cahul	8725.7	6753.3	9262.4	10091.9	7877.5	9114.3
UTAG	7714.0	6177.7	8661.0	9803.2	7526.2	7330.6

Source: National Bureau of Statistics

Data from the below table indicate on the fact that in 2022 were employed 18600 persons from the Cahul rayon and 28600 from TAU Gagauzia. Both in Cahul and in TAU Gagauzia approximately 40% of the inhabitants are employed in other activities, and a good part of them would be employed in the services sectors.

Table 6-17: Number of employees in Cahul district and UTAG region in thousand people and percent, Economic activities for 2022

	Cahul		UTAG	
Economic activities – total	18,6	100%	28.6	100%
Agriculture, forestry and fishing	2,3	12.4%	3.8	13.3%
Industry and construction	3,4	18.3%	6.1	21.3%
Public administration and defense; compulsory social insurance	1,6	8.6%	1.8	6.3%
Education	3,6	19.4%	5.6	19.6%
Other activities	7,8	41.9%	11.4	39.9%

Source: NBS, statbank.statistica.md

Households' income: An analysis of the interview feedback identified that the income of the households of local residents comes from salaries, pensions, agriculture and trade activity.

Older people are a category that traditionally has a high degree of vulnerability, the main source of vulnerability being the mismatch between the cost of living and the size of social protection payments. On January 1, 2023, the average size of the pension in Moldova was MDL 3164.93 (USD178), a little bit above the minimum existence (MDL 2867.4 – USD 161.24).

The average pension size for age limit in Cahul rayon in 2023 was MDL 2,817.49 (USD 158) and consequently a little lower in UTAG MDL 2784,13 (USD 156). If comparing the pensions by genders in Cahul and UTAG men receive almost the same amount of money (MDL 3018.80 – USD 170 Cahul, and MDL 3044.02 –USD 171) women in Cahul receive more than UTAG (MDL 2722.92- USD 153 Cahul and MDL 2661.17- USD 150 in UTAG).

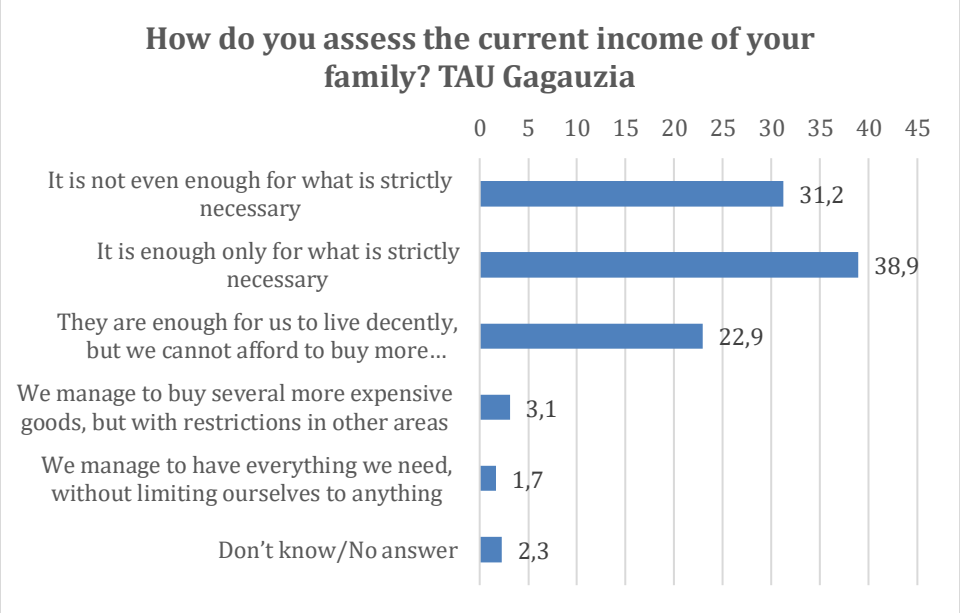
Level of poverty and vulnerable people. *Employment, income distribution and poverty*

According to the Strategy of Socio-Economic Development of Cahul rayon 2023-2030 (pg.64, point 1.6.3. Labor force) in 2021, the labor cost in Cahul rayon was slightly above the average for the South Region and was MDL 7,424.1 (USD 418) /month, ranking 1st out of 8 in the region, and 4th out of 35 in the Republic of Moldova, the top places being Chisinau, Balti municipalities and Orhei rayon. In 2021, the average salary in Cahul was about MDL 7500 /month (USD 422) or about 83% of the average national average. Moreover, in the private sector the cost of unskilled and low-skilled labor is about MDL 3000/month (USD 170) - for permanent positions and about MDL 200-250 /day (about USD11-14) for seasonal and casual positions. According to the data provided by the National Bureau of Statistics, the average salary in Cahul district for the second quarter of 2023 is MDL 9,632.6 (USD 540), while in the TAU Gagauzia region, of which Vulcanesti is a part, the salary is MDL 8,236.5 (USD 460). There is no data about the quarterly average monthly salary by gender, in territorial profile but for throughout the country the average salary in 2022 for men was MDL 11,380 (USD 640) and MDL 9,618 (USD 540) for women. The NBS does not provide exhaustive data about the population's

income, we consulted the sociological research that are regularly carried out all around Moldova, namely the Public Opinion Barometer.[31]

We note that differences between those two regions is insignificant . For the option *It is not enough for what is strictly necessary* in rayon Cahul the weight is with 2% higher than in TAU Gagauzia. In the same time, we see that for the option" It *is enough for us to live decently, but we cannot afford to buy more expensive things*", in TAU Gagauzia the weight is with 5.6% higher than Cahul. For the other options from these questions are not recorded significant differences, but we can assume that the weight of those that manage to have everything they need in the household is higher in Cahul than in TAU Gagauzia.

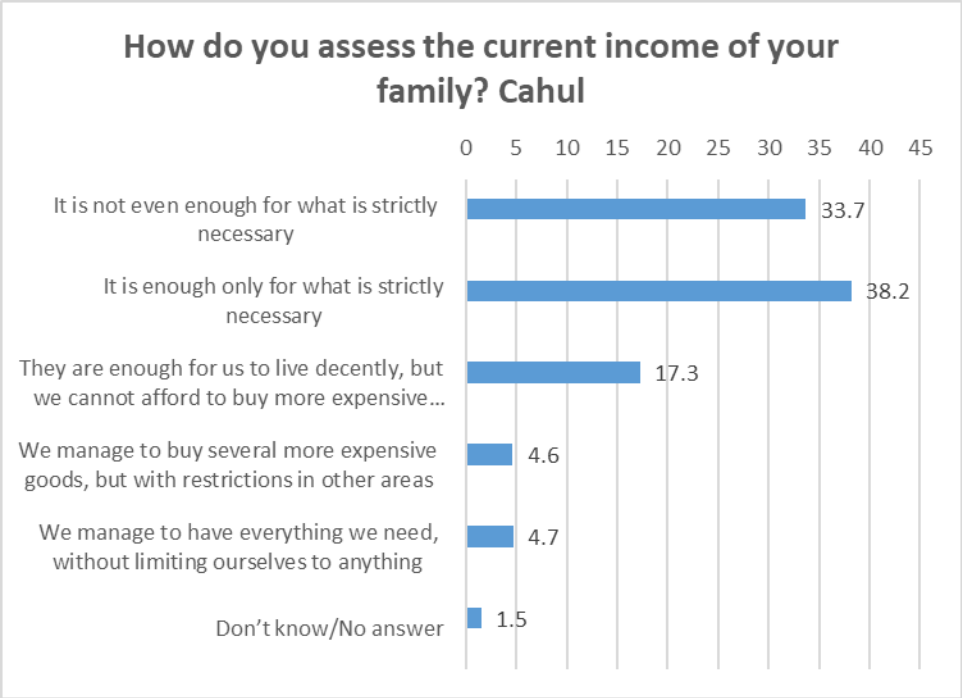
Figure 6-19: How do you assess the current income of your family? TAU Gagauzia



Source: Public Opinion Barometer https://ipp.md/2023-09/barometrul-opiniei-publice-septembrie-2023/

[31] The research developed in August 2023 by the Centre for Social Studies and Marketing 'CBS-Research'. national sample of 1215 respondents.

Figure 6-20: How do you assess the current income of your family? Cahul rayon



Source: Public Opinion Barometer https://ipp.md/2023-09/barometrul-opiniei-publice-septembrie-2023/

A significant part from the citizens that live in the beneficiary settlements of the project are also people from social-vulnerable groups. A description of the situation from each locality is included in the table below.

Table 6-18: Number of vulnerable families and inhabitants for each settlement

	Vulcanesti	Gavanoasa	Alexanderfeld	A.I. Cuza	Pelinei
Single parents	78 families	2 families	11 families	32 families	14 families
Families with three and more children	174 families	15 families	14 families	53 families	30 families
Retired	3759 inhabitants	445 inhabitants	240 inhabitants	320 inhabitants	420 inhabitants
Persons with disabilities	804 inhabitants	64 inhabitants	81 inhabitants	130 inhabitants	101 inhabitants
Beneficiaries of social aid	841 inhabitants	10 inhabitants	80 inhabitants	28 inhabitants	12 inhabitants

Source: LPAs

Over the past 5 years, domestic violence and gender-based violence victims were registered in the following localities:

Table 6-19: Number of gender-based violence cases and percentages per each settlement

	Vulcanesti	Gavanoasa	Alexanderfeld	A.I.Cuza	Pelinei
Nr of cases	230	20	2	8	3
% of cases	1.51%	0.95%	0.15%	0.32%	0.14%

Source: Local police from the settlement

According to the opinion of the head of the police from Gavanoasa village there is a constant work of the local police with the agressors, after it is recorded one case of gender-based violence the agressor has to attend courses in Cahul rayonal center with the psychologist and this usually helps, because the second time cases are not recorded.

The most vulnerable categories of Gavanoasa, especially those residing on sides of the hill if they borrow buckets of water from their neighbors, they usually pay for the electricity bill for pumping that water from the well. Some of the day labourers confessed during the interview with the sociologist that they purchase in advance 2-3 water car tanks from their employer and then the management deducts from their final paycheck the water purchased by them. Most of the time the money for water is reaching a third of their salary.

The phenomenon of purchasing water is present also in Pelinei village, although not so often. Some people purchase water from a farmer who has a well that has more water. The private local wells usually reach for only one bucket of water at 23 m deep from ground.

The construction of water supply network in Pelinei commune (and Satuc village), Gavanoasa commune (with Vladimirovca and Nicolaevca villages), Vulcanesti Railway Station Zone and the installation of the disinfection station in Alexanderfeld village and of the water adduction pipe in A.I. Cuza will dramatically improve the quality of living conditions of local population, their health status and will decrease the water loses in Cahul district and Vulcanesti.

6.3.4. Migration pattern

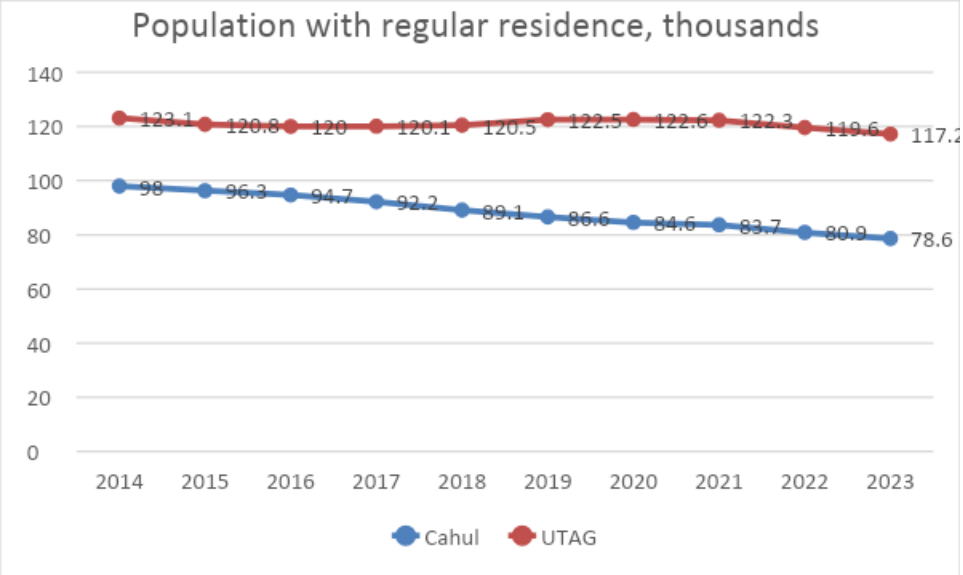
In the last 30 years, Moldova has experienced massive emigration flows, affecting up to 25% of its total population. This has had significant implications for the structure of the population (the population is shrinking and ageing) and is a clear case of brain drain. In 2020, Moldova had over 1.15 million international migrants from a population of just over 4 million people, accounting for 28.7% of the total population.[32]

The migration has caused a decrease in the population of Cahul district in recent years. This has contributed to a reduction in the number of people able to work. In particular, there is a noticeable reduction in the quantity and quality of the labor force, with a negative impact on the prospects for sustainable economic growth in the rayon. In the absence of attractive employment opportunities, labor migration plays a significant role in developments in the labor market, involving both internal and external migration flows.

Consulting the available data from NBS, we wished to show how did the number of the population from Cahul rayon and the autonomous region of UTAG evolved in the last decade. We observe in the below figure that the number of the population decreases faster in Cahul in comparison with Gagauzia. One explanation of this phenomenon is that most of the population from Gagauzia have worked in Russia and Turkey countries and many of them have returned due to Covid-19 pandemics and due to the the devaluation of the turkish lira and russian ruble. Many of these migrants have left for EU countries instead.

[32] UN DESA, Perspectives regarding world population 2020

Figure 6-21: Population with regular residence for Cahul and UTAG, thousands



Source: National Bureau of Statistics,2023

Migration continues to affect the local population from rural localities from all over the country not only those from Cahul rayon and UTA Gagauzia.

Vulcanesti town. In 2023, about 3,461 persons are abroad, mainly in Russia, Turkey and EU countries. Currently 129 households are uninhabited.

Alexanderfeld village: 421 persons from this village left to countries like Russia, Turkey, Belgium, Poland, Italy, Germany, United Kingdom, USA and about 85 households are uninhabited.

Gavanoasa where are included the villages **Vladimirovca** and **Nicolaevca** - about 75 seasonal migrants work in countries like Germany, France, United Kingdom, Italy, Turkey and Russian Federation. Currently, 25 households in the commune are uninhabited.

Pelinei - although the Mayoralty does not have administrative data on the number of migrants, their increase is felt in the lack of labour force and in the decrease in the number of children in the kindergarten and school. According to the data provided by Pelinei Mayoralty, about 30% of the population left abroad, that is, 665 inhabitants and currently, 104 households are uninhabited; just as in other localities, migrants choose EU and the Russian Federation and destination countries. The key factors that determine the internal and external migration of working age people in Pelinei commune are the lack of well-paid jobs and the quality of living conditions. At the moment in the locality are 104 abandoned houses.

Unfortunately, LPAs do not have information on where the money earned abroad is invested, but we can assume that the remittances were invested in the current consumption of the families, repair of houses, purchase of buildings.

Table 6-20: Number of habitable and uninhabited household per each locality

A.I. Cuza	Alexanderfeld	Pelinei	Gavanoasa	Vulcanesti
746 habitable, 78 **uninhabited**	512 habitable households, 23 **uninhabited**	766 habitable households, 104 **uninhabited** (98 – Pelinei, 6 - Satuc)	800 habitable households, 25 **uninhabited**	5604 habitable households, 129 **uninhabited**

Source: Local public administration

The main causes of mortality and morbidity in the pilot localities are cardiovascular and oncologic diseases. Gastroduodenal diseases persist in the locality of Gavanoasa, in Alexanderfeld, during the last year, the death of a man caused by digestive diseases was registered.

Following the in-depth interviews carried out in Pelinei and Gavanoasa localities with the head doctor of the local Family Doctors' Center, we found out the following:

In **Pelinei**, during the past year, 20 cases of diarrhoea have been recorded, mainly in children, and there are no registered cases of Hepatitis A, but only 20 chronic patients with Hepatitis B, C and D. No cases of dysentery have been recorded over the past 4 years. Also, there is no pregnant woman recorded and only 4 children were born over the past year. The latest chemical analysis of the wells in the locality showed that 6 out of 7 wells did not have good drinking water and 1 was closed because the water could not be used for animals either. Currently, most people in the locality have their own wells in the yard, but they are not being disinfected.

In **Gavanoasa**, the head doctor of the Family Doctors' Center, told us that during 2023, there were registered: 3 cases of indeterminate enterocolitis, 16 cases of Hepatitis B, 2 cases of Hepatitis D, 4 cases of Hepatitis C and no case of Hepatitis A.

In **Vulcanesti**, the District Center of Preventive Medicine reported us that there are 27 cases of undetermined acute intestinal infections and 3 cases of determined acute intestinal infections. No cases of hepatitis or dysentery have been registered for more than 15 years.

6.3.5. Education and literacy

Within the sub-project settlements there are 11 kindergartens where 1168 children attend and 7 schools (3 high schools and 4 gymnasiums) where 2404 students are enrolled. Except educational institutions from Vulcanesti that are connected to the water supply system, the rest of the institutions are connected to regular wells (Gavanoasa) and artesian wells which were specially built for the public institutions (Pelinei) or artesians of the settlement (Alexanderfeld, A. I. Cuza). All educational institutions have inside toilets.

From the total number of pupils enrolled in the general education institutions from Vulcanesti (849 girls and 868 boys) for about 27% from the pupils are from socially vulnerable families, in great extent these are from monoparental families (13%), or families where one or both parents are working abroad (14%) (see Table 2 in the Annex 7).

In the area of Railway Zone of Vulcanesti town it operates one kindergarten where only 7 children are cared, 3 of them are from the same family. The small building of the kindergarten is heated with wood and coal, and the food is prepared using a gasoline vessel that is supplied from regular gas stations. The institution is not connected to the gas system. Currently, the local council discussed of closing the institution due to the lack of necessary number of children and high expenses, but a final decision has not been taken, due to the lack of alternatives.

At the moment in the pre-school institutions from Vulcanesti attend 705 children (343 girls and 362 boys) from which 74% are ethnic Gagauz children, and 13% - Moldovans, the rest are of Russian and Ukrainian ethnicity. From the total number of children only 5% are from social-vulnerable families, and 9% have a parent or both parents working abroad. (see Table 3 in the Annex 7)

In the premises of the school-kindergarten building from Gavanoasa all floors have inside toilets (7 toilets inside the kindergarten and 11 inside the gymnasium). The water necessary for hygiene is pumped from 2 regular wells that were specially built for ensuring the good functioning of these public institutions (1 well was built 6 years ago for the kindergarten, because the other regular well was not enough for the water supply). The principal of the institution believes that once the institutions would be connected to the water supply network that would mean that they would always have the necessary volumes of water.

The kindergarten from Gavanoasa is attended by 62 children (32 girls and 30 boys) from which 30 are children from Nicolaevca and Vladimirovca villages. From the total number of children for about half are from socially vulnerable families and 27% have a parent or both parents working abroad (see Table 4 in the Annex 7).

From the total number of students enrolled currently in the secondary school from Gavanoasa (77 girls and 67 boys) for about 27% from the pupils are from vulnerable social families and 46% from pupils have a parent or both parents working abroad (see Table 5 in the Annex 7).

Also, in Pelinei all the public institutions like gymnasium, kindergarten, mayoralty, local church, center of family doctors and other 22 private households are supplied with water from an artesian well.

From the total number of pupils enrolled in the gymnasium from Pelinei (81 girls and 96 boys) for about 18% from the students are from vulnerable social families and 25% from students have a parent or both parents working abroad (see Table 7 in the Annex 7).

From the total number of students enrolled in the gymnasium „S. Esenin" from Alexanderfeld (51 girls and 45 boys) for about 36% from the students are from socially vulnerable families and 15% of the students have one parent or both parents left abroad. According to the distribution depending on the nationality of the students a higher weight has Moldovan students - 54% (see Table 8 in the Annex 7).

The pre-school institution „Beriozka" from Alexanderfeld is attended by 49 children (17 girls and 32 boys). From the total number of children for about 61% are from socially vulnerable groups and 65% are Moldovan children (see Table 9 in the Annex 7).

In Alexandru Ioan Cuza settlement 2 pre-school institutions are working, overall attended by 114 children (68 girls and 46 boys). From the total number of children about 22% are from social-vulnerable families and 23% of the children have one parent or both parents abroad (see Table 10 in the Annex 7).

From the total number of students enrolled in the high school from Alexandru Ioan Cuza (131 girls and 139 boys), about 54% from the students (87 girls and 60 boys) are from social-vulnerable families, and 31% of the students have one parent or both parents abroad (see Table 11 in the Annex 7).

6.3.6. Status of land resources

According to the Socio-Economic Development Strategy of Cahul rayon, **74.9% of the total area of Cahul district is occupied by agricultural land**, while 25.1% is designated as non-agricultural land. In a more detailed analysis of land use at the level of districts in the Southern Region, despite Cahul district having the largest area in terms of agricultural land, it ranks 6th out of 8 with a proportion of 74.9%.

The majority of people from Alexanderfeld, Gavanoasa, A.I Cuza, although there is recorded a high number of owners of land parcels, the majority of them (90%) are subleasing the land to farmers' associations leaders and farms, that reward the landowners with agricultural products at the end of the harvest season. In Gavanoasa and A.I. Cuza the main companies are cultivating grapes that are afterwards collected and sold to the winemaking companies from the region.

Table 6-21: Distribution of land parcels among the project localities

	Vulcanesti	Gavanoasa	Alexanderfeld	A.I. Cuza	Pelinei
Owners of land parcels	2475 people	407 people	620 people	665 people	745 people
Farmers' association leaders	52 people	-	4 people	-	-
Farms	-	35 farms	17 farms, where 85 people work (cereal products)	18 farms	221 farms + 1 agricultural cooperative

Source: Local public administration

The land fund of Vulcanesti is 15260 ha, of which the largest part - 12645 ha or 82.9% are agricultural land. Vulcanești town stands out significantly from other urban localities in the Republic due to its large area and the notably high proportion of agricultural lands. The town has 2 parks with a total area of 3.8 hectares. The surface area of protective strips around the city is 275.4 hectares.[33]

[33] V.Ionita, I. Munteanu, I. Beregoi "Ghidul oraselor din Republica Moldova".

6.3.7. Public infrastructure and local businesses

In the localities included in the sub-project there are several public institutions, and they are described below in the **Table 6-22**.

Table 6-22: Settlements and community structures

	Alexanderfeld	Gavanoasa	A.I. Cuza	Pelinei	Vulcanesti
Secondary school	1	1 secondary school – kidergarten	1 high school	1	2 high schools + 1 secondary school + 1 VS
Kindergarten	1		2	1	6
House of Culture	1	1	1	1	2
Local library	1	1	1	1	1
Family Doctors Office	1	1	1	1	1 + 1 hospital
Post office	1	1	1	1	1
Museum	1 in process	1 in process	1	1 in process	1
Asylum for elderly people	-	-	1		1

All the settlements included in this project have public parks: Gavanoasa, A.I. Cuza and Pelinei communes have one park each, while Vulcanesti town and Alexanderfeld 2 (total area of 3,8 ha) and respectively 3 parks. A music school, a vocational school, a sports school, a fine arts school, a house of creation, the Centre of Young Technicians and the Rehabilitation Centre for Children at Risk 'M.A. Sabunina' operate in Vulcanesti town. The town is connected to other localities through the railway and the main highway that passes through it. In 2023 the construction of a 8km ring road has started that will go around the city of Vulcanesti. The project includes construction works for embankments, sidewalks, the building of a bridge and an agricultural vehicle passage, as well as sewage and drainage systems. Likewise, at the entrance to the town of Vulcanesti rises the most beautiful monument in the locality, erected in honor of the Battle of Cahul in 1870, when the Russian army defeated the Turkish one. Presently, the monument is a symbol of the town of Vulcanesti.

In the village of Pelinei, a village museum is being set up, which is a project financed by European funds; a creative workshop where children and young people practice handicraft activities, are involved in volunteering and learn various aspects of personal development operates in the secondary school.

In the village of A. I. Cuza there are companies that cultivate vines and plantations because this locality is in the southern area of Moldova, which is famous for the unique taste of the wine produced here. This is why enterprises such as 'Domeniile Cuza' (established in 2021) and Bostavan SRL, which bought vineyards, activate here. Also, thanks to the fact that Bostavan is a powerful brand on the local market, it was allowed officially by the LPAs to use the name Cuza for the production of wines and divines.

In the village A.I. Cuza there aren't any small businesses that require a good quality water needed for production activities or employees needs. Although there are businesses that have juridical address in the village, their production zone is concentrated in the neighboring village – Etulia. The only place where the farmers need water is irrigating the vineyards, but for that needs to be rehabilitated the irrigating system, a reform promised by the current minister of agriculture.

In the village of Alexanderfeld there is an enterprise that has four main directions of activity:

- ✓ production of seeds like peas, corn, sunflower;
- ✓ local bakery that produces bread for the village of Alexanderfeld;
- ✓ local electric mill that produces flour;
- ✓ local cow farm (of 160-200 cows) that produces milk which is afterwards sold to the biggest milk processing enterprise JLC.

The last three points require good quality water to be used, especially for producing flour and baking bread. At the moment the owner is partly using the technical water provided by the village artesian wells and also, he is buying drinking water for his home consumption. According to the owner, all water that comes from the three functional artesian wells is technical, therefore cannot be used for preparing food or drinking by the local population. Unfortunately, due to the lack of alternatives, the locals are drinking this type of water.

Vulcanesti Railway Station Zone

Zone characteristics. The Railway Station is operational; freight trains run in order to transport raw materials to the Free Economic Zone, which is located nearby and to the Giurgiulesti port. The zone has a railway station and a free economic zone. It is a 100% illuminated and is located 6 km from Vulcanesti town. Waste collection bins have been installed and garbage is collected once in two weeks. There is a team of doctors that commutes to the railway station zone to provide medical assistance. Vulcanesti town and the Vulcanesti Railway Station Zone are connected by a bus, which commutes in the morning at 8 and 11 am and by taxi, which costs MDL 60-70, which is extremely important for the residents of this area. The roads are unpaved.

During the field trip carried out by the sociologist managed to talk to inhabitants of the Railway Zone from Vulcanesti town. In the area, there are no public or private wells in the area, because water is available at 60 meters deep in the ground. The local water supply system was built in the soviet time and is taking water from only one artesian well, also built during that period. Local inhabitants are using the water from the artesian for washing clothes, dishes and taking showers. Cases of disconnecting the water happen often and when the water supply is resumed the water comes with rust, therefore the water is not good for washing clothes or consumption. Therefore, the locals install a couple of filters, and they change it almost every other week. A simple filter costs around 3 EUR (60 MDL for a cartridge) and the most expensive one costs 300EUR (6.000 MDL). In order to face water shortages, people have built water basins of 3-5tones where they store water for days when there are shortages.

Zone's problems

- ✓ Food products are more expensive than in Vulcanesti town.

- ✓ The garbage should be evacuated more often than once in two weeks.
- ✓ A bus that commutes several times a day should be put into circulation (not only in the morning, but also in the evening and during the day).

The school children are using the public-school bus that takes them to Vulcanesti town. The public transportation costs 5 MDL and only operates between 8 and 11 am, there is no evening route. Most of the people return to the area using their own cars or taxis. The main inhabitants of the Railway Zone are employees of State Railway station (for about 60 employees), FEZ, the enterprise that produces food for domestic animals and retired people.

Likewise, local inhabitants cannot afford to buy bottled water, especially if their families are big. Unfortunately, in the area there is only one shop where the bottled water costs 5 or 10 MDL more expensive than the town of Vulcanesti. Others have mentioned that they afford buying only 6 liters of water every 2 weeks.

The poorest inhabitants do not have their own bathrooms, wash their clothes by hand and they go and have showers in the house of their relatives, and others use small vessels to wash themselves. The toilets of these people are usually outside, and they stated that they will build shower cabins inside their houses once they will have constant water supply. The retired people of the community that have children living with them in the same area, state that they will not build a bathroom, as this implies money that they do not have, and they will continue using the showers from the household of their children.

The main advantage of public water supply network will be the availability of water for 24h. During summer it can happen a water shortage for one week to disappear and then to be available again. This happens quite often.

There is a **Free Economic Zone at** 6 km from Vulcanesti, which comprises of two sub-zones: one with an area of 78 hectares and the other one, under active development, with an area of 44 hectares. FEZ was established by Law No 1527-XIII of 19.02.1998 on 'Free Enterprise Zone – "Valkanes" Production Park' for a period of 25 years. A number of 20 residents are registered in FEZ: 6 of which are Moldovan enterprises and 14 are established in cooperation with investors from five countries: Ukraine, Russia, Egypt, Switzerland and Romania.

- http://freezone-valcanes.md/ro/despre/Official page of the Free Economic Zone 'VALKANES'
- http://base.spinform.ru/show_doc.fwx?rgn=18601'Law of the Republic of Moldova of the Free Enterprise Zone – "VALKANES" Production Park'.

The area of the Railway Station Zone is of 175.3 ha and represents 15.72% of the town area.

Figure 6-22: Map of Vulcanesti town and Vulcanesti Railway Station Zone

Source: http://www.geoportal.md/

According to the deputy director of FEZ, at the moment there are only 10 active companies are carrying out their activity in the area, but not all companies are production enterprises and consequently not all of them need water in industrial quantities. The other half from the resident companies have stopped working for different reasons during the last period of time. 40% of all the employees from FEZ live in the Railway Zone neighborhood. The artesian well from the zone was built in the 1950s and was rehabilitated in 1980s.

The biggest production company from FEZ, TR-Impex uses the highest amount of water 300 m^3/month. It has 200 employees and produces industrial net necessary for heating the facades of houses. The company has shower cabins, local wastewater treatment plant.

The second biggest production company is Altis-Impex. It has 15-20 employees and is focusing on pea processing, produce of starch, flour, also they exclude the proteins out of peas, and everything is exported. This company basically has a production without waste, because the scraps and peels from peas are sold as litter ingredients for cats and dogs. They use 5 m^3/day (or 100-150 m^3/month).

Other 4 companies have their own artesian wells and are using their own water. They are a winemaking company (has 3 artesian wells) and 3 companies that are focusing on petrol processing.

At the moment when the interview was taken, another company from Romania (AutoM Line) was under construction in FEZ. Their main activity is producing the cover for parts of automobile car body parts. Currently they are not connected to sources of water, they are buying and bringing their own water. The water will be needed to wash some spare parts during production and for the use of the personnel. They plan to employ up to 20 people. In the future they plan to bring new technologies that will require more water in the process of production (for about 5 m^3/day).

Recently, the former petroleum base decided to join the FEZ, which is the biggest base from Moldova (High Engineering Group former Vulcanesti petrol). They will also be the highest consumer of water

and create new workplaces (now 25 people are employed and they plan to increase with 5-10 jobs). Due to the fact that this petroleum base is located within the FEZ, another Romanian company (ICS Complete Business Solutions) decided to open a factory of production of the organic solvents. The management will need access to water that will be used, in accordance with fire prevention regulations.

The connection to the public water supply system will attract new investors in the zone. The main objective of an investor is to have good infrastructure (at the moment, they have electric network, gas supply network, but there are issues with constant water supply).

The working conditions for the FEZ employees will improve. The companies will be able to create a canteen for lunches, shower cabins.

Another very important factor is fire safety. Due to the fact that the region of Vulcanesti is affected by droughts, the fires of vegetation happened in the proximity of the FEZ (50m away) and it was very difficult to extinguish the fire.

The FEZ does not have a sewerage system. The water that remains from usage of showers of cleaning hands and floor surfaces is stored and used afterwards for watering the trees. The technical water from the enterprises usually is processed using the wastewater treatment plant and is evacuated into the ravine. The garbage is being taken twice a month by the town garbage service. They tried to implement recycle bins using a project funded by foreign grant projects, but unfortunately, their project was not selected.

The FEZ from Vulcanesti was involved in the UNIDA project carried out in 2021-2022. The purpose of the project was to transform industrial parks (Tracom from Chisinau) and FEZ from Vulcanesti into eco industrial parks. It was done the evaluation of the degree of ecology of the FEZ and have elaborated the future steps and measures for ecologization of the area, meaning the optimal usage of water, wind, sun, efficient use of waste. The program was financed by UN and EU for environment.

6.3.8. NGOs / Initiative groups

Nongovernmental organisations and initiative groups are registered in most of the localities targeted by the project. For example, the initiative group of Romanian high school 'Vocea Liceului', the 'Seceris' NGO, the 'Luceafarul' NGO and 'Nadejda' Psychosocial Centre NGO operate in Vulcanesti town. Pelinei commune, which also comprises Satuc village, is part of the Local Action Group 'Cismeaua Sudului', which comprises 'Speranta Comunei' NGO and 'Promotorii noului' NGO.

In the locality A.I. Cuza there is an NGO – 'Speranta Cuza', which arranged a mini-football field close to the high school and the initiative group 'Tinerii cuzeni' built and arranged a carriage/phaeton in the centre of the village.

The following NGOs operate in Alexanderfeld village: "Alexanderfeld-apa" NGO, 'Betezda-Casa indurarii' NGO (Christian organisation supporting socially vulnerable groups), 'Raza soarelui' NGO and the local initiative group 'Noua ne pasa'; the last two organisations implemented most of the projects for the locality together with the mayoralty, among which: 'Socio-ecological Empowerment of Youth', Leisure and recreational opportunities for young families with children (children's playground

and rest area), Dialogue between ethnicities (the chair, the tree of love), 'Meet You in Our Park 1 and 2', The Alley of Opportunities, Rest area for locals and refugees, Development of local utilities and public services infrastructure.

The "Alexanderfeld-apa" NGO was created as a result of a project financed by Social Investment Fund from Moldova that have installed in 2003 a water supply network for one small street from the village, creation of two water towers and repair of wastewater treatment plant (total amount of funds was 300.000 MDL, according to today currency exchange USD 17.000). Currently in 2023 this NGO is not active and to revive it they need to update the documents in the Public Service Agency.

An initiative group was created under the 'Civil Society Development in Vulcanesti Town' project, funded by 'Soros Foundation Moldova' foundation and by the European Union, with 5 people involved. There is a grocery store, a Russian kindergarten (in the process of closure), a small group of Pentecostal Christians of 20 members, a cultural club of Vulcanesti Station that needs equipment for the organisation of events (microphone, screen, projector, computer and others) on the territory of Vulcanesti Railway Station Zone.

6.3.9. Planned development activities including water project related businesses

Sustainable development and the decentralization of public administration represent a major objective of national public management of all project localities from the Southern region of the country. These activities are intended to promote a balanced economic and social development of localities through the efficient utilization of all resources (human, material, and institutional) and by enhancing local-level activities.

The only settlement that has a Local Development Strategy is the **Pelinei commune** and it represents a comprehensive document developed within the EVA Project "Promoting Gender Equality in Cahul and Ungheni Districts," funded by the European Union and implemented and co-financed by UN Women. The project aims to provide solutions for ensuring equal opportunities for women and men and respecting the integrity of women and children. Through its content, the profile of socio-economic development highlights the current development situation of the commune and focuses on diagnosing the current state of socio-human potential, local economic development, natural resources, public services, infrastructure institutions for social and business, as well as the capacity of local public authorities.

The **Local Development Strategy of Pelinei commune** for 2022-2027 provides several strategic development directions, among which:

- Upgrading the physical infrastructure, improving the public services and energy efficiency measures. To achieve this direction, surveillance cameras will be installed in the locality, public institutions (kindergartens, secondary school) will perform thermal insulation, which implies the repair of the facade and thermal insulation of the building.
- Developing inclusive and cultural social services. Pelinei LPAs want to purchase a means of transport equipped including for people with disabilities that will facilitate the travel of the inhabitants of Satuc village, as well as of people from other villages near the commune of Pelina to and from Cahul town.

- Developing entrepreneurship and agro-touristic activity of the locality. With the help of the project 'Satul european' [European Village], the construction of a traditional house-museum is being finished – Casa Taraneasca [Country House], which will receive the visitors willing to discover the local traditions. Given that in the near future, local authorities want to attract as many visitors and local tourists as possible from Cahul municipality who come every year to take pictures in the lavender field that belongs to a local farmer Loghin Viorel, they intend to set up a touristic route of the village with various places included and a space to accommodate the tourists. The plans for the touristic development of the locality include the construction of and agro-touristic guesthouse Toma Acris., which after the construction of the water distribution system will be able to provide comfortable accommodation and meals to the guests of the guest-house.

The specifics of the village of Pelinei and Sătuc is that most of the inhabitants have their own small plots of land that they cultivate, not being part of large cooperatives (221 peasant households) and an acute problem is the lack of an irrigation route that has already been built with the help of IFAD in this year, this is why it is planned to set up an accumulation pond and a photovoltaic field with the help of the EU for Cahul project to build a large refrigerator for small producers in the locality.

Farm Loghin Viorel from Pelinei village

Manager and owner Viorel Loghin started in 2017 his business together with his father Valeriu after more than 10 years of working abroad mainly in Russia but also other European countries. Except for family members they hire 20 seasonal workers. At the moment they specialize in growing crops, sunflowers, vineyards, watermelons and lavender. Their main focus though is producing on a territory of 2 hectares (1 km away from Pelinei village) the lavender oil, lavender water and selling small bouquets of lavender to local tourists from Cahul & Vulcanesti areas who come to take pictures in the lavender field and who do not pay a fee for that, but instead they buy lavender products from them. However, every year they have to rehabilitate the local road that goes to their field due to the high number of cars that travel to the lavender field.

The future plans of the business (when there will be a water supply network in the village) is raising goats and sheep and making dairy products.

One of the advantages of being connected to the water supply network would be the easing of the distillation process of making lavender oil and water. In order to produce them it is necessary a high quantity of cool water that has the purpose of cooling the substances from which is evaporating the oil. The process is very similar to the moonshine machinery. The quantities of water are high because each time the water needs to be cool. The warm water is evacuated in the field; at the moment they do not have a place to store it in a water tank. Their immediate future plans are buying using a public auction from the local public administration 1 ha of land and building there a water tank for storing water that could later (the technical water that remains after the oil production) to be used for irrigating the fields. Usually, during the season of harvesting of lavender they use 1000 tons of water for two weeks, when they do not have a water reservoir like it happens nowadays, or they will use 50 tons of water for two weeks, if they manage to build a water reservoir.

The local businessman is ready to support a couple of people who work for him or have a difficult financial situation to connect to the water supply network.

TOMA ACRIS Guest House and Museum of Musical Instruments from Pelinei

Catalina Acris, the daughter of the famous Conductor of Dorulet folk group, Toma Acris from Pelinei, wants to continue the memory of her father who was a music teacher from Pelinei village wants to create a guest house next to the house that belonged to her father and who used to collect musical instruments as well as carving in wood folk instruments. The Acris family is actually a dynasty of musicians famous in Cahul rayon and beyond.

The picturesque location of the house (next to a forest, on a small hill, away from the traffic) and the availability of land nearby will allow her to build a guest house for tourists. The place will be the only museum that has the biggest collection of folk instruments from Moldova and the plan is to include it, when it will be ready, in the touristic routes from the country.

The availability of water will allow her to develop her plans further and to offer tourists possibility to host them, without depending on the availability of water.

In **Alexandru Ioan Cuza** village, even if the authorities do not have a development strategy, the development plans are just as big, among which: Arrange a park of 2.5 ha and an open-air sports complex, asphalt certain local streets, particularly those that lead to agricultural lands and the regional roads that link the locality with Etulia village and with Vulcanesti town, built trenches, arrange a summer camp for children near Cahul lake. The mayoralty has already developed the project for the construction of a photovoltaic park and for the rehabilitation of the outdated Soviet irrigation system for A.I. Cuza and Etulia villages.

The mayor of A.I. Cuza hopes that with the supply of a more qualitative potable water provided in the settlement, the businesses that are registered in the premises of the village, especially Domeniile Cuza and Bostavan will plan to expand their company and will offer better paid jobs to the local population.

The **Gavanoasa** LPAs developed a project for installing 200 Kw photovoltaic panels on a technical land and hopes to obtain funding from various funding sources and donors, which unfortunately have not yet been identified. Also, one of the key objectives of the authorities is to develop a General Urban Plan (GUP) of the locality, which will include local projects including the rehabilitation of local roads.

Vinia Traian JSC from Gavanoasa

One of the biggest employers from the village of Gavanoasa is the **Vinia Traian JSC wine company** located at the outskirts of village Gavanoasa. Historically, it is a company that was founded in 1975 during the soviet era and on 01.01.1994 it became a Joint Stock Company. It is a company that produces white and red wines which buys grapes from the local farmers but also has its own wineyards (about 250 ha of wineyards and 150 ha of wheat, corn and other crops). Besides the local market, the main countries where the wines are exported are: Romania, Belarus, Czech Republic, Poland and Germany. It has 100 employees (60 involved in the production section and 40 working in the fields) mainly people who live in Vulcanesti town, Gavanoasa, Etulia and Chismichioi villages.

At the moment the company uses the water from two artesian wells (140m and 120 m deep) which for the last 8 years the wells do not have a constant debit of water. Due to the fact that water from the wells is limited the electric engines that pump the water have limited life cycle, which means that the company buys every year 4 new engines (price per electric pump is between 15.000 - 30.000 MDL which is 1600EUR - 800 EUR depending on the brand). The most difficult months are harvesting season September - October when they collect the grapes. In order to save water and the life of the pumps they have a special timer that at certain hours of the day/night turns on the pump which works for 30min-1hour, then stops for some time. If they run out of water they are in a difficult position, because otherwise the Epidemiological Station and the National Agency for Food Safety forbids them to work without water.

The garbage like plastic bottles and plastic films, paper, glass, cardboards are given to recycling companies from Chisinau. The rest of the garbage is taken by the evacuation services to the Vulcanesti town dump.

The company uses wastewater treatment plant and the outcomes of it are transported via a channel to a reservoir from where the water is evaporating in the atmosphere. Every day the company uses 10 tons of water during the off-season and 20 tones during the peak season (for about 4.000 - 5.000 tons of water per year).

Among advantages of being connected to the water supply network are:

- the water from the pipe system would be of a higher quality then the one extracted from the artesian wells. The latter is offering a water which is hard.

- savings in terms of parts of machinery used in the process of wine production.

- savings in terms of staff hired to maintain the artesian. Taking water from the system would mean no need for artesian maintenance employees. In today's economy this is another drawback because it is harder to find good, reliable employees.

- finally, the water from the water supply network would mean a more reliable, cheap and better-quality water.

Due to the COVID-19 pandemics and war in Ukraine, the costs of exporting the wines have increased and the demand has decreased, also the prices for crops (which is the second activity of the company) and the management does not have financial means to donate for supporting the employees or local population to connect to the water supply system. However, they are open to loan its employees, and the money used for connection to be deducted every month from future wages.

The plans for the future of **Alexanderfeld** village Mayoralty concern mainly the improvement of public buildings: the kindergarten, the secondary school, the cultural centre and the building of the museum, which was recently passed under the administration of the mayoralty. The future museum is located in an old, historical building, which needs a new roof. All the sanitary equipment from the toilets in the cultural centre of the village need to be changed; the second floor and the halls of the building also need to be repaired.

The central entrance to the building, the galvanized sheet metal roof that has not been changed since the 1980s, the sports hall and its windows, the assembly hall and the facade of the building of 'Serghei Esenin' secondary school need repair works. Perhaps one of the most important buildings for the upbringing of the younger generation – the kindergarten – needs repairs to the facade of the building, as well as repairs to the institution's laundry; also, it is necessary to repair and arrange one more classroom – the third, as a result of the rising birth rate in the village.

In the Vulcanesti district centre, one of the future objectives of LPAs is to increase the participation of citizens in making the important decisions concerning the development of public spaces (Vulcanești mayoralty intends to increase the level of engagement to at least 30% of locals). Some plans for the future of the town are:

- Capital renovation of the House of Culture building in Vulcanesti town: replacement of the roof and interior renovation, replacement of windows and doors, facade and steps of the main entrance.
- Capital renovation of the Vulcanesti Mayoralty building: replacement of the roof and interior renovation of offices and halls.
- Construction of a platform for solid household waste on 50 ani de Octombrie Street.
- Capital renovation of the 'A.S. Puskin' District Public Library: repair of the roof, extensive interior renovation, repair of the porch, doorway awning and steps.

Landscaping territories of pre-school institutions No 1, No 4 and No 7 (construction of shaded awnings on playgrounds).

In conclusion we can note that the project localities although they have faced over the years issues with the water supply and a decline in the number of the population, they have been slowly developing.

European funded projects have supported creation of the village museums and parks. Likewise, good LPA governance have attracted businesses to open companies and to invest in various projects related to agriculture or Free Economic Zone of Vulcanesti. The latest has future plans to become an eco-industrial park.

The localities have also small initiative groups and NGOs created by the young generations of students from local high schools and gymnasiums. Likewise, the Local Action Group "Cismeaua Sudului" includes NGOs from different villages in regional partnerships that enable access to state and EU funds.

The limited access to water is a problem of all the producers of technical grapes from the rayon of Cahul, idea that is found in the Strategy of Socio-Economic Development of Cahul rayon for 2023-2030. The cultivation of table grapes is developing branch for the future of the local agriculture.

During the field trip undertaken by us to gather info for this chapter we have also interviewed the mayors of project localities that confessed that without water supply the villages will simply slowly disappear and consequently the local entrepreneurs will not have adequate and necessary workforce to expand and progress.

7. ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS, CHARACTERISATION OF IMPACTS AND MITIGATION MEASURES

The objective of identifying and evaluating impacts is to provide accurate information about the effects of the execution of the activity on human beings and on the environment in general. In this sense, impacts are defined as changes to an environmental parameter resulting from the performance of an activity. These changes represent the difference between the effects on an environmental parameter in which the activity is undertaken compared to that in which the activity is not undertaken and occur over a specific period and in a defined area.

This section involves the assessment of the impact of the sub-project "Cahul-Vulcanesti water supply", hereafter Project. Clearly, the proposed Project has the potential to cause both positive and negative effects on the biophysical and socio-economic environment. The extent of potential impacts will vary between phases of project implementation.

The Project impact assessment presented below refers to the interventions proposed in the Project which include the construction of the main infrastructures, namely: storage tanks, water disinfection stations, pumping stations and main aqueduct networks and distribution networks inside the localities, see the description in sub-chapter 5.4.

The intake of water to feed the system is from the river Prut. From this inlet the raw water is pumped to the treatment plant. The water treatment plant supplies drinking water to the localities: or. Cahul, Rosu village, Crihana Veche village, Pascani village, Manta village and Lebedenco village.

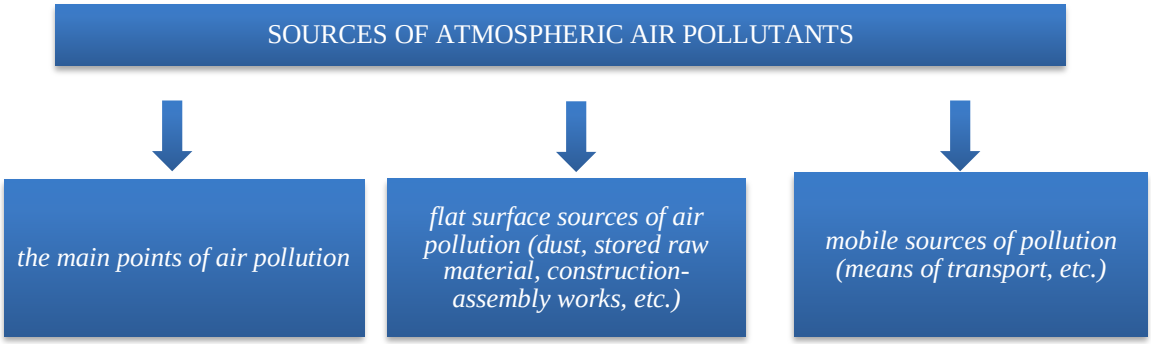
For this activity, two categories of environmental and social receivers were identified: the local population and individual lands used in agriculture at risk of being covered with excavated earth materials.

The methodology used for impact assessment in this report is related to risk assessment: (i) through which certain impacts on the environment are identified, (ii) risk assessment (by using a stipulated assessment criterion whereby impacts are given a rating or a weighting and obtaining an overall assessment or significance of an impact) and (iii) risk management (referring directly to the applicable mitigation measures that must be implemented to manage an impact risk in the interests of project beneficiaries and surrounding communities. The evaluation criteria and assessments for determining the significance of the impact (see the chapter).

Environmental and social impacts were assessed in terms of intensity, duration and extent. Thus, the significance of the impact was determined: high, moderate or low, according to the grid presented in **Table 4-1**.

7.1. Physical environment

7.1.1. Atmospheric air including climate change



Economic activities and urbanization often generate air, water and land pollution and consume scarce resources that can threaten people, ecosystem services and the environment at local, regional or even global levels. Current and projected atmospheric concentrations of greenhouse gases (GHGs) threaten the well-being of current and future generations. At the same time, more efficient use of resources, pollution prevention and GHG emission avoidance and mitigation technologies and practices have become more accessible and achievable. For more efficient use of resources and prevention of sphere-effect gas pollution, the following actions set in the ESS3 objectives are also recommended:

- Promoting the sustainable use of resources, including energy, water and raw materials;
- Avoiding or minimizing the negative impact on human health and the environment by avoiding or minimizing pollution from project activities;
- Avoiding or minimizing project-related emissions of short- and long-lived climate pollutants;
- Avoiding or minimizing the generation of hazardous and non-hazardous waste;
- Minimizing and managing the risks and impacts associated with the use of pesticides in agriculture.

➢ ***Forecasting the impact on atmospheric air during the construction phase***

During the construction stage of the proposed Project, the main source of air pollution is represented by site organization and construction activities, including road traffic associated with these activities.

Pollutant emissions that may occur during the construction phase are as follows:

- emissions of polluting substances (NOx, SO_2, CO, hydrocarbons and dust) generated by diesel or gasoline vehicles and equipment used for construction activities;
- dust emissions during construction activities, resulting from:
  - excavation, handling and storage works;
  - site preparation works and bringing it to its original state after the works are completed;
  - water infrastructure construction works (pipes, pumping stations, water tanks, etc.);
  - road transport associated with construction activities carried out on unpaved roads.

When evaluating the intensity of the assessment of the impact on atmospheric air during construction, the following aspects were taken into account:

- the existing national and local roads will be used for the execution of the construction works and for the transport of the necessary equipment and materials;
- the location of laying the pipelines will be done along the roads;
- the areas where construction works will be carried out are outside the agglomerations.

During the construction stage, the impact associated with dust and pollutant emissions on air quality is assessed as high on the construction site without significant effects on the vicinity of the sites where the construction activities are carried out.

➢ ***Forecasting the impact on the atmospheric air during the operation phase***

During the operation stage of the Project, the potential impact on air quality is determined by the emissions of polluting substances (NO_x, SO_2, CO, hydrocarbons and dusts) associated with road traffic on the access roads used for carrying out maintenance activities and periodic inspections.

In the operational stage of the Project, the impact of pollutant emissions on air quality is assessed as low, being limited to periodic inspection and maintenance activities.

Table 7-1: Assessment matrix of potential impacts on air quality

Phase	Impact	Intensity	Duration	Extend	Significance of impact
C	Dust emissions from construction activities	High	Medium term	Local	**High**
C	Emissions of polluting substances associated with road traffic (construction activities)	Moderate	Short term	Regional	**Low**
O	Dust emissions associated with road traffic used for water infrastructure maintenance	Reduced	Short term	Regional	**Low**

➢ ***Measures to reduce the impact on atmospheric air during the construction phase***

During the implementation period, the activities carried out on the site have no potential impact on the atmosphere. However, to limit emissions, as well as to control gas emissions, it will be necessary to apply modern execution technologies, materials that are less aggressive for the environment and advanced mechanization.

Air quality protection will be achieved through the following measures:

- spraying transport and traffic roads;
- reducing the speed of dump trucks;

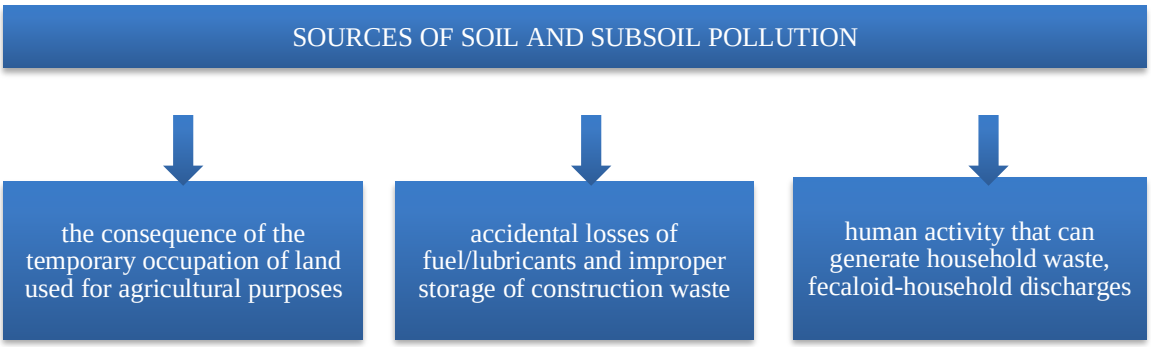
- the tires of the means of transport must be cleaned when leaving the work areas if they are used on public roads;
- carrying out periodic overhauls of machinery and transport engines in specialized workshops so that the level of pollutant emissions falls within the approval limits;
- machines and means of transport must be constructively equipped with reduction (catalysts), retention (particle filters) and combustion gas exhaust systems specific to the degree of approval of each.

In order to reduce the dust generated from the construction activity, measures will be taken such that when handling and transporting the waste resulting from excavations, they should be moistened, the pulverulent construction materials will be stored in closed premises so that they are not carried away by air currents, the activities that produce a lot of dust will be reduced in periods of strong wind, or a more intensive wetting of the surfaces will be followed.

➢ ***Measures to reduce the impact on atmospheric air during the operation phase:***

- Maintenance of access roads to platforms in acceptable condition (by periodically cleaning the culverts, ensuring that the road is leveled and compacted for unpaved roads, etc.);
- Avoiding the storage of construction materials with emissions of dust suspensions on the territory of the platforms;
- Regular and adequate maintenance of the vehicles used by the Operator.

7.1.2. Soil and subsoil



➢ ***Forecasting the impact on the soil/subsoil during the construction phase***

During the construction stage of the Project, the main impact on the soil/subsoil is the consequence of temporary land occupation, land that currently has other uses, as well as physical degradation due to investment works.

Other possible effects on the soil/subsoil may be due to accidental fuel/lubricant losses and improper storage of materials to be used and waste generated during construction work.

The works proposed to be executed will be carried out on the platforms intended for the water infrastructure without affecting the neighboring areas. For this, the Contractor will establish, in agreement with the beneficiary, the locations of the works and the site organization that will be marked so as not to affect areas other than those necessary for the Project.

The potential sources of impact on the soil/subsoil due to the construction activities of the Project are as follows:

- landscaping and vertical systematization works of the land;
- creating platforms for new constructions;
- foundation pit excavation works, new equipment;
- construction of the roads to the platforms;
- road traffic indirectly through air pollution, especially dust deposition, and directly through fuel and lubricants loss/leaks;
- storage of construction materials and waste on non-waterproof surfaces.

Mismanagement of materials can lead to the sterility of fertile topsoils, increasing the phenomenon of erosion by transporting heavy sediments and polluting water bodies as well.

The area of land affected by the platforms construction works is approximately 3.53 ha34. Although 23% (0.822ha) of this area is registered in the cadastre with the current mode of use "agricultural" or "garden", the lands, in reality, are not used in agriculture.

Most of the construction works (excavation) of the Cahul – Vulcanesti main transmission pipeline will be carried out on the publicly owned lands along the national or local roads. Thus, there is no significant impact on the soil due to land occupation.

Excavation of the 1.4m wide trench requires an available area of land for temporary soil storage maneuvers along the trench. In some locations, temporary use of private land is required. According to the Land Use Report developed by "Flux Proiect" LTD, the temporary use of an insignificant part of 139 private lands was identified and is foreseen (Crihana Veche - 16 plots, Lebedenco 1 plot, Pelinei - 6 plots, Gavanoasa - 22 plots, Vulcanesti - 45 plots and Alexandru Ioan Cuza - 44 plots). The average percentage of affected land is estimated to be 1.2% of the total land area, See Annex no. 8.

The impact of the Project works on the soil/subsoil in the absence of mitigation measures is estimated to be moderate to low.

- ***Forecasting the impact on the soil/subsoil during the operation phase***

There is the possibility of development of erosion, caused by the flow of rainwater from the constructed platforms. To avoid soil erosion, this Project provides for the provision of water drainage through the construction of drainage ditches. Thus, there will be no negative impact on the soil and related land use conditions.

Sources of potential impact on soil/subsoil are represented by maintenance and repair activities of pipelines, pumping stations, disinfection stations and tanks. The potential impact consists of:

- increasing the probability of soil pollution as a result of accidents (fuel, lubricant, paint spills) that may occur during maintenance activities on water infrastructure platforms.

[34] Sourse: Resettlement Needs Assessment Report. Volume 1: Report Version 10/2023, developed by "Flux Proiect" LTD

- increased vulnerability to erosion due to vegetation removal as part of water pipe maintenance activities.

The impact on the soil/subsoil during the operational phase of the Project in the absence of mitigation measures is estimated to be low.

Table 7-2: Assessment matrix of potential impacts on soil/subsoil

Phase	Impact	Intensity	Duration	Extend	The significance of Impact
C	Accidental losses of fuel and lubricants	Low	Short term	Local	**Moderate**
C	Non-compliant management of construction materials and waste	Moderate	Short term	Local	**Low**
C	Loss of fertile soil quality due to the organization of the construction site	High	Short term	Local	**Moderate**
C	Increased vulnerability to erosion due to excavation and creation of foundation pits	High	Short term	Local	**Moderate**
O	Accidental losses of fuel and lubricants	Low	Short term	Local	**Low**

➢ ***Measures to reduce the impact on the soil during the construction phase***

To protect the soil/subsoil and minimize, reduce and avoid, if possible, the potential effects of the Project, the following mitigation measures are recommended to be implemented:

- the selection of the Construction company in agreement with the beneficiary of the areas for the organization of the construction site;
- separate storage of fertile soil and its maximum reuse. Surplus fertile soil will be used on land designated by APL;
- use of barriers to mark the boundaries of the site organization and prevent damage to areas other than those required for the Project;
- controlled storage of construction materials and waste generated during construction in specially arranged areas on the site;
- avoiding the storage on the ground of materials exposed to precipitation that can cause infiltration into the soil and underground water;
- minimization of excavations and unearthings in the areas affected by the Project's activities.

➢ ***Measures to reduce the impact on the soil during the operation phase***

- controlled storage of construction materials and waste generated during operation in specially designed areas.

7.1.3. Surface and groundwater

Water pollution is a significant problem throughout the country. The main sources of water pollution remain both pointwise and non-pointwise (diffuse) sources. Municipal and industrial wastewater discharges are usually known and monitored, and their pollutant loads can be quantified. On the other hand, houses without sewers, agricultural fields, as well as occasional or accidental discharges are unorganized and therefore difficult to monitor and control. At the same time, data provided by the Environmental Protection Inspectorate has shown that other sources can be as, or more, dangerous to the environment (eg. runoff from industrial areas, landfills) than pointwise sources. Another source is the discharge of untreated domestic wastewater (approximately 65% of the total number of homes in Moldova).

The nature of the investments as provided by the proposed Project manifests both forms of potential negative impact on the water environmental factor, as well as positive impact. Within this Project, the negative impact is usually associated with the execution stage of the works, specific to any infrastructure works, while during the operation of the investments proposed by the Project, the associated impact is a positive one, contributing to the improvement of the way of managing water resources as well as the negative potential following the population's accessibility to drinking water without effective domestic wastewater management.

The table below shows the areas considered sensitive in terms of the proximity of construction works to watercourses in the area.

Table 7-3: Bodies of water and sensitive areas during construction works

Bodies of water[35]	Permanent water course	Sensitive area	Dimensions of the protection zones	Dimensions of the riparian sheets for water protection
Cahul river	Yes	Vladimirovca village, F28 – Un123 (water pipeline crossing), Un188 – Un216 Gavanoasa village, CA14 – Un23 (water pipeline crossing) Gavanoasa village, F/SD3, 4 – Un243 (water pipeline crossing)	500	20
Valea Ursoaia stream	No	Ursoaia village, Un96 – Un97 (water pipeline crossing)	15	20
Unnamed stream	No	Satuc village, Un171 – F18 (water pipeline crossing), Un180 – Un181 (water pipeline crossing)	15	20
Valea Gavanoasa stream	No	Gavanoasa village, Un213 (water pipeline crossing)	15	20

[35] https://gherman.carto.com/viz/f522b2c5-ee41-4543-86a2-470120ce1cf7/embed_map

Bodies of water[35]	Permanent water course	Sensitive area	Dimensions of the protection zones	Dimensions of the riparian sheets for water protection
Valea Razasie stream	No	Gavanoasa village, Un222 (water pipeline crossing)	15	20
Unnamed stream	No	Gavanoasa village, F36 – F/SD3 (water pipeline crossing)	15	20
Unnamed stream	No	Vulcanestitown Un382 – Un383 SD3 (water pipeline crossing)	15	20
Valea Carabiber stream	No	Alexandru Ioan Cuza village F73 – F75	15	20

- ***Forecasting the impact on water during the construction phase***

Due to the fact that during the execution of the works, the potential sources of pollution of surface water and underground water appear only in exceptional situations, due to malfunctioning of the machinery or improper management of the raw materials used in the execution of the Project, the potential impact generated during the execution of the works is one with a low probability of production. The potential impact of the activities associated with the Project on surface waters is assessed to be limited, in the short term. In the case of groundwater, no potential impacts are anticipated.

The impact of water capture on the hydrological regime of the Prut River is low. The catchment point is strongly dependent on the hydrological system of the Prut River basin.

In the implementation phase of the investment, the sources of surface and underground water pollution can be the following:

- improper storage of raw materials used in the implementation of the investment;
- oil and fuel leaks from the operation of machines;
- improper storage of technological waste (metal waste, polyethylene film, PVC pipes, PEHD pipes) that can contaminate the water environment and change the physical-chemical properties of the water component;
- improper placement or damage of sanitary containers within the site organization;
- local changes in drainage conditions, due to construction or pipeline installation operations.

Since the construction of the main pipeline involves the crossing of the Cahul River at several points, the following potential pollution impacts of the Cahul River are assumed:

- accumulations of polluted soil materials that can lead to pollution through sedimentation;
- direct discharge of pollutants into the Cahul water course;
- transport of soil particles, contaminated or not, mobilized by erosion of soils and stocks near the river.

It can be observed that, in their vast majority, the sources of pollution of the water environmental factor in the stage of making the investment have an accidental character, so that the occurrence of a form of impact associated with these sources is likely only in exceptional situations, of damage (the failure of equipment or improper management of materials and waste on the sites of construction and at the work front).

- ***Forecasting the impact on water during the operation phase***

A potential negative impact during the operation of the investments proposed by the Project is due to possible breakdowns on the route of the existing sewer pipes or the non-existence in the area of the water infrastructure of the domestic wastewater collection and purification system, untreated water infiltrating and polluting the soil environment and water.

It should be noted that the sewage treatment plant in the city Cahul is located downstream of the water treatment plant and cannot be considered a risk to the water system that is in operation and is to be expanded.

Table 7-4: Assessment matrix of potential impacts on water

Phase	Impact	Intensity	Duration	Extention	The significance of Impact
C	Oil and fuel leaks due to the operation of machinery	Moderate	Mid term	Local	**Moderate**
C	Water pollution due to improper storage of construction waste	Modrate	Mid term	Local	**Moderate**
C	Local changes in drainage conditions due to construction or pipeline installation operations	High	Long term	Limited	**Moderate**
O	Oil and fuel leaks of means of transport and machinery used during operation	Low	Mid term	Local	**Low**
O	Water pollution due to improper storage of waste generated by maintenance personnel	Low	Short term	Local	**Low**

The proposed protection measures against the pollution of the water environment factor, both during the construction and during the operation period of the Project's objectives, have a preventive character, and their adoption during the execution of the works and later in the operation phase, will determine the avoidance of the occurrence of forms of impact on water.

- ***Measures to reduce the impact on water during the construction phase***

  - periodic checking of the operating status of the machines in order to avoid possible malfunctions;
  - appropriate management of raw materials, compliance with storage areas, depending on the physical condition of the materials used and the potential impact on the environment;

- setting up platforms/spaces for storing the resulting waste (household waste, metal waste, polyethylene film, PEHD pipes), so as to avoid contact with the water component;
- excavation works will not be performed in extreme weather conditions (rain, strong wind);
- the works over the Cahul river will be done when the river is dry or in the season with low water level. The riverbed to be inspected and cleaned daily during the work period;
- in order to prevent the formation of dust in the work areas, untreated water will be used for spraying the work areas;
- the placement of mobile toilets on the construction site will be outside the protective strip of the water body;
- maintenance and maintenance of sanitary containers in a clean and permanently functional state.

➢ ***Measures to reduce the impact on water during the operation phase***

- rapid intervention and urgent remediation of breakdown situations of drinking water transport and distribution pipelines;
- periodic training of staff in terms of waste management.

7.1.4. Noise and vibration

➢ ***Forecasting the impact due to noise and vibration during the construction phase***

The construction machinery makes noise during construction. However, they do not produce significant vibrations. The maximum permissible level of noise and acoustic pressure in residential areas in the Republic of Moldova are established in NCM E.04.02-2006 "Protection against noise" and CH 2.2.4/2.1.8.562-96 "Noise at workplaces, in residential buildings, public and in the territory of residential areas" and are partially presented in the Table below.

Table 7-5: Permissible limit of equivalent and maximal noise level

The object of protection	During the day, dBA (07.00 – 23.00)		During the night, dBA (23.00 – 07.00)	
	Equivalent noise level	Maximal noise level	Equivalent noise level	Maximal noise level
Territories adjacent to polyclinic buildings, schools, other educational institutions, preschool institutions, recreation grounds of microdistricts and housing construction groups	55*	70	45*	60
Residential buildings[36]	Category A – 35 Category B, C - 40	Category A – 50 Category B, C - 40	Category A – 50 Category B, C - 55	Category A – 40 Category B, C - 45

[36] Normative conditions for noise levels in residential and public buildings are established for different categories: category A - ensuring high comfort conditions; category B - ensuring comfort conditions; category C – ensuring acceptable conditions.

The object of protection	During the day, dBA (07.00 – 23.00)		During the night, dBA (23.00 – 07.00)	
	Equivalent noise level	Maximal noise level	Equivalent noise level	Maximal noise level
Industrial; commercial[37]	70*	-	70*	-

** According to Guidelines values are for noise levels measured out of doors. Source: Guidelines for Community Noise, World Health Organization (WHO), 1999*

Source: NCM E.04.02-2006 „ Protection against noise"

The noise level is variable, around the value of up to 90dB(A), the higher values being for excavators, bulldozers, finishers and road graders. This noise level will be recorded only within the work points and decreases with increasing distance, so that at the border of the neighboring towns it will be below 45 dB(A), according to the limits imposed by the national regulations and in the IFC Environmental, Health, and Safety (EHS) Guidelines[38]:

The noise sources for the construction period are:

- bulldozer Lw ≈ 100 dB(A);
- excavator Lw ≈ 112 dB(A);
- compactor Lw ≈ 105 dB(A);
- tipper Lw ≈ 107 dB(A);
- compactor cylinder Lw ≈ 90 dB(A);
- electric picamer Lw ≈ 107 dB(A).

This equipment will produce noise and vibration on the construction site for a short period of time without significant impact on the environment. Sensitive receptors to noise and vibration include residents of houses located in proximity of site construction and proximity to the residential areas along the used road for transports of materials. Vibration has the potential to lead to structural damage to nearby buildings, especially the houses built by the inhabitants without a good resistance structure.

Table 7-6: Assessment matrix of potential impacts produced by noise and vibration

Phase	Impact	Intensity	Duration	Extention	The significance of Impact
C	Noise production above maximum limits	Moderate	Mid term	Local	**Moderate**
C	Vibrations produced during soil compaction	Moderate	Short-term	Local	**Low**

➢ ***Forecasting the impact due to noise and vibrations during the operating phase***

[37] Guidelines values are for noise levels measured out of doors. Source: Guidelines for Community Noise, World Health Organization (WHO), 1999

[38] Source: Guidelines for Community Noise, World Health Organization (WHO), 1999

During the operating period, the activities on the site must not produce noise that exceeds the limits provided in the normative acts. The noise inside the pumping stations comes mainly from the operation of the pumps.

➢ ***Measures to reduce the impact due to noise and vibration***

- the use of machines equipped with engines with an admissible acoustic level;
- carrying out activities only during the day and limiting the work schedule for sensitive areas (schools, kindergartens, churches, etc.);
- handling construction materials (pipes and other materials) under conditions of increased attention, especially during their unloading operations;
- limiting the speed of transport equipment to reduce the level of noise and vibrations on the sites and in the vicinity.

7.1.5. Landscape

Temporary physical impacts will occur during the construction period in selected locations for storage of construction materials and piping, and in worker accommodation. However, those sites will be decommissioned after the construction phase; the visual impact is limited to the construction period.

The impact on the physical environment will consist of landscape transformation that causes visual aesthetic impacts. Above ground water storage constructions will slightly change the landscape in some localities. These effects will remain during the operation phase.

Table 7-7: Assessment matrix of potential impacts on the landscape

Phase	Impact	Intensity	Duration	Extention	The significance of Impact
C	Temporary warehouses of construction material and pipelines	Low	Short Term	Local	**Low**
O	Changes to the landscape due to surface water reservoirs	Low	Short Term	Local	**Low**

➢ ***Measures to reduce the impact on the landscape***

- Limited storage of construction materials and pipes during the construction period.
- Paints will be used in shades that match the environment to minimize the visual impact of the constructions.
- Maintaining tree/shrub belt around platforms to minimize visual impact.

7.1.6. Cultural, archaeological and historical resources

No building of cultural interest is threatened by the Project works. As part of the environmental and social assessment, in sub-chapter 6.1.10 the presence of all cultural heritage areas legally protected and affected by the project were determined. In order to maintain the authenticity and integrity of the monuments in the project area (see **Table 6-7**), their owners are obliged to take measures that ensure the protection of the monuments, not to allow their demolition, mutilation or damage.

The contractor, during the construction works, will respect the characteristics of their historical-architectural environment, the principles of spatial-historical organization, preserving the authenticity and integrity of this environment.

Following the preliminary investigations, it was found that the overlap was over a length of approx. 1km of the main pipeline Cahul-Vulcanesti with the archaeological site "Valul lui Traian" dating from the Roman era (II-III centuries AD). According to the legislation, construction or other projects involving interventions on the soil in areas with archaeological heritage must be approved by the Ministry of Culture based on the expertise of the National Archaeological Agency (ANA).

According to art. 6 para. (2) and (3) from Law no. 218/2010 regarding the protection of the archaeological heritage, when requesting the urban planning certificate for design, the issuer of the urban planning certificate for design is obliged, in the case of construction works that involve interventions on the soil, regardless of the type of work envisaged and the form of land ownership, to notify, within 2 working days, in writing and in electronic format, the National Archaeological Agency (NAA), with the attachment of the plan of the land on which the works are to be carried out. Once the Urban Planning certificates were issued by CR Cahul and Vulcanesti town halls without obtaining the NAA Approval, the project beneficiary submitted an application for the examination of the entire sub-project by NAA and the issuance of the Archaeological Approval. As a result of the archaeological expertise of the MTP route, the National Archaeological Agency approves the nominated project but with the following conditions:

- To the southeast of Pelinia, the MTP crosses an area with archaeological remains, namely: the settlement from the late Roman era / c. III-IV AD, Pelinei III. In the perimeter of the site, on the route of the MTP, it is necessary to carry out the unloading of the archaeological load, in accordance with the provisions of art. 5, para. (2) from Law no. 218 of the Law on the protection of archaeological heritage (see anexa 1 in the Annex 4 of the ESIA).
- North of the city of Vulcanesti, in the area where the MTP from the southern direction turns to the east (land with cadastral no. 94172060106), crosses longitudinally for a length of about 1.2 km the archaeological site Valul lui Traian de Jos. To avoid the danger of destroying the archaeological heritage found in this area, NAA request that the route be moved 40 m to the north (see anexa 2 in Annex 4 to the ESIA), in accordance with the provisions of art. 6, para. (3) from Law no. 218 of the Law on the Protection of Archaeological Heritage.
- North of the city of Vulcanesti, the MTP transversely crosses the Valul lui Traian de Jos archaeological site. Being aware of the impossibility of changing the route in this area, being directed towards the southern direction, it is necessary to carry out the discharge of the archaeological burden, in accordance with the provisions of art. 5, para. (2) from Law no. 218 of the Law on the protection of archaeological heritage (see anexa 3 in Annex 4 to the ESIA).

Table 7-8: Matrix for the assessment of potential environmental impacts on cultural, archaeological and historical resources

Phase	Impact	Intensity	Duration	Extention	The significance of Impact
C	The loss of archaeological materials through uncontrolled excavations	Moderate	Long term	Local	**Moderate**

In accordance with Law No. 218/2010 on the protection of archaeological heritage, in the case of archaeological discoveries occurring in the areas of construction or other works that involve interventions on the ground, the beneficiary of the works and the persons involved in these discoveries are obliged to stop the works in the respective area and to notify, within 24 hours, the National Archaeological Agency in order to carry out the procedure for unloading the site from any valuable archeological foundings. A serendipitous discovery is any unexpected discovery or recognition of cultural heritage. Such discoveries include, for example, the discovery of a single artefact, an artefact indicating the presence of a buried archaeological site, human remains, fossilized remains of plants or animals or animal tracks, or a natural object or soil feature that appears to indicate the presence of archaeological material.

The guidelines for intervention in the case of archaeological discoveries are further presented based on the National Legislation and taking into account the best international practices based on the ESS of the World Bank (especially ESS8 – cultural heritage) and the UNESCO Convention of 1972 on the protection of cultures and world cultures. These measures will avoid and/or reduce Project risks that may result from accidental discoveries.

Before starting the construction work, the contractor will draw up a "Chance Find Protocol" (CFP) approved by the supervising engineer. The contractor shall comply during the construction work and shall ensure that the personnel trained on the job are trained in its requirements;

- When archaeological materials are found in the soil, the works will be stopped, and the Engineer will be notified;
- A qualified expert/specialist[39] will be informed about the discovery made through pictures sent online or a field visit;
- The archaeologist expert/specialist will draw up a report with immediate measures for the management of the archaeological resource;
- The National Archaeological Agency will be informed for further conservation measures.

7.1.7. Waste Management

Solid waste from construction activities and workers' household waste can also have negative impacts on the environment. This waste includes construction waste such as plastics, stones, sand, gravel, wood, iron bars and human waste and food scraps.

[39] Registered in the Register of Archaeologists from the Republic of Moldova, https://mecc.gov.md/ro/content/registrul-arheologilor-din-republica-moldova

Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill material from excavation activities, wood and metal waste, and small concrete spills.

Table 7-9: The matrix of the assessment of the potential environmental impacts due to waste

Phase	Impact	Intensity	Duration	Extension	The significance of Impact
C	Inadequate management of building materials and construction waste, as well as household waste from staff	Low	Short term	Local	**Low**

➢ ***Measures to reduce the environmental impact due to waste***

- In addition to implementing waste prevention strategies, the total amount of waste can be significantly reduced by implementing recycling plans.
- All solid waste must be collected separately; recyclable waste will be sent under a contract to specialized companies and household waste will be transported to an authorized landfill with the consent of the LPA in the region.
- Workers will be trained on good waste management practices.
- A waste collection system will be in operation to handle solid wastes, oily rags, and used fuel and lube oil filters in a leak-proof container that will be stored and disposed off at the landfill site, to ensure effective management of solid wastes at the Project site.
- Contaminated solid waste such as oily rags, used fuel filters, engine oil residues, etc. will be collected in a sealed container that will be stored and disposed of properly.

7.1.8. Possible impact of climate change on water resources in Moldova

Ensuring climate change resiliency through reducing risks related to climate change is one of the main focus areas of objective 10 of the National Development Strategy "MOLDOVA EUROPEANA 2030"[40]. Future socio-economic development in the Republic of Moldova will be dependent among other factors on the availability of water resources.

According to recent climate change scenarios, the mean climate annual flow is sufficient to ensure maintaining the hydrological regime of small rivers in Moldova[41]. However, due to high variability, especially in the summer months, the frequency of droughts increases, and this can lead to a climate flow below the normal values. As a consequence, rivers, lakes and ponds are susceptible to drying up.

[40] https://www.gov.md/ro/moldova2030

[41] Vulnerability Assessment and Climate Change Impacts in the Republic of Moldova: Research, Studies, Solutions / Lilia Taranu, Dumitru Deveatii, Lidia Trescilo [et al.]; ed.: Vasile Scorpan, Marius Ţaranu; Climate Change Office, Min. of Agriculture, Regional Development and Environment of the Rep. of Moldova, United Nations Environment Programme. – Chisinau, 2018

Table 7-10: Potential Socio-Economic Impacts of Climate Change on Water Resources[42]

Climate Impact Category	Impact on Water Resources	Social/Economic Impact
Increased temperatures, heat waves	- Annual runoff decreases; - Lowering of the groundwater table; and - Changes to water quality	- Reduced water availability for human use; - Increase in demand for irrigation; - Increased water pollution; - Adverse health impacts in low income areas; and - Requirement for additional treatment of water for drinking purposes.
Change in precipitation patterns	- Changes in hydrological regime; - Reduction in stream flow; and - Increased water shortages.	- Risk of water quality loss; - Increased risk of soil salinization; and - Conflicts among water users.
Extreme events: floods	- Increased dilution and sediment loads; and - Increased nutrients, pathogens, and toxins transport.	- Increased erosion; - Damage on infrastructure, land abandonment; and - Increased expenditure in emergency and remediation actions.
Droughts	- Low flows reduce the dilution capacity; - Reduced dissolved oxygen; and Increased water shortages	- Increased algal blooms, bacterial and fungi content affect human health, - agriculture, ecosystems, and water supplies; and - Increased risk of desertification.

7.2. Biodiversity potential impacts

In order to avoid the potential impact on nature, during the pre-construction period, it is important that the construction company considers not only the main infrastructure itself, but also all related facilities and equipment, such as temporary access ways, storage areas of equipment, concrete foundations, temporarily installed cables, residues and spaces for depositing excavated soil, etc., to avoid damage to plant and animal habitats, including birds, as much as possible.

Additional impacts of construction works may affect burrows of mammals and reptiles, breeding sites of insects, nests of birds and bees in old rotten/dry trees related to the construction site, herbaceous plants may be hiding places for reptiles, insects and small mammals.

At the pre-construction stage, the fishery protection areas of the river Prut basin, established by the provisions of art. 37 of Law no. 149/2006 regarding fish stock[43], fishing and fish farming and water legislation.

[42] Government Decision no. 1009 from 10.12.2014 regarding the approval of the Republic of Moldova's Strategy for Adaptation to Climate Change by 2020 and the Action Plan for its implementation (Official Monitor No. 372-384)

[43] Source: https://www.legis.md/cautare/getResults?doc_id=26074&lang=ro

Fish protection zones are created for the purpose of protection of reproduction (predilected places for spawning and fry development); protection of the diversity of fish species gathered in an aquatic ecosystem; protection of the fish during the winter.

The *Water law no. 272/2011* and the normative acts regarding the maintenance of water quality establish the taking of special measures for the protection of aquatic biological resources in the areas of water intakes and for this purpose water protection zones are created.

- ***Potential impacts on biodiversity at construction phase***

Disturbance of wild animal species in their usual breeding, feeding or resting places, as well as along migration routes, at the construction stage of Project, may lead to displacement and exclusion of some species as a result, to the loss or displacement of their habitat. Animal species usually avoid areas in and around the construction zone, for example, due to increased traffic, human presence, as well as noise, dust, pollution, artificial lighting or vibrations caused in during or after the completion of the construction work.

In order to avoid the potential impact on nature, in the pre-construction period, it is important that the construction company considers not only the main infrastructure itself, but also all related installations and facilities, such as temporary access roads, storage facilities and equipment, construction compounds, concrete foundations, temporarily installed cables, residues and spaces for depositing excavated earth, etc., to avoid as much as possible damage to the habitats of plants and animals, including birds.

Potential impacts can be the burrows of mammals, the breeding places of insects (bark of trees), the nests of birds and bees in old rotten/dry trees and other places, herbaceous plants are also affected, especially being watering places for reptiles, insects and small mammals.

In the case of the Prut River basin, Cahul river and lake, these are considered favorite places for many waterbirds species (protected by Agreement on the Conservation of African-Eurasian Migratory Waterbirds - AEWA), especially those migrating in autumn and spring. Thus, the construction through noise and vibration of the installations can affect the popular places of the birds.

- ***Potential impacts on biodiversity at operation phase***

During the operational stage of water pumping stations, certain species may bypass the area, both during migrations and at a sedentary level, during regular feeding activities. Thus, this can lead to species range shifts and changes in their ability to compensate for increased energy consumption, as well as the degree of disruption of connections between sites used for feeding, roosting and breeding during the day or night.

Agricultural areas near the MTP and Water Platforms, can provide shelter or even feeding places for rabbits and small mammals, reptiles, insects and bird species, such as circus, coracias, Crex, Lanius,

but also for many other species that they are components of the avicenosis trophic networks in the area. Thus, these areas must not be stored with waste by the population living in the area.

Some species of water birds pass through only for a short time, and others, especially winter visitors, can be strongly influenced more by environmental factors in watershed areas, such as massive snowfalls, freezing bodies of water, water pollution.

According to the Management Program of the Danube - Prut and Black Sea hydrographic district, cycle II (2023-2028)[44], for the protection of aquatic animal species, permanent measures are required to monitor the state and quality of the waters in order to avoid the impact on the biological state of the species, especially in the protection areas.

Table 7-11: Assessment matrix of potential impacts on biodiversity

Phase	Impact	Intensity	Duration	Extention	The significance of Impact
C	Impact on natural protected areas	Low	Short term	Local	**Low**
C	Impact on flora and forest ecosystems	Low	Short term	Local	**Low**
C	Impact on fauna (birds, reptiles, insects other)	High	Short term	Regional	**Moderate**
C	Impact on fauna aquatic species (birds, fish, crustaceans, etc.)	High	Short term	Regional	**Moderate**
O	Impact on natural protected areas	Low	Short term	Local	**Low**
O	Impact on flora and forest ecosystems	Low	Short term	Local	**Low**
O	Impact on fauna (birds, reptiles, insects other)	High	Long term	Regional	**Moderate**
O	Impact on fauna aquatic species (birds, fish, crustaceans, etc.)	High	Long term	Regional	**Moderate**

➢ ***Mitigation measures on fauna***

To minimize and reduce the impact on wildlife, the following mitigation measures will be implemented during the construction phase:

- Monitoring the land in the construction area, to prevent damage to bird nests or animal burrows;
- Monitoring of the quality of surface waters, in order to prevent the impact on fish species and other aquatic animals;
- The Contractor will monitor that the water basins (Prut River, Cahul River, Cahul lake, and others) are not used for dumping construction waste or for the discharge of wastewater or chemicals from the construction site, in order not to affect the state of aquatic biological resources;
- Non-admission of fishing and illegal hunting (during the prohibition period officially announced by the Environmental Agency of the Ministry of Environmental) in the project area.

➢ ***Mitigation measures on flora and forest ecosystems***

[44] Source: https://www.legis.md/cautare/getResults?doc_id=132734&lang=ro

In order to minimize and reduce the impact on the flora and forest ecosystems on the potential effects at the construction stage of the water objects, the following mitigation measures will be implemented:

- The project area does not intersect forests, but they are present at small distances from the construction area;
  - It is forbidden to cut trees and gather plants and other goods from the forest without the authorization issued by the Environment Agency;
- Lighting a fire (pyre, bonfire) or burning dry vegetation and debris is prohibited;
- The contractor will monitor that the forests are not used for the storage of construction waste or the discharge of wastewater or chemical substances;
- Noise or the use of the horn or any other source of noise is prohibited in the vicinity of the forest.

➢ ***Mitigation measures on Natural protected areas***

In order to minimize and reduce the impact on protected natural areas, the following mitigation measures will be implemented during the construction period:

- The objectives for the MTP and other water infrastructure will not cross protected areas, but they are present at distances of less than - 2 km, or greater - 20 km from the construction area.
- The contractor will monitor the forests in the protected area near the village. Wormwoods should not be used for the storage of construction waste or the discharge of wastewater or chemical substances.
- In the vicinity of the protected area - The fossil site near village of Pelinei is forbidden to make noise or use the horn or any other source of noise, especially at night.

7.3.Social Impacts

7.3.1. Temporary land use

Taking into account the fact that the execution of the MTP construction-installation works will take place by digging a trench with a width of 1.40 m for the installation of two parallel pipelines, it requires available public land area for maneuvering during the installation of the conductors in the trench.

The implementation of the project will not require the acquisition of privately owned land for the construction of the water supply system with all its components: pipelines for the transport and distribution of water, pumping stations for the pumping and re-pumping of drinking water, water disinfection stations and constructions for the storage of drinking water. These components will be built on publicly owned land and roads. The main pipeline route will be constructed along existing public roads, in or outside of their protection zone, on public property. The water distribution networks in the localities will be built in the protection zones of existing public roads, along them, on the pavement or on public land. According to the Resettlement Screening Report elaborated by FluxProiect wthin this subproject there are 139 private ownership lands that are temporary affected by works *(Crihana Veche - 16 plots, Lebedenco -1 plot, Pelinei - 6 plots, Gavanoasa - 22 plots, Vulcanesti - 50 plots and Alexandru Ioan Cuza - 44 plots)*. These owners will have to be informed 3 months in advance about the works owners ‘commencement to enable them to plan in advance and avoid unnecessary costs.

- Removing excavated soil from the site will increase the cost of the works by about 40%. It will be needed for the concerned LPAs to identify and approve a public land available for temporary soil storage until the construction-assembly works start. Another alternative is that the excavated soil may be deposited near the trench, along the trench, provided that the respective LPAs and Contractor have signed agreements with the landowners for the time required for manoeuvring, excavation/storage of soil, laying of pipes and sealing of the trench. The analysis of these two soil management alternatives is described in subchapter 9.3.2.

Mitigation measures

Thus, a number of mitigation measures are proposed to minimise potential impacts regarding temporary land use:

- It will be ensured that there is the agreement of the private landowners before the start of its temporary use.
- For temporary use of land that is property of the Local Public Administration, the Contactor shall have written approval from the Rayonal Environmental Protection Inspectorate and also a written decision of the Local Council of the LPA prior to be able to use the land.
- For construction and assembly works planned in the intra-urban areas of localities, on public roads less than 5 m wide, where it is not possible to excavate trenches with specialised techniques, manual excavation shall be carried out.
- For the privately owned land in Gavanoasa, Vladimirovca village, with cadastral number 9417210.082, the procedure for obtaining the right to cross the land will be established first. The use of the land in Vladimirovca village in private property will be done by two methods:
  - Either by establishing a superficie right between the APL of Gavanoasa commune and the owner of the land (in this case it is not necessary to change the use of the land, the owner can still use the land).
  - by the procedure of expropriation of the land with cadastral number 9417210.082, for public utility reasons. Then the mechanism for payment of compensation will be established and the procedure for obtaining the right of ownership by the LPA of Gavanoasa settlement over the area delimited by the given land will be carried out directly. (the procedure is explained in detail in Resettlement Screening Report of FluxProiect point 3.5 and 3.5.1) The legal registration of the property right on the delimited area of the land in question must be completed before the start of the construction-assembly works.
- If the access routes to other lands unaffected by the works will pass near the 134 plots or other lands bordering the construction area, they must be identified before the start of the works, and those affected must be notified in writing 6 months in advance so they can plan to cultivate the land with crops that can be harvested earlier.
- The area of land temporarily affected by the construction-erection works may vary slightly during the works, depending on the technical means used by the Contractor.
- As the private land temporarily affected during the construction work is used for agriculture, it is recommended that ***the construction work to be carried out during the period when no crop seeded on the land***, or after the crops have been harvested**.**
- After completion of the construction-assembly works, the affected land shall be restored to its original (before the works) condition. In case Contractor's workers will store by accident soil

on agricultural land or will destroy the crops, gardens or perennial plants, the Contractor is obliged to reimburse financially the damage caused.

- The construction site and the construction and assembly work shall be organised in such a way as not to disturb road traffic. The work will be carried out in small, consecutive sections. All safety rules will also be undertaken and complied with, taking into account the scale of the project and the pre-established route.
- The actual dates of the construction schedule/schedule in terms of peak time, summertime and especially working days will be established especially for the locality areas, where it will be necessary to carry out works in the vicinity of residential houses and/or social institutions (schools, kindergartens, medical centres, LPA institutions, etc.) and accordingly, construction-erection activities will be planned.

7.3.2. Impacts on the local traffic

The majority of the new water supply pipes will be laid along two-lane country roads and the works will probably occupy one lane of the road. As a consequence, the works could cause the following:

- Local traffic disruption on certain streets;
- Difficulty to access some households and other agricultural land located on the same side of the open trenches;
- Difficulty for pedestrians to use the sidewalks.

Mitigation measures

A Traffic Management Plan (TMP) will be elaborated in close cooperation with the LPA and local traffic police authorities. The TMP will be comprised of the following three points:

- Road works management rules, that could include:
  - Temporary covering of open trench segments to allow residents and vehicles to access driveways, public infrastructure objects, bus stops, private households;
  - Delimitation with special signs and fences of the areas where are the trenches, especially near public schools;
  - Limitation of the length of trenches at one time;
  - Restrictions of materials delivery or removal during peak traffic hours (if relevant) along the main road;
  - Phasing of construction activities;
  - Limitation (if relevant) of any temporary interference with private property.
- Temporary traffic regulations: according to the actual road and traffic constraints these rules could provide for:
  - Rerouting of the traffic to avoid the road under work;
  - Scheduling of construction activities for minimizing disruption of the traffic on the settlements main traffic roads and areas;
  - Establishment of temporary parking rules (if needed, alternative parking areas and no parking rules).

Local population information means and procedures: leaflet distribution, announcement about construction and road safety placed on public billboards and temporary construction billboards etc.

7.3.3. Impacts on health and welfare of the local population

The health and welfare of the local population could be affected by the following:

- The accidental risk associated with the general car traffic disturbed by the works. Likewise, some children and/or adolescents may be victims of the car accidents and/or open trenches if they are left unattended on the street;
- The accidental risk associated with open trenches, the workers' activities and the operation and movements of the Contractors vehicles and machinery;
- The discomfort caused by the noise produced by works to the nearby local inhabitants;
- The spread of sexually transmitted diseases, HIV/AIDS and COVID 19;
- Possible social conflicts between the local population and the workers that may arrise during construction works;
- Limitation of access to social infrastructure and week-end local markets;
- Traffic safety issues;
- Access to yards of local residents;
- Dismantling or damage of landscaping facilities (if any).

Mitigation measures

Along with the Traffic Management Plan, the next mitigation measures are proposed:

- The Contractor must require a written consent from each worker that they will not engage into sexual activities with the local population and also provide them measures of protection;
- The Contractor will require from its workers not to use drugs, alcohol and cigarettes during working hours and will make them sign a written consent about the mentioned above;
- Protection (fencing) and signalization of work sites (especially excavation for pipe laying), in particular during the night, with clear marking of the safety border of the works perimeter (highly visible nets and tapes);
- Restrictions of speed limit and of tonnage for heavy vehicles passing through residential areas;
- Restrictions of construction activities in the vicinity of the sensitive buildings such as schools and kindergartens and interdictions of construction activities at night;
- Limitation of working hours for the works located in sensitive locations or working in those areas during weekends when the locations are not visited by the general public;
- Restricting access to working sites for other individuals than authorized workers (places occupied by operation electric and mechanical equipment, open trenches).

During the **Operation Phase** the quantity of water used for daily life usages of people will significantly increase. This will cause higher volume of wastewater that could be leaking into the ground, especially if the household does not have a septic tank or a special reservoir for wastewater. This especially can happen in the settlements of Gavanoasa and Pelinei. The poor

households that do not have showers inside their houses will need education regarding the use of wastewater.

Mitigation measures

An awareness campaign should be conducted on responsible collection of the wastewater into septic tank and evacuating it with special trucks to wastewater treatment plant:
- The target population will be the owners of individual houses;
- The means of communication will be public meetings and lectures;
- The argument will be based around the protection of the environment.

7.3.4. Impact on road, public equipment and services

Excavation for pipe laying and earth works can affect the buried network of current water supply (where is available, for instance - Vulcanesti railway zone) and also telecommunication (optical fiber), gas and aerial network of electricity. After pipe laying and trench filling, if the reinstatement of the carriage way is not properly done, some difference of level can be noticed between the existing road and the reinstated strip. This can be unsafe for driving comfort and safety and of surface drainage of the way.

- ***Mitigation measures during construction phase***

The risks and their associated outcomes mentioned above can be significantly mitigated through the Contractors' best practices and a genuine commitment to social responsibility, specifically:

- The Contractor must gather all essential information from the relevant institutions responsible and also obtain technical specification for realignment communications (specifically invite a representative of the institution in the field) for underground infrastructure to prevent any incidents that could disrupt water supply, gas, and other underground networks;
- The Contractor will inform in advance the local residents about temporary termination of communal services due to realignment of networks. In case there will be grievances, the channel for claims submission will be easily accessible for local residents (including vulnerable and disadvantaged groups);
- The Contractor is required to promptly notify and address claims from individuals affected by accidental damage to material assets and provide a fair compensation amount based on the replacement value;
- The Contractor is obligated to repair any public assets, including roads, that have been damaged after the completion of the construction;
- If the Contractor foresees temporary or permanent effects on public assets and services, they must engage in advance discussions with affected individuals and mutually agree upon the compensation amount before commencing construction;
- The restoration of damaged roads must be carried out in strict accordance with the existing road's design, including its transversal profile and structure. The supervisor from the

national or local road services will be actively engaged in overseeing and ensuring the quality of the reinstatement process.

- ***Mitigation measures during operation phase***

  - Prompt land reclamation, periodic surveillance similar to testing and exploration to detect leaks as early as possible, and other proactive steps to mitigate the consequences of incidents;
  - Implementing a robust maintenance schedule to inspect, repair, and replace aging or vulnerable sections of the pipeline to prevent ruptures before they occur;
  - Engaging with the local community to raise awareness about the pipeline, its potential risks, and the measures in place to prevent and respond to incidents firstly to inform the Contractor or Operator.

7.3.5. Damage to Private and Public assets

The works of pipe laying will take place on the carriage way and could affect private or public goods, such as fences or household walls due to the work of machinery and people.

Mitigation measures

Mitigation measures will include both expected impacts during the course of the work that were not detailed in the design study, as well as potential accidental damages:

- If there are foreseen temporary or permanent impacts on private property, the Contractor is obliged to have prior discussions with the affected individuals and mutually agree on the compensation amount before commencing construction.
- The contractor is obligated to repair any roads that have been damaged as a result of construction activities upon the completion of the construction works.

In confined work areas such as sidewalks, the Contractor must use appropriate working methods and equipment, such as a mini-excavator or manual digging, to ensure the safety of private property. These methods should be detailed in the method statements.

7.3.6. Impact of Workers' Health and Safety

The construction project is expected to involve highly risk situations for workers due to excavation activities

Due to the fact that the water supply system network can be conducted also during dry period of the year, the risk of vegetation fires can occur as a result of the high temperatures, drought and usage of cigarettes in the open field. Furthermore, fires may not only occur in the field but also on the premises of the contractor's production base and camp.

The workers engaged in pipe laying and the construction of water adduction systems will encounter typical risk factors commonly associated with construction work, including:

- ✓ Crushing or being struck by heavy mobile equipment, collisions between mobile equipment and light vehicles, and the risk of being trapped, entangled, or struck by machinery parts.
- ✓ Unstable excavation walls, potential collapses of excavations, and loose objects on the excavation's side walls.
- ✓ Unsafe staking of materials (pipes) on site (no stoppers);
- ✓ Falling from highs, the top of containers or ladders, scaffolding.
- ✓ The potential of eye impairment due to welding.
- ✓ The risk of cutting or being stabbed by sharp objects.
- ✓ The possibility of burns from hot or cold surfaces.
- ✓ Working in cold weather conditions.
- ✓ Excessive exposure to vibration, noise, dust and exhaust fumes.
- ✓ The risk of electrical shock or burns.
- ✓ The risk of spreading of HIV/AIDS, Sexually Transmitted Diseases, Covid 19 and other infectious diseases.
- ✓ The risk of occurring GBV and SEA/SH cases among workers or between workers and local population.

All of these risks are increased when workers lack the necessary experience, skills and training.

Mitigation measures

- ➢ Ensuring fire extinguishers available at work sites, cars and equipment of the Contractor (in the localities) and at the premises of the warehouses, production base and offices.
- ➢ Water spraying of roads and places where the system network will be constructed.
- ➢ Smoking allowed only in special places;Training workers and office staff on how to extinguish a fire.
- ➢ Occupational health and safety management relies on the Contractor's Occupational Health and Safety Plan (OHSP), which outlines all the measures for preventing and handling potential health and safety hazards that may arise during the project.

- ➢ The OHSP will meet, at a minimum, the requirements of national legislation (Labor Code), as well as adhere to the OSHAS 18001 standard and the Occupational Health and Safety Directive of the EU (Directive 89/391/EEC, 89/654/EEC, and 92/57/EEC). The OHSP shall, as a minimum, include the following provisions:

    - ✓ The Contractor must offer OHS training, including induction and toolbox talks.
    - ✓ The Contractor must employ a Health and Safety engineer as a focal point.
    - ✓ Employing exclusively skilled and experienced workers.
    - ✓ Enforcing the obligatory use of Personal Protective Equipment (PPE).
    - ✓ Conducting regular medical checks for workers following the initial pre-recruitment medical examination.

- ✓ Ensuring on-site medical personnel and equipment, including first aid kits.
- ✓ Guaranteeing the use of safe machinery and the safe operation of equipment).
- ✓ Providing training for operators of industrial vehicles.
- ✓ Mobile equipment with restricted visibility should be equipped with audible alarms.
- ✓ Establishing emergency procedures for addressing both safety and environmental incidents.

During the **Operation Phase**, usually, chemical substances are stored and used at the Water Disinfection Station and include diesel oil for the generator, chloride and small quantities of usual detergents and cleaning products.

The primary safety risks associated with the Water Disinfection Station will be related to:

- Contact with water from the river, and water sludge.
- Fire. The risk of fire is primarily associated with the fuel storage area.
- Small accidents (falls, electric shocks). The likelihood of such accidents occurring in Water Disinfection Stations is not anticipated to be greater than that in other medium-sized factories.

Mitigation measures

Water disinfection and adduction pipe stations should comply with the provisions of the national legislation and international rules on occupational health and safety, especially concerning the following:

- Prevention of falls;
- Protection of workers;
- Prevention and fight against fire;
- Emergency Response and Preparedness.

Occupational health audit will be carried out prior to start the operation of facilities and repeated yearly.

7.3.7. Impact on local employment and economy

The construction of the water supply network in Vulcanesti Railway Zone, then in Gavanoasa and Pelinei settlements will require a warehouse and an office for the Contractor. All this can be provided by FEZ and the building of the Railway Station, where they have available space for office and territory where they can arrange a temporary warehouse. Also, the proximity to the construction zone will only save them money used for transportation. Also, similar place for a warehouse and office can later be found in either Gavanoasa or Pelinei settlements.

This will enhance the local economy for a short period. However, it could cause disturbance of the local population by producing additional garbage, noise and social conflicts with the local population.

Mitigation measures

The Contractor shall develop personnel hiring policy that will include but not be limited to:

- ✓ Publishing job anouncements that needs to be filled in the local announcement boards and local mayor's office.
- ✓ Select applicants in an anonymous, transparent way that shall avoid social favoritism.
- ✓ Avoid cases for gender discrimination in their recruiting practice for skilled or unskilled personnel.

7.3.8. Impact on employment

The construction period will create short-term job opportunities for unskilled workers within the Railway Zone of Vulcanesti, Vulcanesti town and also within rural communities of the project (Gavanoasa and Pelinei settlements). The main staff demanding activities will be civil works and laying water pipes for the water supply network.

During the operational phase, the newly installed water supply network system and machinery offer the potential to promote female employment. In the future, at least 30% of the newly hired personnel should consist of women.

7.3.9. Synthesis of socio-economic impacts

As a result of the identification of the potential impacts associated with the Project, for each socio-economic aspect the potential impacts in the absence of mitigation measures were established and evaluated, see below **Table 7-12**.

Table 7-12: Assessment matrix of potential social and economic impacts

Phase	Impact	Intensity	Duration	Extent	Significance of the impact
PC, C	Temporary land use	Moderate	Medium Term	Local	**Moderate**
C	Traffic and Pedestrian Safety	Moderate	Medium Term	Local	**Moderate**
C	Health and Welfare of the Population	High	Medium Term	Local	**Moderate**
C	Impacts on the local roads (flooding from pipes)	Moderate	Medium Term	Local	**Moderate**
C	Worker's Health and Safety	High	Medium Term	Local	**Moderate**
C	Roads, Public Equipment and Services	High	Long-Term	National/ Local	**High**
C	Damage to Private Assets	Moderate	Long-Term	Local	**Moderate**
C	Damage to Public Assets	Moderate	Long-Term	Local	**Moderate**
C	Gender issue (Discriminating against women in work assignments, sexual harassment risk)	Moderate	Medium Term	Local	**Low**
C	Temporary settlement of Contractor's warehouse and office	Moderate	Medium Term	Local	**Moderate**
O	Health and Welfare of Residents	Moderate	Long-Term	Local	**Moderate**
O	Worker's Health and Safety	Low	Long-Term	Local	**Moderate**

7.4. Cumulative impacts

This section discusses the cumulative impact of the sub-projects. In this regard, the cumulative impact under consideration is defined as two or more individual affects that, when considered together, have considerable or which compound or increase other environmental impacts.

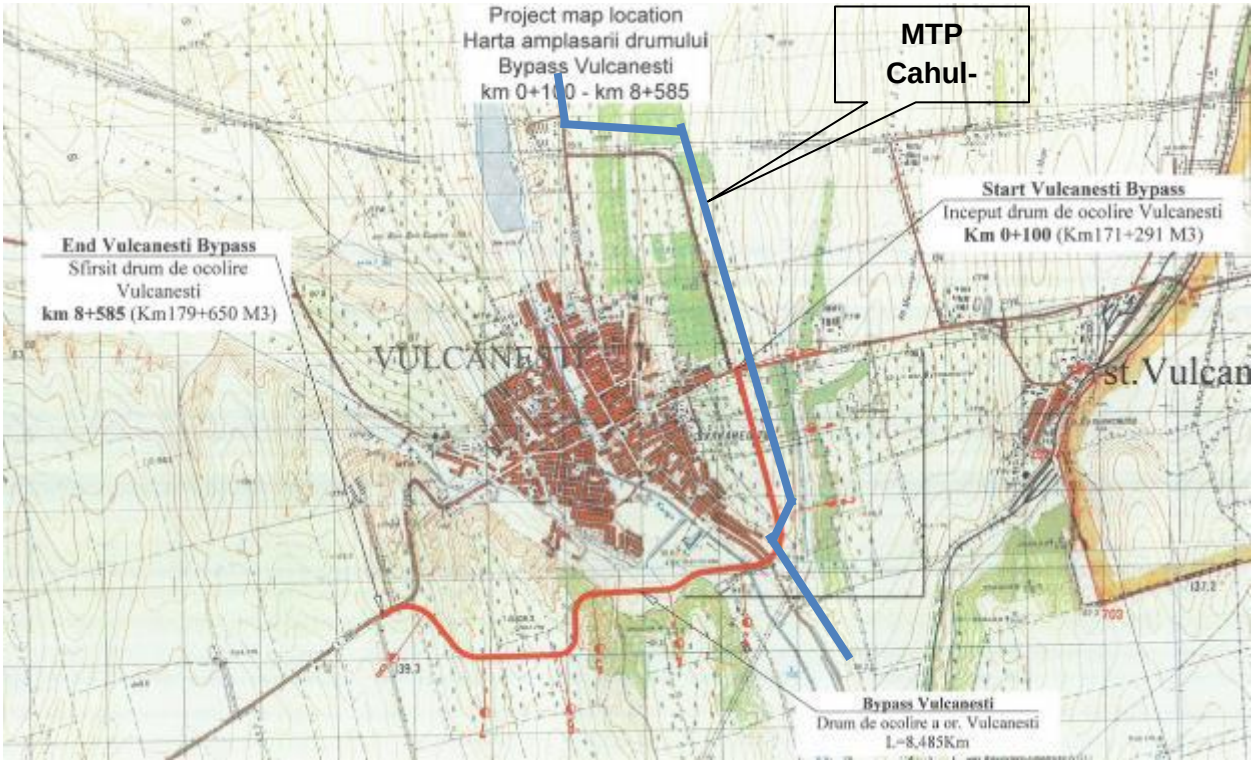
The water quality as well as the aquatic ecosystem of the Cahul River and its affluents are not considered to be cumulatively impacted during the subproject's construction and operation phases. This is because the proposed subproject does not cause any significant detrimental effects on the water quality and aquatic ecosystem during both construction and operational activities.

In the district of Cahul, the implementation of the sub-projects "Construction/reconstruction of sanitary groups and infrastructure of water supply and sanitation in public institutions" is planned, namely for the Offices of Family Doctors in the localities of Ursoaia, Lebedenco, Pelinei, and Alexandru Ioan Cuza and in the schools from Andrusul de Sus and Doina. The activities are part of sub-component 1.2 of the MWSSP "Improving Water Supply, Sanitation and Hygiene (WASH) facilities in public institutions" and will include the development of project documentation, connecting institutions to water sources, connecting sewerage systems and construction/repair indoor sanitary blocks. Projects to ensure sanitary conditions and collection of households wastewater will have a positive impact on the environment and the population.

Another project that is being carried out in the area of the Cahul-Vulcanesti water supply sub-project is the construction of the M3 road Chisinau-Comrat-Giurgiulesti-border with Romania (bypassing the town of Vulcanesti), km0+000 - km8+580, financed by the European Bank for Reconstruction and Development (EBRD), see **Figure 7-1**. The contract provides for the construction of a new road with a length of about 8.58 km to the east and south of the city of Vulcanesti. Thus, the works related to the given objective will include: the construction of a bridge at km 2+965 with a length of 42 meters and a passage at km 4+690; the construction of new embankments on the sector km 2+800 – km 8+580; reconstruction of the existing road sector km 0+100 – km 2+800; arranging side accesses to the agricultural fields and arranging the intersection with regional road G142 "Vulcanesti - Etulia".[45]

[45] https://www.asd.md/featured/fost-semnat-acordul-pentru-executia-lucrarilor-de-constructie-drumului-m3-chisinau-comrat-giurgiulesti-frontiera-cu-romania-ocolirea-vulcanesti/

Figure 7-1: Construction project of the M3 road Chisinau-Comrat-Giurgiulesti-border with Romania (bypassing the town of Vulcanesti)



Source: SE "State Road Administration"

A moderate cumulative impact resulting from the simultaneous implementation of both projects is planned. In the process of updating the Detailed Design (DD), the technical prescriptions issued by MIRD will be obtained, subsequently, the DD will be coordinated by the SE "State Road Administration". During the construction period, in order to avoid the overlap of the work sites, it is necessary to coordinate between the staff of construction companies in order to execute the works in a coordinated way so that there are no technical impediments.

7.5. Positive Impacts

The implementation of the "Cahul - Vulcanesti water supply" sub-project will result in many social-economic benefits for the beneficiaries and the surrounding communities. Overall, the project is expected to result in better access to safe drinking water, which will lead to the creation of living standards in terms of disease reduction, creation of temporary jobs during construction, economic development, etc.

Cahul district and TAU Gagauzia have always been affected by droughts and lack of quality drinking water. In the long run, local people will enjoy only positive social impacts, namely:

- **The quality of water in the pipes will increase** and they will no longer have to use polluted water from local wells;
- Households **will save the money** spent on water filters, which they have to change once every several months or weeks due to poor water quality;
- **Better living conditions**;
- **Improved health of the local population**;
- Looking ahead, the population **will spend less on medicines**, particularly the pensioners and those with low incomes;
- The **hygienic and sanitary conditions of the population will improve**, and they will spend less time washing clothes and doing the dishes;
- The businesses and will **save time, finances and machinery will last longer** due to the improved quality of the water;
- The **tourist attractiveness of certain localities** that plan to develop tourist guest houses and camps for children (e.g. Pelinei and A. I. Cuza villages) **will increase**.

Of course, these benefits will not come immediately, but in a few years, if additional investments are made in the water supply system and in the tourism sector.

Looking ahead, the local population, particularly in rural areas, should be stimulated and taught to use the water collected in septic tanks and filtered (in limited conditions) for the irrigation of trees. Such practices are applied in countries where the shortage of water has been always an issue, for example, Israel.

Due to the fact that the rural localities included in the project are not part of an industrial or economically developed area, it is clear that the project will not increase significantly the employment rate during the construction or operation stage.

Other potential positive social-economic impacts that could be generated by the project are:

- **Creating jobs for local residents**. The implementation of this project will provide employment opportunities for local residents in the targeted localities. The following activities will create jobs in the district of Cahul and the city of Vulcanesti as a result of the implementation of the Project: (i) recruitment of labor as labor for various constructions, (ii) supply of construction materials, including aggregates of sand, gravel, steel bars, timber, cement, (iii) security and cleaning agents;
- **Services for local contractors**. During project implementation, several diverse services will be needed to support the workforce. Services can be expected to include catering, cleaning, security, transport, repair work, supply of construction materials and supplies, etc. The provision of services will preferably be given to existing local companies or companies from outside the area;
- **Compatibility with the scale of economic development**. This water supply project as a whole will have positive impacts due to the increased availability of potable water, which will create opportunities to open other development projects that require regular water supply in their operation, such as large-scale processing enterprises small;

- **Potential creation of synergies with other sectors**. The water supply project will create synergies with the health and education sectors due to its influence in reducing the incidence of water-borne diseases resulting from the availability of quality water by increasing the well-being of the local population. Children who spend part of their day fetching water will have more time to study whether water is available, as will the productive population who will have more time for other productive activities, thus improving their standard of living;
- **Knowledge transfer.** Technical and planning skills will be acquired by the people who will be employed by the project, and this is likely to contribute to the development of capacities in management, engineering, environment, health and safety;
- **Improving gender equality**. It is expected that during the implementation of the project, women will benefit equally with men in terms of employment benefits. In the sectors covered by the project, women and young girls form a high percentage of the population but participate inadequately in development activities due to the burden of water intake.

8. DESIGN MEASURES

At the design stage, both the Environmental, Health, and Safety (EHS) Guidelines and the legislative and normative basis of the Republic of Moldova are taken into account. The preliminary environmental and social measures regarding designed infrastructure and location to be considered at the design stage are described below.

General requirements

- Selection of authorized manufacturers/suppliers in the field and selection of the necessary equipment according to durability, efficiency, price, in compliance with technical regulations and protection of personnel health and the environment;
- Obtaining the urban planning certificate for the design, issued by the local public authority in accordance with Law No. 163 from 09.07.2010 regarding the authorization of the execution of construction work;
- The technological process selected for water disinfection will guarantee compliance with the requirements established in Annex 2 of the GD 934/2007;
- Selection of optimal location of Platforms for water infrastructure and routes for accession roads, electricity transmission lines and water pipes;
- Design works will be done after obtaining the connection notice (technical conditions to connect) from all utilities (telecom, water, electricity, natural gas, road infrastructure, etc.);
- The sanitary protection area of the Platforms of water infrastructure will be ensured by fencing the land according to the norms of the Republic of Moldova.

Air

- The proposed equipment related to the project will have limited greenhouse gasses (GHG) emissions and intensity;
- As possible, ensure outdoor lighting with LED energy efficiency lamps and solar panels as a source of energy.

Noise

- Measures will be taken to mitigate the noise during the construction works (equipment that does not produce loud noise, warning the nearby residents about the inconveniences that will be created, selecting the shortest routes and those with the least impact on the residents).

Water

- After carrying out the geotechnical study and establishing the depth of the groundwater, the necessary measures will be taken to prevent water pollution;
- Avoiding or minimizing the filling of existing water bodies, keeping rainwater recharge to existing water bodies (river, stream, lake).

Soil

- Fertile soil handling operations will be included in the project documentation: uncovering, temporary storage in piles, loading in trucks, transportation and later reuse for landscaping;
- After carrying out the geotechnical study and establishing the depth of the groundwater, the necessary measures will be taken to prevent water and soil pollution.

Flora and Fauna

- Protecting and conserve existing biodiversity and habitats;
- The layout of the Water Infrastructure Platforms will be based on the natural landscape, with landscape protection and conservation built into the layout;
- Design solutions will not affect the maintain and enhance the benefits of ecosystem services;
- Promote the sustainable management of living natural resources by planting trees and shrubs in the sanitary protection area of the developed infrastructure.

Traffic

- Ensuring in the project documentation the access roads to the designed infrastructure.

Hazardous Materials

- Non-toxic, sustainable and energy-efficient building materials will be used;
- Avoid paints that contain dangerous chemicals such as lead, which is a heavy metal harmful to the health of the population and the environment;
- The materials used will be accompanied by certificates of conformity, ecological certificates, health certificates, etc.;
- Avoiding or minimizing the use of construction materials with a high risk to the environment and people's health in the work process;
- Ensure the implementation of the provisions of the Sanitary Regulation regarding health and safety requirements to ensure the protection of workers against the risks related to the presence of chemical agents at the workplace approved by GD No. 324 of 30.05.2013.

9. RESETLEMENT ASPECTS

9.1. World Bank requirements

Project-related land acquisition and restrictions on land use can have adverse impacts oncommunities and persons. Project-related land acquisition or restrictions on land use may cause physical displacement (relocation, loss of residential land), economic displacement (loss of land, assets or access to assets, leading to loss of income sources or other means of livelihood), or both. Experience and research indicate that physical and economic displacement, if unmitigated, may give rise to severe economic, social and environmental risks.

The World Bank ESS5 requirements encompass the development and execution of a resettlement framework or plan, laying the foundation for:

- general requirements such as eligibility classification, project design, compensation and benefits for affected persons, community engagement, grievance mechanism, planning and implementation;
- physical and economic displacement;
- technical and financial assistance.
- collaboration with other responsible agencies or subnational jurisdictions;

ESS5 includes situations where project makes land physically unusable or inaccessible, even when there is no land acquisition. It also provides some flexibility where a party derived substantial income from multiple illegal rental units.

9.2. Provision of Moldovan Legislation and Gap Analysis

The basic principles of the Moldovan civil legislation are: recognition of equality among the parties to relationships regulated by it, inviolability of ownership, freedom of contract, prohibition to interfere with private affairs, free exercise of civil rights, guaranteed remedy of violated rights and judicial protection of the same. In particular art. 10 section b) of the Civil Code stipulates that “restoration of the condition, which existed before the violation of the right, and suppression of acts which violate or threaten to violate such right”. The principle of inviolability of ownership, guaranteed remedy of violated rights and judicial protection are in line with the ESS5.

Several regulatory instruments exist in the country that provide grounds for both (i) regulation, implementation, and management of acquisition of land, property, and productive assets, as well as (ii) compensation for the loss of these assets. Laws and regulations most pertinent to resettlement and related issues (land management, environmental assessment, compensation, etc.) include the following:

Laws and by-laws related to land management:

- Civil Code of Republic of Moldova, Chapter IV. Superficia art.654-666;
- The Land Code (No. 828-XII, 1991 with amendments);[46]

[46] Code no. 828 from 25.12.1991 The land code with the last modifications from 02.09.2023

- Law nr.488 from 08.07.1999 regarding expropriation for the cause of public utility, (with the latest changes from 01.07.2022)
- Law on Small Farmers' Households No. 1353 of 3 November 2000;
- Law on Renting in Agriculture No. 198 of 15 May 2003;
- Law on Public Lands and their Delimitation No. 91 of 5 April 2007; and
- Approval of the Regulation on Agricultural Terrain Consolidation, Government Decision No. 1075 of 2007.

Legislation specifically related to acquisition of land includes:

- The Law on Expropriation for Reasons of Public Use No. 488 of 7 August 1999 or Eminent Domain (with the last changes from 01.07.2022)
- Law no.1308 from 25.07.1997, on the standard price and procedure for the purchase - sale of land, (with latest changes form 18.03.2023)
- Law no.354 from 28.10.2004, regarding the formation of real estate, (with latest changes from 14.08.2020)

Among these laws, Land Code No. 828-XII, 1991 with amendments and the Law on Expropriation for Reasons of Public Use No. 488 of 7 August 1999 provide the basis for acquisition of land for projects of national interest and municipal needs. Specifically, these regulations consider options for the land acquisition payable only for the legal landowners: (i) land-for-land; (ii) compensation based on market prices; and (iii) dispute over the compensation subject to resolution in the courts.

There is only limited compatibility between Moldovan legislation and WB policy. This reflects a fundamentally different orientation towards the relation between the government, people, and land (and other natural resources). In WB-funded projects, all land acquisition and/or resettlement issues will be resolved according to the higher standard where Moldovan law and WB policy diverge. In other words, ESS5 complements the existing body of Moldova regulations and does not replace them.

Table 9-1: Gap analysis between Moldova legislation and ESS 5 Land Acquisition and Involuntary Resettlement (ESS5)

Gap	Moldovan legislation	ESS5	Bridging gaps
Potential resettlement impacts	Moldovan legislation does not specify the potential impacts of resettlement.	Involuntary resettlement refers both to physical displacement (relocation or loss of shelter) and to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood1) as a result of project-related land acquisition2 and/or restrictions on land use. Resettlement is considered involuntary when affected persons or communities do not have the right to refuse land acquisition or restrictions on land use that result in physical or economic displacement. This occurs in cases of (i) lawful expropriation or temporary or permanent restrictions on land use and (ii) negotiated settlements in which the buyer can resort to expropriation or impose legal restrictions on land use if negotiations with the seller fail.	If involuntary land acquisition, displacement and/or economic displacement will be triggered, the subproject will develop Resettlement Action Plans and/or Livelihood Restoration Plan according to ESS5 requirements and standards. These documents will be revised and approved by the World Bank.
Key objectives of ESS5	Moldovan regulations do not consider resettlement as a sustainable development program, nor do they provide grounds for alternative options. Also, they do not specify benefits and opportunities that may be provided by resettlement to improve the livelihoods of the affected populations.	To avoid, and when avoidance is not possible, minimize displacement by exploring alternative project designs. ● To avoid forced eviction. ● To anticipate and avoid, or where avoidance is not possible, minimize adverse social and economic impacts from land acquisition or restrictions on land use by (i) providing compensation for loss of assets at replacement cost4 and (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected. ● To improve, or restore, the livelihoods and standards of living of displaced persons. ● To improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure5 at resettlement sites.	Infrastructures' designs will be reviewed and examined to assess if there is room for improvement in terms avoiding involuntary resettlement. If it will be assessed that resettlement is un-avoidable, the project will develop Resettlement Action Plans (RAP) and/or Livelihood Restoration Plan (LRP) according to ESS5 requirements and standards. These documents will be revised and approved by the World Bank.

Gap	Moldovan legislation	ESS5	Bridging gaps
Involuntary resettlement instruments	Moldovan legislation lack provision on developing resettlement instruments such as Resettlement Policy Framework, Resettlement Action Plan, Livelihood Restoration Plan, Livelihood Restoration Framework	Where the exact nature or magnitude of the land acquisition or restrictions on land use related to a project with potential to cause physical and/or economic displacement is unknown due to the stage of project development, the client will develop a Resettlement and/or Livelihood Restoration Framework outlining general principles compatible with ESS5. In the case of physical displacement, the client will develop a Resettlement Action Plan that covers, at a minimum, the applicable requirements of ESS5 regardless of the number of people affected. In the case of projects involving economic displacement only, the client will develop a Livelihood Restoration Plan to compensate affected persons and/or communities and offer other assistance that meet the objectives of ESS5	If involuntary land acquisition, displacement and/or economic displacement will be triggered, the project will develop Resettlement Action Plans and/or Livelihood Restoration Plan according to ESS5 requirements and standards. These documents will be revised and approved by the World Bank.
Different categories of resettlement such as economic or physical	Displacement and land acquisition take place under the the Law on Expropriation for Reasons of Public Use No. 488 of 7 August 1999 or the Eminent Domain Law and the Land Code that only apply to physical resettlement.	ESS5 recognizes both physical displacement and economical displacement. Project-related land acquisition and/or restrictions on land use may result in the physical displacement of people as well as their economic displacement. Consequently, requirements of ESS5 in respect of physical displacement and economic displacement may apply simultaneously.	The project will apply ESS5 throughout the project cycle, therefore making sure all possible impacts are considered and are addressed accordingly.
Informed participation of project affected persons PAP	Limited legal basis to provide public disclosure of land acquisition and resettlement activities.	It is important that affected disadvantaged or vulnerable individuals or groups have a voice in consultation and planning processes. This may involve special efforts to include those who are particularly vulnerable to hardship because of physical or economic displacement.	The project will disseminate information about the project and infrastructure works and resettlement arrangements in the resettlement development stage and will organize meaningful consultation with affected communities and Project Affected Persons throughout the project cycle. Special attention will be paid to

Gap	Moldovan legislation	ESS5	Bridging gaps
	However, a number of existing regulations and international conventions, to which Moldova is a party provide a basis for developing specific regulations on public participation and consultation processes for resettlement. Convention on Access to Information, Public Participation in the Decision-Making Process and Access to Justice in Environment (Aarhus, 1998). Law on Access to Information No. 982/2000.		vulnerable or at-risk groups to hear their concerns and plan resettlement activities to mitigate adverse impacts on these groups in particular and community in a broader context.
Grievance mechanism	Limited legal basis to establish a grievance mechanism consistent with ESS requirements. However, a number of existing regulations provide a basis for addressing grievances.	The client will establish a grievance mechanism consistent with Performance Standard 1 as early as possible in the project development phase. This will allow the client to receive and address specific concerns about compensation and relocation raised by displaced persons or members of host communities in a timely fashion, including a recourse mechanism designed to resolve disputes in an impartial manner.	The project will establish a grievance mechanism consistent with World Bank standards as early as possible in the project development phase.

Gap	Moldovan legislation	ESS5	Bridging gaps
	Administrative Code no. 116 as of 19.07.2018		
Preference for negotiated agreements	Limited legal basis for preference of negotiated agreements.	To help avoid expropriation and eliminate the need to use governmental authority to enforce relocation, clients are encouraged to use negotiated settlements meeting the requirements of this Performance Standard, even if they have the legal means to acquire land without the seller's consent.	The RAP/LRP developed under the project will consider and provide grounds for negotiated settlement. The preference for negotiated settlement will be advocated by the project and adequate methodology will be established.
Minimization of displacement	There is no provision in Moldovan legislation regarding minimization of displacement.	ESS5 objective - To avoid, and when avoidance is not possible, minimize displacement by exploring alternative project designs.	Infrastructures' designs will be reviewed and examined to assess if there is room for improvement in terms avoiding involuntary resettlement. If it will be assessed that resettlement is un-avoidable, the project will develop Resettlement Action Plans (RAP) and/or Livelihood Restoration Plan (LRP) according to ESS5 requirements and standards. These documents will be revised and approved by the World Bank.
Baseline and Cut-off date	There is no provision in Moldova legislation relating to cut-off date establishment.	In the absence of host government procedures, the client will establish a cut-off date for eligibility. Information regarding the cut-off date will be well documented and disseminated throughout the project area.	The project will establish a cut-off date for eligibility. The establishment of the cut-off date will be documented and disseminated through flyers, public displays, media announcements and social networks in the project area.
Compensation for loss of economic activities and loss of income flow	There is no provision in Moldovan legislation referring to compensation for loss of economic activities and loss of income flow.	In the case of projects affecting livelihoods or income generation, the Borrower's plan will include measures to allow affected persons to improve, or at least restore, their incomes or livelihoods. Economically displaced persons will be provided opportunities to improve, or at least restore, their means of income-earning capacity, production levels, and standards of living.	The project will develop the RAP/LRP to consider for the livelihood restoration for the affected persons based on ESS5 provisions.

9.3. Resetlement Needs Assessment

According to the Project Resettlement Policy Framework in the table below are included a selection of the most suitable entitlement and eligibility criteria for permanent loss of land, temporary loss of land, loss of crops/trees, impacts on vulnerable PAPs – risk of increased vulnerability or loss of income and livelihoods. The PIU is in the process of developing of Abbreviated Resettlement Action Plan (ARAP).

According to the analysis of company **FluxProiect - The Resettlement Screening Report** on the water transmission main route and the drinking water distribution networks in the localities, until the updating, are permanently affected: 139 private ownership lands ***(Crihana Veche - 16 plots, Lebedenco – 1 plot, Pelinei - 6 plots, Gavanoasa - 22 plots, Vulcanesti - 50 plots and Alexandru Ioan Cuza - 44 plots)***; 17 lands owned/ managed by central public authorities (SRA – 15 lands, Railway of Moldova – 1 land, Water Fund – 1 land). The experts who developed the ESIA do not have information on the owners of these lands. 139 lands do not mean 139 owners. Some landowners may own more than one temporarily affected land. We also do not know how many landowners are renting their land to someone else, that is why we thought as appropriate to include this table retrieved from the RPF developed by the Client.

Type of Losses	Entitled Persons	Compensation Policy and Standards
Permanent Loss of Land	**Private Landowners, including:** Landowners with registered land ownership documentation; Persons who obtained the right to register their ownership due to long actual possession, but undocumented; Person with a notarised Power of Attorney to act on behalf of an absentee landowner.	The loss of land will be compensated for the full replacement cost. The compensation will be paid in kind with a replacement land, land for land option. In exceptional cases of non-vulnerable PAPs who express a strong preference for cash after having been informed about the different types of compensation, this compensation can be paid in cash for the value of full replacement cost. In case alternative replacement land with similar quality (area and quality worthiness) is not available the difference in quality and area may be compensated in cash at replacement value.

Type of Losses	Entitled Persons	Compensation Policy and Standards
Temporary Loss of Land	**Private Landowners, including:** Landowners with registered land ownership documentation; Persons who obtained the right to register their ownership due to long actual possession, but undocumented; Person with a notarised Power of Attorney to act on behalf of an absentee landowner.	Cash compensation for use of land calculated at rent market value or normative land value whichever is higher, because the activity in agriculture has a cycle of 1 year.
Temporary Loss of Land	**Registered Renters, including:** Private renters or entities with registered leases on State land; Private renters or entities with registered leases on municipal land; Private renters or entities with registered lease on private land; Private renters or entities with third party rights (seasonal grazing and stock movement rights, hay making).	Cash compensation for use of land calculated at rent market value or normative land value whichever is higher, because the activity in agriculture has a cycle of 1 year.
Temporary Loss of Land	**Non-Registered renters, including:** Private renters with verbal or informal (unregistered) agreement with landowner; Private renters of State or municipal land without lease or formal agreement; Private renters of private land without formal agreement with landowner.	Cash compensation for use of land calculated at rent market value or normative land value whichever is higher, because the activity in agriculture has a cycle of 1 year.
Loss of Trees/Crops	**Trees/Crop Owners**, **including:** Trees/crop owners with registered land ownership documentation; Trees/crop owner who obtained the right to register their land due to long actual possession, but undocumented;	Compensation at market value. In case of annual crops, the crops owners will be informed 6 months in advance about the works 'commencement to enable them to plan in advance and avoid unnecessary costs. Annual crops owners will also be allowed to collect their crops if by the

Type of Losses	Entitled Persons	Compensation Policy and Standards
	Person with a notarised Power of Attorney to act on behalf of an absentee trees/crop's owner.	works commencement the crops are ready for harvest.
	Registered Renters, including: Trees/crop owners or entities with registered leases on State land; Trees/crop owners or entities with registered leases on municipal land; Trees/crop owners or entities with registered lease on private land; Trees/crop owners or entities with third party rights (seasonal grazing and stock movement rights, hay making).	Compensation at market value. In case of annual crops, the crops owners will be informed 6 months in advance about the works 'commencement to enable them to plan in advance and avoid unnecessary costs. Annual crops owners will also be allowed to collect their crops if by the works commencement the crops are ready for harvest.
Loss of Trees/Crops	**Un-Registered Renters, including:** Trees/crop owners with verbal or informal (unregistered) agreement with landowner; Trees/crop owners on State or municipal land without lease or formal agreement; Trees/crop owners on private land without formal agreement with landowner.	Compensation at market value. In case of annual crops, the crops owners will be informed 6 months in advance about the works 'commencement to enable them to plan in advance and avoid unnecessary costs. Annual crops owners will also be allowed to collect their crops if by the works commencement the crops are ready for harvest.
Impacts on Vulnerable PAPs – risk of increased vulnerability	Vulnerable or at risk groups	Special measures for vulnerable people will include financial support to secure income, health or education services, and social support, according to their necessities.
Loss of income and livelihoods	Loss of formal and informal businesses (income)	The loss of business income will be compensated in cash for the cost of identifying a viable alternative location; for lost net income during the period of transition; and for reestablishing commercial activities.

Type of Losses	Entitled Persons	Compensation Policy and Standards
		Additionally, business owners will obtain specialized support to reinstall their businesses.
Loss of income from lease	Loss of income from lease	The loss of income from leasing will be compensated in cash with a monthly payment rent until the building for the rental is restored or a new income source is in place.

9.3.1. Permanent Land Acquisition

Following the update of the drinking water transmission main route, no lands were identified that would be permanently affected after the implementation of the project.

Following the update of the drinking water distribution networks route, in the localities of Pelinei, Satuc, Nicolaevca, Gavanoasa and in the Gara Vulcanesti sector from Vulcanesti town, there are no lands that will be permanently affected after the implementation of the project.

Only in the Vladimirovca village (part of Gavanoasa settlement) there is a part of the drinking water distribution network route, which passes over the land with cadastral number 9417210.082 which cannot be displaced. Because this part forms the ringing of network in the locality for the proper operation of the entire system in the Vladimirovca village and since this land is directly bordered by its bounds with the lands with cadastral numbers 9417210.076, 9417210.077 and 9417210.080, it's not possible to move the designed route of the network.

This fact justifies the action of transfer of the ownership over the given land:

- either by establishing the superficies right between the APL of Gavanoasa commune and the land owner with cadastral number 9417210.082, for the execution of construction-assembly works of the water distribution network and subsequent access for repair or other interventions to the network, as well as conduct of maintenance and operation works to remove damages, or
- through the expropriation procedure of the land with cadastral number 9417210.082, for cause of public utility.

9.3.1.1. The legal framework regarding the right of superficies on lands

The **legal framework** for establishing relations of the contractual superficies is the **Civil Code** of the Republic of Moldova, **Chapter IV. Superficies, art.654-666**.

The contract for the superficies right will be concluded between the LPA of Gavanoasa commune and the owner of the land with cadastral number 9417210.082, for the area of 489 m2, for a period established according to national legislation, starting with the initiation period of the construction-assembly works of distribution networks.

The contract will specify that the Beneficiary (LPA Gavanoasa) will build drinking water distribution networks, with underground location, on the border of the land in the Owner's patrimony, and the latter agrees to the location and execution of this work. Also, the laying depth of network and the exact location will be specified in the contract: at the boundary of the real estate, from the extreme north-west point to the extreme south-east point, for a length of 67,05 m and a width of 7.40 m, measured from the outer boundary of the property towards the interior thereof. Likewise, the situation plan with the dimensions of the location will be attached.

The superficies right must be obtained before the start of the construction-assembly works for the implementation of the project.

9.3.1.2. The legal framework for the expropriation of land ownership for cause of public utility

The legal basis for expropriation for cause of public utility is Law no.488 from 08.07.1999, with latest changes from 01.07.2022.

Through expropriation, the patrimonial right will be transferred from private property to the public property of LPA of Gavanoasa settlement (as Expropriator) with the purpose of making the works for cause of public utility of local interest (water supply system in Vladimirovca village), according to national legislation, after prior compensation.

1. *Delimitation.*

The expropriation will be done for area of 489 m^2 of land, as in the case of obtaining the superficies right on it. The surface of the land subject to the expropriation procedure will be on the boundary of the building, from the north-west extreme point to the south-west extreme point, on a length of 67.05m and a width of 7.40m, which is measured from the outer boundary of the property to its inner part.

2. *Compensation.*

Following the initiation of the expropriation procedure, it will be necessary to compensate the private owner, which will be done according to the procedures and stability provisions of Law no. 488 of 07/08/1999.

The compensation paid to the affected person will include the real economic value of the rights of the expropriated owner and the damages caused to the real rights holder.

The assessment of the amount of compensation associated with the final expropriation of land will be based on the market price, provided that it is not lower than the standard price calculated in accordance with the rates established by the Law on the standard price and procedure for the purchase - sale of land[47].

The compensation will be appropriate financed from the budget of APL Gavanoasa or with the support of MIRD through PIU.

3. *Preparation and submission of the expropriation proposal.*

[47] Law no.1308 from 25.07.1997, on the standard price and procedure for the purchase - sale of land, with latest changes form 18.03.2023.

The expropriator will submit the expropriation proposal, which will contain the notification to the affected person, the compensation offer, the method of ownership transfer.

4. *Preparation of the folder and conclusion of the legal documents regarding the transmission of the ownership right from the Expropriated owner to the Expropriator.*

Since only a part of the private land will be affected, it will be subject to the procedure of delimitation/formation by separation of a new property, in accordance with the legal provisions[48].

The transmission of the right of ownership from the expropriated owner to the expropriator involve:

- The conclusion of the sale-purchase contract of the permanently affected land, between the parties;
- Signing by the Expropriated owner of the agreement to transfer ownership of the land.

The contract will be drawn up based on the previously prepared folder with all the necessary information, parameters of the land subject to expropriation, price assessment report, owner's rights, the extract from the Real Estate Register and others, if any.

The land sale-purchase transaction will be subject to mandatory notary authentication.

5. *Payment of compensation.*

The payment of the compensation will be made in accordance with the compensation offer/proposal and the term provided for in the proposal as well as in accordance with the deed of transfer of ownership concluded between the Expropriator and the Expropriated owner.

The compensation mechanism will be easily accessible, transparent and allow continuous monitoring of the payment process.

6. *Preparation of the necessary documents for registering the ownership of the expropriated land in the Real Estate Register.*

The transfer of ownership from the Expropriated owner to the Expropriator will take effect from the moment the land is registered in the Real Estate Register. The preparation of the cadastral folder and the registration in the Real Estate Register of the right of ownership over the expropriated land will be done by the entity, registered by the law on the declaration of public utility of construction works.

9.3.2. Temporary Land Acquisition

Taking into account the construction-assembly works of the main aqueduct, which are to be performed in order to implement the project, it`s taken into account that on digging the trench with a width of 1.40 m, for the placing of two parallel pipes of the main aqueduct, as provided by the execution project, an available area of public land is required for maneuvers during the installation of the pipes in the trench.

Thus, two alternatives are proposed to avoid affecting private lands and prevent possible risks:

1. The excavated soil can be stored next to the trench, along the trench, provided that the respective LPAs shall make agreements with the landowners for the period of time required for: soil excavation/storage, pipes mounting and trench plugging.

[48] Law no.354 from 28.10.2004, regarding the formation of real estate, with latest changes from 14.08.2020.

2. Evacuation of the excavated soil from the site, on a pre- established land until the work starts, approved by the LPA, by decision, which will be brought back to the site, after finishing the mounting of the pipes and which will be used to plug the trench.

These alternatives have the following risks:

Alternative 1. Obtaining the consent of private landowners will take time but is the cheapest solution. There is a possibility that some owners to be gone out of the country and getting their consent can be complicated or impossible. The request regarding the consent of private owners will be made for the period of 2024-2026, the expected period for performing the soil excavation/storage and the trench plugging works in the respective zones. The necessary information regarding the lands that will be temporary affected, for which the concerned LPAs will request and obtain consents from private landowners is presented in Table from the Annex 8.

Alternative 2. Evacuation of the excavated soil from the site will increase the cost of the works by approximately 40%. Concerned LPAs will be required to identify and approve available public land for temporary soil storage, until the start of construction-assembly works.

In the case of Alternative 1, for the execution of construction-assembly works with land damage during the execution period, will be obtained the superficies right on the affected lands, by the respective LPA, for the period of time required for the execution of excavation works/ soil storage along the excavated trench, installation of pipes and plugging of the trench.

Excavation method, storage of excavated soil along the trench, installation of pipes/ manholes along the route and subsequent plugging of the trench as well as the space dimensions required for maneuvers during the listed works are presented in the construction-assembly work organization project (provided by FluxProiect), which is part of the project documentation.

The owners of the temporary affected lands in case they will not be able to cultivate their land during the period of project works (that are not certain in what period of the year will start) they will receive compensations for loss of annual crops.

The cash compensation for the loss of annual crops will be determined according to the formula below:

V=A x P x AP/10; where:

A – Land plot area, ha;

P – Average yield in the last 5 years, quintal/ha;

AP – Average value of agricultural production in the last 5 years, MDL/tone.

An assessment is to be made separately for each crop, thereby obtaining the average annual income. Most of the losses for each affected crop would be temporary. Farmers will be given consultations on their rights according with the above methods for calculating compensation. To define the sum of compensation for temporary or permanent land acquisition, the following information is taken into consideration:

- Structure of sown areas.
- Current market prices for crops.
- Yield from crop production in the last five years.
- Expenses on crop yields.

The compensation for loss of annual crops will be provided to PAPs if annual crops will be affected either through direct removal or by preventing planting (i.e. the remainder of the field is planted at the time of construction).

The same compensation procedure will take place for the owners of temporary affected lands in case of loss of perennial crops.

Compensation for the loss of perennial plantations was calculated at the total replacement cost. Compensation includes the value of the lost harvests and plantation reestablishment costs. Therefore, the calculation of the compensation for the affected orchards has considered the direct and indirect costs related to soil preparation, plantation establishment until the plantations recovers its former state and the loss of harvests until the plantation starts to fruit.

The volume of the capital investments for establishing orchards until the fruitful period (plantation recovery costs), as well as the information on market prices and average harvest per 1 ha were established on the basis of surveys to be carried out by the valuation expert.

Calculations for loss of perennial crops were based on the replacement cost. These were made according to the following formula:

Tc= (Pm x Pr x Ac x Nc) + (Rc x Nc), where
Tc – Total compensation for loss of perennial crops (Lei)
Pm – Average yield marketed (kg/tree)
Pr – Average wholesale price (lei/kg)
Ac – Years needed to recover the lost harvest (years)
Rc – Recovery costs (lei/tree) representing land preparation costs plus the cost of the seedling
Nc – Number of affected trees

Timber trees will be compensated at the market value of wood.

9.4. Conclusion on the needs for Resetlement

The project will ensure improved water supply management for all residents in the target zone. The draft resettlement plan involves establishing the necessary measures for the construction of the water supply system components based on the update of the existing project, so as to minimize the potential impacts.

No land acquisition is anticipated for the given project – exception does the land with the cadastral number 9417210.082 from Vladimirovca village, Gavanoasa comm., for which the superficies right or the expropriation of the property right over the delimited area will be constituted for the cause of public utility.

In case if the procedure of expropriation of the patrimonial right on the private land with the cadastral number 9417210.082, under the jurisdiction of Gavanoasa comm., will be followed, the owner of this land will need to be compensated according to national law.

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A series of measures are proposed in order to minimize the potential impacts of temporary affected plots:

- The smooth execution of the construction phase will depend on the Contractor to plan the work in a manner that minimizes the temporary impact on the directly affected lands, as well as on the neighboring areas.
- Every affected landowner (and in some cases their neighboring plots) need to be informed in written form 3 months in advance before the start of work, so they could plan the cultivation of their land accordingly. The landowners, in return will have to provide the Contractor a written answer.
- The notification to landowners must be coordinated with the Contractor's plans, as this will also determine whether or not compensations may be provided and their extent.
- In case the landowners (or in some cases their neighboring plots) will be against cultivating their land, they will have to be properly compensated.
- For implementing the project, it will not be necessary to purchase privately owned land for the construction of the water supply system with all its components: pipelines for transporting and distributing water, drinking water pumping and repumping stations, water disinfection stations and drinking water storage structures. These components will be built on publicly owned land and roads. The route of the WTM will be built along existing public roads, in the area or outside their protection zone, on public property. The water distribution networks in the localities will be built in the protection zones of the existing public roads, along them, on the shoulder or on public lands.
- For the construction-assembly works expected in the build-up areas of the localities, on public roads less than 5 m wide, where it is not possible to dig trenches with specialized techniques, will be performed the manual digging.
- For the privately owned land in Gavanoasa commune, Vladimirovca village, with cadastral number 9417210.082, the procedure for obtaining the right to cross the land will first be established (in case they will not agree on the Superficies procedure), according to the indications of **sub-chapter 9.3.1.2**. Then the compensation payment mechanism will be established and the procedure for obtaining the right of ownership by LPA of Gavanoasa commune, over the delimited area of the given land, will be performed directly. The legal registration of the patrimonial right over the delimited area of the respective land must be completed before the start of the construction-assembly works by LPA.
- For the lands that will be temporarily affected during the construction-assembly works, the consent of the landowners will be obtained in advance for maneuvers during the excavation, soil storage along the trench, installation of the pipes in the trench and final plugging of the trench.
- The area of the land temporary affected by the construction-assembly works may vary slightly during the execution works, depending on the technical means used by the Contractor.

- Since the private lands temporary affected, during the construction-assembly works, are intended for agriculture, it is recommended: execution of the construction-assembly works to performe during the period when there are no agricultural works in the field.
- After completion of the construction-assembly works, the affected land shall be restored to its original (before the works) condition. In case Contractor's workers will store by accident soil on agricultural land or will destroy the crops, gardens or perennial plants, the Contractor is obliged to reimburse financially the damage caused.
- The construction site and construction-assembly works will be organized in such a way as not to disrturb road traffic. The works will be executed in small, consecutive sections. Also, all safety rules will be undertaken and respected, taking into account the scale of the project and the predetermined route.
- The real dates of the construction programe/ schedule as regards of rush hour, summertime and especially weekdays will be predetermined especially for the intravilan zones, where it will be necessary to perform the works in the close proximity of residential buildings and/or social institutions (schools, kindergartens, medical centers, LPA institutions, etc.) and accordingly, the construction-assembly activities will be planned.

10. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

10.1. Objective of ESMP

The prediction of the potential adverse environmental and social impacts arising from development interventions is at the technical heart of the Environmental and Social Impact Assessment (ESIA) process. An equally essential element of this process is to develop measures to eliminate, offset, or reduce impacts to acceptable levels during the implementation and operation of the Project. The integration of such measures into project implementation and operation is supported by clearly defining the environmental and social requirements within an Environmental and Social Management Plan (ESMP).

ESMP provides the link between the impacts predicted and mitigation measures specified within the ESIA report, and implementation and operational activities. Likewise, it provides parameters for monitoring in the Environmental and Social Monitoring Plan. Monitoring parameters themselves outline the anticipated social and environmental impacts of the Project, the measures to be undertaken to mitigate these impacts and the significance of the impacts.

10.2. Responsibilities for ESMP Implementation

- **Ministry of Infrastructure and Regional Development / Project Implementation Unit**

The Ministry of Infrastructure and Regional Development (MIRD), NORLD will have overall responsibility for the implementation, monitoring and reporting on the implementation of the sub-project. The PIU staff are familiar with both national and World Bank social and environmental protection requirements. MIRD/ NORLD as the contracting authority will ensure through the PIU that the environmental and social measures described in this report are properly considered by the Contractor and the Supervisor. The PIU will ensure that this ESIA/ESMP or updated versions thereof are included in the tender documents and in the Supervisor's and Contractor's contracts.

The PIU will ensure that the site-specific ESMP requirements are included in the employer's requirements for the construction works. As part of its regular monitoring activities, the PIU will monitor to ensure the Contractors' compliance with their contractual obligations.

- **The Contractor (or Sub-Contractor)**

The Contractor will be responsible for ensuring the proper execution of the works, according to the predetermined measures and in accordance with the entity and international standards. For these reasons, the Contractor is to appoint a person responsible for environmental protection (for example, environmental engineering/environmental specialist or similar) and a social consultant with adequate experience to be responsible for the implementation of all requirements regarding social aspects of the ESMP to be implemented. The Contractor will notify the Supervisor / Engineer with reference to the selected experts no later than one month after the official award of the contract and the Supervisor / Engineer will approve the selected experts. Appointed experts will ensure compliance with social and environmental standards and will be responsible for environmental protection according to the ESMP and in accordance with clearly defined tasks and responsibilities, which include, among others,

the following: environmental management, execution of works in accordance with good practices in construction, proper site waste management, health and safety on sites and work facilities. Problems arising throughout the construction period will be communicated to the supervisory body and the local community. The environmental and social experts will have the power to give instructions to the staff involved and also to the subcontractors on matters related to the health and safety of the staff on the construction sites and the environmental management of the construction sites. Experts will also be involved in training employees on environmental/safety practices and sensitization of the project-affected population.

The contractor together with environmental and social experts will prepare the Contractor's ESMP (CESMP). The CESMP will encompass but will not be necessarily limited to the environmental and social requirements included in the tender and contract documentation. The CESMP shall include at least the following information:

- The Contractor's Environmental Management System;
- Screening of environmental and social risks associated with the Project;
- Resource management (including energy, water, aggregates, life resources);
- Maintenance of vehicles and equipment (washing of vehicles; declaration of methods of handling effluents; refueling; handling of fuel and lubricants);
- Protection of trees on the side of the road / new tree plantings;
- Restoration/rehabilitation of construction sites;
- Soil Management Plan;
- The air quality management plan, including the management of dust emissions;
- Waste management plan, including hazardous waste;
- The Contractor's health and safety management plan (including incident management, training, performance reporting, medical treatments, hazardous operations, emergency situations, etc.);
- Traffic Management Plan (TMP) in collaboration with APL employees to provide appropriate traffic flows in the project area (and beyond) and to prevent possible road accidents; TMP will include time periods, signaling, fencing, diversion of vehicles, etc.;
- Contingency Plan for potential technological and natural risks (OHSP) (natural risks and extreme events that may include floods, storms, lightning, landslides, seismic events, etc.) in order to protect human health and the environment when natural risks can generate emergency situations;
- Chance Find Protocol (CFP) with the operating methodology in case of accidental archaeological discoveries.
- Code of conduct;
- GRM;
- Information disclosure and public consultations procedures;
- Checklist for regular E&S monitoring.

The CESMP shall be approved by the Supervisor/Engineer prior to the commencement of construction work, and once approved the Contractor shall comply with all mentioned requirements and update it periodically.

Any changes in the construction methodology or activities undertaken on the site will be followed by the change of CESMP in terms of social and environmental requirements of the project. At the same time, any changes to the CESMP content will need to be updated and approved by the Supervision Engineer.

At least one hard copy of the ESIA / ESMP as well as CESMP should always be available and accessible for every worker's team on-site.

The CESMP should be publicly disclosed according to the requirements of WB ESS10.

- **Technical supervision company**

The Technical Supervision Consultant shall ensure that the Contractor properly implements the social and environmental requirements specified in the contract documentation and the Contractor's Environmental and Social Management Plan (C-ESMP) approved at the start of the construction works.

As environmental and social monitoring must be carried out almost daily, the team Supervising Team should include an environmental and a social expert.

The duties of the environmental and social experts will include:

- reviewing and approving the C-ESMP issued by the Contractor;
- maintains the connection between the key persons of the PIU, LPA, Territorial Public Health Center (PHC), Environmental Protection Inspectorate (EPI), LWSC, the local community and other interested parties that could be affected by the Project;
- monitors the environmental practices of the Contractor. Experts will be specifically responsible for approving sites for temporary storage or disposal of materials and waste;
- prepares and reports to the PIU the monthly C-ESMP implementation report;
- prepares and reports the final Environmental and Social Report. The report will be considered at the reception of the completion of construction work.

10.3. Proposed Environment and Social Management Plan

This section describes the Environmental Social Management Plan for the proposed project during different stages of project. An Environment and Social Management Plan has been developed following the delineation of impacts and mitigation measures. These measures will be adopted by the project proponent and imposed as conditions of contract of the subcontractor employed for respective phases of the water project. The Management Plan has been formulated for implementation of environmental and social mitigation measures to be carried out by the Contractor and to ensure that the provisions of the ESMP are strictly followed and implemented by strengthening implementation arrangements to prevent and minimize the adverse impacts during Construction phase of the project.

The measures identified for different phases, are tabulated in **Table 10-1** which describes the nature of the potential environmental impact, the significance of the potential impact, the mitigation

measures, which have or will be taken, the implementing organisations and responsible monitoring organization, the estimative costs and the monitoring frequency.

Table 10-1: Environmental and Social Management Plan

Phase[49]			Environmental and social impact(s)	Meaning of impact [50]	Mitigation measures	Responsibility*		Cost	Monitoring frequency
PC	C	O				Execution	Monitoring		
CONSTRUCTION PHASE									
Atmospheric air including climate change									
			Project risks associated with climate change (e.g. strong winds and storms, high risks of flooding, landslides, high temperatures, etc.)	Moderate	An Emergency Plan for potential technological and natural risks will be drawn up, a component of CESMP.	Contractor	Supervising Engineer	Construction	Before starting construction work
			Emissions of polluting substances associated with road traffic (construction activities)	Low	Carrying out periodic overhauls of machinery and transport engines in specialized workshops; The machines and means of transport must be constructively equipped with reduction (catalysts), retention (particle filters) and combustion gas exhaust systems specific to the degree of approval of each.	Contractor	Supervising Engineer, EPI, Public Health Center	Construction	Construction period
Soil and subsoil									
			Accidental losses of fuel and lubricants	Moderate	Develop a Ocupational Health and Safety Plan (OHSP) for potential technological risks.	Contractor	Supervising Engineer	Construction	Before starting construction work
					Avoiding the storage on the ground of materials exposed to precipitation that can cause infiltration into the soil and underground water.	Contractor	Supervising Engineer, LPA, EPI	Construction	Construction period
			Non-compliant management of construction materials and waste	Moderate	Controlled storage of construction materials and waste generated during construction in specially arranged areas on the site.	Contractor	Supervising Engineer, LPA, EPI	Construction	Construction period

[49] PC – Pre-construction Phase; C – Construction Phase; O – Operation Phase

[50] Intensity: Low, Moderate, High; see Chapter 4, **Table 4-1**: Determining the significance of the impact (for certain, probable and possible impact)

Phase[49]			Environmental and social impact(s)	Meaning of impact [50]	Mitigation measures	Responsibility*		Cost	Monitoring frequency
PC	C	O				Execution	Monitoring		
			The loss of the quality of the fertile soil due to the organization of the construction site	Moderate	The Contractor's establishment in agreement with LPA of the areas for site organization; Separate storage of fertile soil and its maximum reuse. Surplus fertile soil will be used on land designated by LPA; Use of barriers to mark the boundaries of the site organization and prevent damage to areas other than those required for the Project.	Contractor	Supervising Engineer, LPA, EPI	Construction	Construction period
Surface and groundwater									
			Oil and fuel leaks due to the operation of machinery	Moderate	Periodic checking of the operating status of the machines in order to avoid possible malfunctions.	Contractor	Supervising Engineer, LPA, EPI	Construction	Construction period
			Water pollution due to improper storage of household and construction waste	Moderate	Proper management of raw materials, Compliance with storage areas, depending on the physical condition of the materials used and the potential impact on the environment; Mobile toilets on the construction site will be located outside the riparian protective strip; Setting up platforms/spaces for storing the resulting waste (household waste, metal waste, polyethylene film, PEHD pipes), so as to avoid contact with the water component; The operation and maintenance of the sanitary containers in a clean and permanently functional state.	Contractor	Supervising Engineer, LPA, EPI	Construction	Construction period
			Local changes in drainage conditions due to construction or pipeline installation operations	Moderate	The works across the Cahul river will be done when the river is dry or in the low water season/level. The riverbed to be inspected and cleaned daily during the work period; Excavation works will not be carried out in extreme weather conditions (rain, strong wind); In order to prevent the formation of dust in the work areas, untreated water will be used for spraying the work areas.	Contractor	Supervising Engineer, LPA, EPI	Construction	Construction period
Noise and vibration									

Phase[49]			Environmental and social impact(s)	Meaning of impact [50]	Mitigation measures	Responsibility*		Cost	Monitoring frequency
PC	C	O				Execution	Monitoring		
			Noise production above maximum limits	Moderate	The use of machines equipped with an admissible acoustic level; Carrying out activities only during the daytime and limiting the work schedule for sensitive areas (schools, kindergartens, churches, etc.); Handling construction materials (pipes and other materials) under conditions of increased attention, especially during their unloading operations; Limiting the speed of transport equipment to reduce the level of noise and vibrations on the sites and in the vicinity.	Contractor	Supervising Engineer, Public Health Center	Construction	Construction period
Landscape									
			Temporary warehouses of construction materials and pipelines	Low	Limited storage of construction materials and pipes during construction.	Contractor	Supervising Engineer	Construction	Construction period
			New constructions	Low	Paints in shades that match the environment will be used to minimize the visual impact of the constructions.	Contractor	Supervising Engineer, Designer	Construction	Upon completion of construction
Cultural, archaeological, and historical resources									
			Loss of archaeological materials	Moderate	Obtaining the Approval of the Ministry of Culture and NAA.	PIU	Ministry of Culture	Construction	Before obtaining the construction permit
					Carrying out archaeological research in accordance with the NAA Notice.	PIU by contracting NAA	Ministry of Culture	Ministry of Culture	Before starting construction work
				Moderate	The contractor will draw up a "Chance Find Protocol" (CFP) before starting the construction works, approved by the supervising Engineer; The contractor will comply during the construction work and will ensure that the personnel involved on the job are trained in the CFP requirements.	Contractor	Supervising Engineer, PIU	Construction	Before starting construction work

Phase[49]			Environmental and social impact(s)	Meaning of impact [50]	Mitigation measures	Responsibility*		Cost	Monitoring frequency
PC	C	O				Execution	Monitoring		
			Loss of archaeological materials	Moderate	When archaeological materials are found in the soil, the works will be stopped, and the Engineer will be notified; A qualified expert/specialist will be informed about the discovery made through pictures sent online or a field visit; The archaeologist expert/specialist will draw up a report with immediate measures for the management of the archaeological resource; The National Archaeological Agency will be informed for further conservation measures.	Contractor	Supervising Engineer, NAA	Construction	Construction period
Biodiversity									
			Impact on natural protected areas	Low	Monitoring actions to prevent the pollution of areas, the burning of vegetation. No other special measures are required.	Contractor	EPI; EA; PIU, SE "Silva-Sud, Cahul" and Comrat; LPAs level I and II	Construction	At the beginning and end of construction work
			Impact on flora and forest ecosystems	Low	Monitoring actions to prevent the pollution of forest areas, the burning of vegetation; Prevention of illegal cutting of trees and collection of plants; No other special measures are required.	Contractor	EPI; EA; PIU, SE "Silva-Sud, Cahul" and Comrat; LPAs level I and II	Construction	At the beginning, during (periodical inspections) and end of construction work
			Impact on fauna (birds, reptiles, insects, others)	Moderate	Non-admission of storage of liquid and solid waste, which can serve as feed for animals and discharge of chemical substances. Monitoring the status of aquatic biological species.	Contractor	EPI; Cahul and TAU Gagauzia Municipalities; SE "Silva-Sud, Cahul" and Comrat; LPAs level I and II	Construction	Permanent

Phase[49]			Environmental and social impact(s)	Meaning of impact [50]	Mitigation measures	Responsibility*		Cost	Monitoring frequency
PC	C	O				Execution	Monitoring		
			Impact on fauna aquatic species (birds, fish, crustaceans, etc.)	Moderate	Monitoring of the status and quality of water in water basins, non-admission of water pollution with liquid and solid waste, chemical substances. Monitoring the status of aquatic biological species.	Contractor	EPI; Cahul and TAU Gagauzia Municipalities; „Apele Moldovei" Agency, LPAs level I and II	Construction	Permanent
Socio-economic									

Phase[49]			Environmental and social impact(s)	Meaning of impact [50]	Mitigation measures	Responsibility*		Cost	Monitoring frequency
PC	C	O				Execution	Monitoring		
			Temporary land use	Moderate	Contractor shall have written approval from the Rayonal Environment Protection Inspectorate and a local decision of the Local Council of the LPA prior to be able to use the land for storage. Excavated soil may be deposited near the trench, along the trench provided that the respective LPAs and Contractor should sign agreements with the landowners for the time required for: manoeuvring, storage of soil, laying of pipes and sealing of the trench. For the privately owned land in Gavanoasa, (v.Vladimirovca), the procedure for obtaining the right to cross the land will be established first or procedure of superficies. The actual dates of the construction schedule/schedule in terms of peak time, summertime and especially working days will be established especially for the locality areas, where it will be necessary to carry out works in the vicinity of residential houses and/or social institutions and accordingly, construction-erection activities will be planned. As the private lands temporarily affected during the construction work iareused for agriculture, it is recommended that the construction work to be carried out during the period when no agricultural work is being carried out on the land and landowners and their neighboring plots to be announced 6 months in advance before the start of work, so they could plan accordingly the crops cultivation.	Contractor	Supervisor	Construction	Permanent

Phase[49]			Environmental and social impact(s)	Meaning of impact [50]	Mitigation measures	Responsibility*		Cost	Monitoring frequency
PC	C	O				Execution	Monitoring		
			Traffic and Pedestrian Safety	Moderate	Traffic Management Plan should be elaborated in close collaboration with the LPA and local police authorities. The TMP will be comprised of: -Local population communication and information means and procedures, announcements on local public information boards, distribution of leaflets with contact number of the Contractor's public relation/social person. Road works management rules which could include: a) delimitation with special signs and fences of the areas where are the trenches, especially near public schools. b) temporary covering of open trench segments to allow residents and service vehicles to access driveways, public infrastructure objects, bus stops, private households. c) phasing of construction activities.	Contractor	Supervisor	Construction	Permanent
			Damage of crops from agricultural land	Moderate	In case Contractor's workers will store by accident soil on agricultural land or will destroy the crops, trees, gardens or perennial plants, the Contractor is obliged to reimburse financially the damage caused. Also, if the owners of the temporary affected lands in case they will not be able to cultivate their land during the period of project works (that are not certain in what period of the year will start) they will receive compensations for loss of annual crops.	Contractor	Supervisor Local Public Administration	Construction	Permanent
			Impacts on the local roads (flooding from pipes)	Moderate	Implementing a robust maintenance schedule to inspect, repair, and replace aging or vulnerable sections of the pipeline to prevent ruptures before they occur. - Engaging with the local community to raise awareness about the pipeline, its potential risks, and the measures in place to prevent and respond to incidents firstly to inform the Contractor or Operator.	Contractor	Supervisor Local Public Administration	Construction	Permanent

Phase[49]			Environmental and social impact(s)	Meaning of impact [50]	Mitigation measures	Responsibility*		Cost	Monitoring frequency
PC	C	O				Execution	Monitoring		
			Health and Welfare of the Population	Moderate	Traffic Management Plan (see above); Limitation of working hours for the works located in sensitive locations; Restrictions of speed limit and of tonnage for heavy vehicles passing through residential areas; Interdictions of construction activities at night and evenings and restrictions in the vicinity of schools and kindergartens; Fencing and signalization of work sites (especially excavation works for pipe laying), during the night and day, with clear marking of the safety border of the works perimeter (highly visible taps and nets); Restriction of accessing the work sites for other persons than authorized workers.	Contractor	Supervisor Local Public Administration	Construction	Permanent
			Roads, Public Equipment and Services	High	The Contractor will collect all necessary information and data from the institutions responsible for underground infrastructure in order to avoid incidents of disruption of phone, internet, gas, water supply (especially in the Railway zone); The Contractor shall inform local population in advance about certain services disruption. The Contractor shall inform or respond to the persons affected for accidental damage to material assets and pay a fair compensation, based on the replacement value; The Contractor needs to repair damaged public goods after the completion of construction works;	Contractor	Supervisor	Construction	Permanent

Phase[49]			Environmental and social impact(s)	Meaning of impact [50]	Mitigation measures	Responsibility*		Cost	Monitoring frequency
PC	C	O				Execution	Monitoring		
			Damage to Private Assets	Moderate	The Contractor is obliged to repair any damaged assets or roads after the completion of construction works; The Contractor shall use special adapted method or equipment and tight work sites. This should be specified in the method statement; If there will be any temporary or permanent impacts on private property, the Contractor shall discuss in advance with affected persons.	Contractor	Supervisor	Construction	Permanent

Phase[49]			Environmental and social impact(s)	Meaning of impact [50]	Mitigation measures	Responsibility*		Cost	Monitoring frequency
PC	C	O				Execution	Monitoring		
			Worker's Health and Safety	Moderate	The Contractor shall elaborate an Occupational Health and Safety Plan (OHSP) which describes all the provisions for prevention and management of health and safety hazards that are likely to occur during construction works. The OHSP should be in compliance with the Labor code as well as the OHS Directive of the EU. The OHSP will provide: Hire Health and Safety Specialist as focal point; Mandatory use of Personal Protection Equipment; Availability of a nurse and doctor for regular medical checks for workers after pre-recruitment medical examination; Provision of OHS training by the OHS specialist of the Contractor (induction, toolbox talks and so on); Hiring only qualified and experienced workers; On site medical equipment and medicines (first aid kit, painkillers, etc.); Training of operators of industrial vehicles; Emergency procedures for both safety and environmental damages; Ensuring the use of safe machines and safe operation of machines; Mobile equipment with limited visibility must be equipped with audio alarms.	Contractor	Supervisor	Construction	Permanent

Phase[49]			Environmental and social impact(s)	Meaning of impact [50]	Mitigation measures	Responsibility*		Cost	Monitoring frequency
PC	C	O				Execution	Monitoring		
			Local employment and local economy	Moderate	The Contractor shall develop personnel hiring policy that will include but not be limited to: Publishing job announcements that needs to be filled in the local announcement boards and local mayor's office; Select applicants in an anonymous, transparent way that shall avoid social favoritism; Should avoid cases for gender discrimination in their recruiting practice.	Contractor	Supervisor	Construction	Permanent
			Gender issue (Discriminating against women in work assignments, sexual harassment risk)	Moderate	Eliminating of discriminatory practices among employees (for example on the basis of family status, ethnicity, race, gender, religion, language, marital status, birth, age, disability, or political conviction); The contract shall ensure that there are provisions related to occupational health and safety and gender equality.	Contractor	Supervisor	Construction	Permanent
OPERATION PHASE									
Atmospheric air including climate change									
			Dust emissions associated with road traffic used for water infrastructure maintenance	Low	Maintenance of access roads to platforms in acceptable condition; Avoiding the storage of materials on the territory of the platforms; Regular and adequate maintenance of the vehicles used by the Operator.	Operator	EPI	Operation Costs	Quarterly (as needed)

Phase[49]			Environmental and social impact(s)	Meaning of impact [50]	Mitigation measures	Responsibility*		Cost	Monitoring frequency
PC	C	O				Execution	Monitoring		
			Project risks associated with climate change (e.g. strong winds and storms, high risks of flooding, landslides, high temperatures, etc.)	Moderate	Periodic visual inspection of the technical condition of the infrastructure (reservoirs, water castles, foundations, pumping stations) as part of the maintenance program; Planning the response in emergency situations created by natural risks and extreme events (floods, storms, lightning, landslides, seismic events, etc.)	Operator	LPA, EPI	Operation Costs	Quarterly (as needed)
Soil and subsoil									
			Accidental losses of fuel and lubricants	Low	Rapid intervention and urgent remediation of breakdown situations of drinking water transport and distribution pipelines; Regular training of staff in terms of waste management.	Operator	EPI	Operation Costs	Quarterly (as needed)
Surface and groundwater									
			Oil and fuel leaks of means of transport and machinery used during operation	Low	Rapid intervention and urgent remediation of breakdown situations of drinking water transport and distribution pipelines;	Operator	EPI	Operation Costs	Quarterly (as needed)
			Water pollution due to improper storage of waste generated by maintenance personnel	Low	Regular training of staff in terms of waste management.	Operator	EPI	Operation Costs	Quarterly (as needed)
Landscape									
			Changes to the landscape due to surface water reservoirs	Low	Maintaining tree/shrub belt around platforms to minimize visual impact.	Operator	LPA	Operation Costs	Quarterly (as needed)
Biodiversity									

Phase[49]			Environmental and social impact(s)	Meaning of impact [50]	Mitigation measures	Responsibility*		Cost	Monitoring frequency
PC	C	O				Execution	Monitoring		
			Impact on natural protected areas	Low	Monitoring of the natural areas protected by the state status. No other special measures are required.	The Beneficiary jointly with SE "Silva-Sud, Cahul" and Comrat	EPI; EA; SE ”Silva-Sud, Cahul” and Comrat LPAs level I and II	Operation Costs	According to the periodicity established in Law no. 1538/1998 on the fund of natural areas protected by the state and HG no. 414/2000
			Impact on flora and forest ecosystems	Low	Monitoring of the state of the forest fund and flora. No other special measures are required.	The Beneficiary jointly with SE ”Silva-Sud, Cahul” and SE Comrat; USM (Botanical Garden (Institute), A. Ciubotaru and Institute of Ecology and Geography)	AM; EPI; FRMI	Operation Costs	According to the periodicity established in the Law of the Vegetal Regnum no. 239/2007, the Forestry Code no. 887/1996 and HG no. 2011/2009
			Impact on fauna (birds, reptiles, insects, other)	Moderate	Monitoring the state of the animal kingdom and their habitats.	The Beneficiary jointly with the Institute of Zoology (USM)	EA; EPI; MSU (Institute of Ecology and Geography)	Operation Costs	According to the periodicity established in the Animal Kingdom Law

Phase[49]			Environmental and social impact(s)	Meaning of impact [50]	Mitigation measures	Responsibility*		Cost	Monitoring frequency
PC	C	O				Execution	Monitoring		
			Impact on fauna aquatic species (birds, fish, crustaceans, etc.)	Moderate	Monitoring of the state and quality of waters in water basins. Monitoring the status of aquatic biological species. Taking special measures when pumping water from the river Prut, to prevent penetration and damage to fish eggs and juveniles.	The Beneficiary JSC "Apa Canal Cahul" jointly with „Apele Moldovei" Agency, USM (Institute of Zoology and Institute of Ecology and Geography)	Cahul and TAU Gagauzia Municipalities; EPI Cahul and TAU Gagauzia;	Operation Costs	According to the periodicity established in the water legislation; Law of the animal kingdom no. 439/ 1995, Law no. 149/2006 regarding fish stock, fishing and fish farming and HG no. 1005/2004
Socio-economic									
			Worker's Health and Safety	Low	Water disinfection stations and adduction pipe should comply with the provisions of the national legislation and international rules on occupational health and safety, especially concerning the following: - Prevention of falls; - Protection of workers; - Prevention and fight against fire; - Emergency Response and Preparedness; - Occupational health audit will be carried out prior to start the operation of facilities and repeated yearly.	JSC "Apa Canal Cahul" Management	Fire department of Cahul and Gagauzia	Operation Costs	Every six months
			Population health and welfare	Moderate	An awareness campaign should be conducted on responsible collection of the wastewater into septic tank and evacuating it with special trucks to waste water treatment plant. - The target population will be the owners of individual houses; - The means of communication will be public meetings and lectures; - The argument will be based around the protection of the environment;	Local Public Administration in cooperation with ANSP and Environmental Agency	Environmental Agency	State budget	Permanent

Note: The Supervision Company will be responsible for monitoring compliance with all environmental and social requirements listed in the CESPM both during the construction period and during the warranty period of the project until all non-conformities are removed.

10.4. Environmental and Social Monitoring Plan

The objective of environmental and social monitoring during the construction and operation phases is to compare the monitored data against the baseline condition collected during the study period to assess the effectiveness of the mitigation measures and the protection of the ambient environment based on national standards. The objectives of the monitoring programme are:

- Provides information for documentation of monitoring of mitigation measures and impacts;
- Tool for the statutory authority of unanticipated adverse impacts or sudden changes in the environmental condition due to the proposed project;
- Provides information that could be used for evaluating the effectiveness of implemented mitigation measures;
- Provides information that could be used to verify predicted impacts and thus validate impact prediction techniques;
- The effectiveness of the mitigation measures being followed during construction and operational phases can be assessed and the measures can be revised, made more stringent and reinforced based on the monitoring results Environmental Monitoring can also serve a basic component of a periodic environmental regulatory auditing program for the proposed project.

The monitoring of environmental and social indicators during the construction phase are in fact non-compliance with environmental requirements by the Contractor, rather than some quality and quantity indicators. Environmental monitoring will be carried out by the Environmental and Social Engineers of the Supervision Company. Environmental monitoring should be based mainly on the following actions:

- regular visits to work sites, work camps and installations;
- discussions with the Contractor's staff, especially with environmental and social experts;
- discussions with the population in the area of the work sites and other interested parties.

The specific quantitative and qualitative indicators of the environment within the framework of the monitoring will be proposed by the Environmental Engineer at the construction stage in case of establishing the circumstances of necessity in accordance with the national legislation.

Regarding the monitoring of the quality of drinking water delivered to consumers during the operating period, it is obvious taking into account the provisions of the ”*Sanitary Regulation on the supervision and monitoring of the quality of drinking water”* approved by GD No. 651/2023 which will enter into force from April 2024.

Based on the Regulation mentioned above, the water supplier has the obligation to keep records of the data regarding the monitoring of the quality of drinking water in the management supply systems, by means of the preparation and annual updating of the registers, as follows:

1) data on the drinking water supply source (from the supplier's management):

a) locality (municipality, district, village);
b) type of source (underground/surface);
c) the name of the supply source or its address;
d) the capacity of the source;
e) the length of the networks;
f) the number of the population in the supply area;
g) the volume of water distributed in 24 hours.

2) network accident record register:

a) the locality;
b) type of source involved (underground/surface);
c) the name of the supply source or its address;
d) the number of accidents in the network;
e) date of registration and date of remediation;
f) remedial measures taken in cases of accidents.

3) the register regarding the disinfection:

a) data about the locality and source of supply,
b) the period of the treatment procedure/ frequency;
c) data on the materials and reagents used.

4) the register of operational monitoring results

Appropriate monitoring in surface water in the catchment point (River Prut) will be selected from the following:

a. the parameters included in the Annex to Law no. 182/2019 on the quality of drinking water;
b. the parameters provided for in the Annex to the Regulation from GD no. 651/2023;
c. the priority substances and other pollutants provided for in Annex no. 1 to the Regulation on environmental quality requirements for surface waters, approved by GD no. 890/2013;
d. pollutants specific to the hydrographic basin of a river, established by the administrative authority for water management in accordance with the Regulation on the systematic monitoring and record of the state of surface waters and underground waters, approved by GD no. 932/2013.

5) the Grievance Redress Mechanism GRM Log

a) Quantitative data on the number of complaints received, the number that were relevant, and the number resolved;
b) Time taken to resolve complaints

The environmental and social monitoring plan for construction and operation phase is given in **Table 10-2**.

Table 10-2: Environmental and Social Monitoring Plan

WHAT parameter is to be monitored?	WHERE will the parameter be monitored	HOW is the parameter to be monitored?	WHEN will the parameter be monitored?	WHO is to monitor the parameter?	Cost	Institutional Responsibility
CONSTRUCTION PHASE						
Atmospheric air including climate change						
Emergency Plan for potential technological and natural risks will be drawn up, a component of CESMP	For all sub-project	Prepared by Contractor and approved by Supervising Engineer	Prior to construction phase and during construction phase	Contractor	Construction Cost	Supervising Engineer, ANSP (Public Health Center) Environmental Inspectorate
Carrying out periodic overhauls of machinery and transport engines in specialized workshops	Work sites	Visual observation	During construction phase	Contractor	Construction Cost	Supervising Engineer, EPI, Public Health Center
Soil and subsoil						
Ocupational Health and Safety Plan (OHSP) for potential technological risks	For all sub-project	Prepared by Contractor and approved by Supervising Engineer	Prior to construction phase	Contractor	Construction Cost	Supervising Engineer
Compliant storage of materials and waste that are exposed to precipitation can pollute the soil	Work sites	Visual observation	During construction phase	Contractor	Construction Cost	Supervising Engineer, LPA, EPI
Separate storage of fertile soil and its maximum reuse	Work sites	Visual observation	During construction phase	Contractor	Construction Cost	Supervising Engineer, LPA, EPI
Surface and groundwater						
Periodic checking of the operating status of the machines in order to avoid possible malfunctions	Work sites	Visual observation	During construction phase	Contractor	Construction Cost	Supervising Engineer, LPA, EPI
Mobile toilets on the construction site will be located outside the riparian protective strip	Work sites (especially in the Cahul river area)	Visual observation	During construction phase	Contractor	Construction Cost	Supervising Engineer, LPA, EPI
Existing of platforms/spaces for storing the resulting waste (household waste,	Work sites	Visual observation	During construction phase	Contractor	Construction Cost	Supervising Engineer, LPA, EPI

WHAT parameter is to be monitored?	WHERE will the parameter be monitored	HOW is the parameter to be monitored?	WHEN will the parameter be monitored?	WHO is to monitor the parameter?	Cost	Institutional Responsibility
metal waste, polyethylene film, PEHD pipes), so as to avoid contact with the water component						
The works across the Cahul river will be done when the river is dry or in the low water season/level	In the Cahul river area	Visual observation	Daily during the work period	Contractor	Construction Cost	Supervising Engineer, LPA, EPI
Excavation works will not be carried out in extreme weather conditions (rain, strong wind)	Work sites	Visual observation	Daily during the work period	Contractor	Construction Cost	Supervising Engineer, LPA, EPI
Noise and vibration						
Ambient noise levels during peak construction activities – compliance with maximum exposure limit of 70 dBA	Most affected residential areas along the Project route or along any haul route where residents may be affected by noise from transport trucks – probably schools, hospitals or kindergarten	Noise levels (dB); Portable equipment (analyzer) with software application	During noisy construction operations inside settlements / close to sensitive receptor	Contractor Supervising Engineer to approve sampling points and reports	Construction Cost	Supervising Engineer, Public Health Center
The state of the infrastructure susceptible to damage by the effects of vibrations	Infrastructure (e.g. houses, walls, wells etc.) in the immediate vicinity of construction sites or transport routes – especially where heavy equipment will be used	Inspection / documentation on the condition of relevant infrastructure (e.g. existing cracks on buildings or other physical damage) photographic documentation	Once prior to start of works and again upon completion of construction works in respective settlement	Contractor with Supervising Engineer engineer visual monitoring	Construction Cost	Supervising Engineer, LPA
Landscape						
Limited storage of construction materials	Work sites	Visual observation	During construction phase	Contractor	Construction Cost	Supervising Engineer

WHAT parameter is to be monitored?	WHERE will the parameter be monitored	HOW is the parameter to be monitored?	WHEN will the parameter be monitored?	WHO is to monitor the parameter?	Cost	Institutional Responsibility
and pipes during construction						
Paints in shades that match the environment will be used to minimize the visual impact of the constructions	Newly built water infrastructure Platforms	Visual observation	Upon completion of construction	Contractor	Construction Cost	Supervising Engineer, Designer
Cultural, archaeological, and historical resources						
Obtaining the Approval of the Ministry of Culture and NAA	For all sub-projects	Visual observation	Before starting the construction works	PIU	Construction Cost	Ministry of Culture
Carrying out archaeological research in accordance with the NAA Notice	MTP intersection with Archaeological sites: Pelinei II (Gavanoasa) and Valul lui Traian de Jos, Sector II (Vulcanesti)	Archaeological research	Before starting the construction works	PIU by contracting NAA	Ministry of Culture	Ministry of Culture
"Chance Find Protocol" (CFP), approved by the supervising Engineer.	For all sub-projects	Prepared by Contractor and approved by Supervising Engineer	Before starting the construction works	Contractor	Construction Cost	Supervising Engineer
Employees involved in the workplace are trained in CFP requirements	Work sites	Visual observation, triggers of change find procedures, reporting in the monthly progress work report	As required (in a case of discovery)	Contractor	Construction Cost	Supervising Engineer, NAA, Ministry of Culture
Biodiversity						
Monitoring actions to prevent the pollution of areas, the burning of vegetation	Work sites	Visual observation	At the beginning and end of construction work	Contractor	Construction Cost	EPI; EA; SE "Silva-Sud, Cahul" and Comrat; LPAs level I and II
Prevention of illegal cutting of trees and collection of plants.	Work sites	Visual observation	At the beginning and end of construction work	Contractor	Construction Cost	EPI; EA; SE "Silva-Sud, Cahul" and Comrat; LPAs level I and II

WHAT parameter is to be monitored?	WHERE will the parameter be monitored	HOW is the parameter to be monitored?	WHEN will the parameter be monitored?	WHO is to monitor the parameter?	Cost	Institutional Responsibility
Non-admission of storage of liquid and solid waste, which can serve as feed for animals and discharge of chemical substances	Work sites	Visual observation	During construction phase	Contractor	Construction Cost	EPI; Cahul and TAU Gagauzia Municipalities; SE "Silva-Sud, Cahul" and Comrat; LPAs level I and II
Monitoring of the status and quality of water in water basins, non-admission of water pollution with liquid and solid waste, chemical substances	Work sites	Visual observation	During construction phase	Contractor	Construction Cost	EPI; Cahul and TAU Gagauzia Municipalities; „Apele Moldovei" Agency, LPAs level I and II
Socio-economic						
Temporary use of land	Work sites of Gavanoasa, Satuc, Pelinei, FEZ, Railway zone	Visual control, reporting in the monthly progress work report	Prior to construction phase and during construction phase	Rayonal Environment Protection Department, LPA, Local council Environment and Safety Supervision Officer	Included in the supervision cost	The Supervisor Local Public Administration, Rayonal Environment Protection Department, Local Council
Protection of public and private utilities (no of incidents, complaints from local population, damage left without satisfying restoration)	Work sites of Gavanoasa, Satuc, Pelinei, FEZ, Railway zone	Visual control, reporting in the monthly progress work report	Continuously during construction phase	Environment and Safety Supervision Officer	Included in the supervision cost	The Supervisor Local Public Administration
Traffic management (Number of traffic disruptions, nr of car accidents)	Work sites of Gavanoasa, Satuc, Pelinei, FEZ, Railway zone	Visual control, reporting in the monthly progress work report	Continuously during construction phase	Environment and Safety Supervision Officer and Contractor's Traffic management officer	Included in the supervision cost	The Supervisor Local Public Administration
Disruption to public services (Nr of incidents)	Work sites of Gavanoasa, Satuc, Pelinei, FEZ, Railway zone	Visual control, reporting in the monthly progress work report	Continuously during construction phase	Environment and Safety Supervision Officer	Included in the supervision cost	The Supervisor Local Public Administration

WHAT parameter is to be monitored?	WHERE will the parameter be monitored	HOW is the parameter to be monitored?	WHEN will the parameter be monitored?	WHO is to monitor the parameter?	Cost	Institutional Responsibility
Non-Discrimination practices among employees. The contract ensures provisions related to occupational health and safety and gender equality	For all sub-projects	Visual control Registration of complaints	Continuously during construction phase	Environment and Safety Supervision Officer	Included in the supervision cost	The Supervisor local Citizen Water and Sanitation Committees
Safety of nearby population (speed limitation, relevant construction signs, number of accidents)	Work sites of Gavanoasa, Satuc, Pelinei, FEZ, Railway zone	Visual control, reporting in the monthly progress work report	Continuously during construction phase	Environment and Safety Supervision Officer	Included in the supervision cost	The Supervisor local Citizen Water and Sanitation Committees
All kinds of Complaints/ GRM affecting the population or workers of the Contractor	Work sites of Gavanoasa, Satuc, Pelinei, FEZ, Railway zone	Registration of complaints	Continuously during construction phase	local Citizen Water and Sanitation Committees	Included in the GRM operation cost	Local Public Administration local Citizen Water and Sanitation Committees
OPERATIONAL PHASE						
Atmospheric air including climate change						
Maintenance of access roads to platforms in acceptable condition; Regular and adequate maintenance of the vehicles used by the Operator	Water infrastructure Platforms	Periodic visual inspection	Quarterly (as needed)	Apa Canal Cahul	Operation Costs	EPI
inspection of the technical condition of the infrastructure (reservoirs, water castles, foundations, pumping stations) as part of the maintenance program	Water infrastructure Platforms	Periodic visual inspection	Quarterly (as needed)	Apa Canal Cahul	Operation Costs	LPA, EPI
Planning the response in emergency situations created by natural risks and extreme events (floods, storms, lightning,	Prepared and implemented by operators or all water and sanitation system	Periodic visual inspection	Quarterly (as needed)	Apa Canal Cahul	Operation Costs	LPA, EPI

WHAT parameter is to be monitored?	WHERE will the parameter be monitored	HOW is the parameter to be monitored?	WHEN will the parameter be monitored?	WHO is to monitor the parameter?	Cost	Institutional Responsibility
landslides, seismic events, etc.)						
Soil and subsoil						
Rapid intervention and urgent remediation of breakdown situations of drinking water transport and distribution pipelines	All water system operated	Periodic visual inspection	Quarterly (as needed)	Apa Canal Cahul	Operation Costs	EPI, LPA
Regular training of staff in terms of waste management		Periodic visual inspection	Quarterly (as needed)	Apa Canal Cahul	Operation Costs	EPI, LPA
Landscape						
Maintaining tree/shrub belt around platforms to minimize visual impact	Water infrastructure Platforms	Periodic visual inspection	Quarterly (as needed)	Apa Canal Cahul	Operation Costs	EPI, LPA
Biodiversity						
Monitoring of the state and quality of waters in water basins	Project area	Periodic visual inspection	According to the periodicity established in the water legislation; Law of the animal kingdom no. 439/ 1995, Law no. 149/2006 regarding fish stock, fishing and fish farming and HG no. 1005/2004	JSC "Apa Canal Cahul" jointly with „Apele Moldovei" Agency, USM (Institute of Zoology and Institute of Ecology and Geography)	Operation Costs	Cahul and TAU Gagauzia Municipalities; EPI Cahul and TAU Gagauzia;
Monitoring the status of aquatic biological species	Project area	Periodic visual inspection			Operation Costs	
Taking special measures when pumping water from the river Prut, to prevent penetration and damage to fish eggs and juveniles	Project area	Periodic visual inspection			Operation Costs	
Socio-economic						
Quality of water	All project affected localities	Sampling and analyzing using standardized method	Quaterly	Apa Canal Cahul staff laboratory	Included in the operation cost	Apa Canal Cahul, Public Health Center
Complaints from local population/ GRM	All project affected localities	Registration of complaints	Continuously during Operation Phase	Apa Canal Cahul	Included in the operation cost	Apa Canal Cahul

10.5. Stakeholder Engagement Strategy

10.5.1. Identification of Stakeholders

This section will identify all relevant stakeholders including interested parties and other affected communities, local, district and regional level authorities. Stakeholders could also be individuals and organisations that may be directly or indirectly affected by the Project either in a positive or negative way, who wish to express their views.

To recognise stakeholders, the ensuing definitions have been applied:

- Stakeholders - Project-affected and other interested parties. These are individuals or groups who are affected or likely to be affected by the project, and those who may have an interest in the project and/or the ability to influence its outcome, either positively or negatively. This may include beneficiary business enterprises, local communities, national and local authorities and nongovernmental organisations.
- Key Stakeholders: Any stakeholder who holds substantial influence over the project or is notably affected by it.

Correspondingly with the ESS10, stakeholders can be grouped into the following 3 categories:

- ***affected participants*** (being or likely being affected),
- ***other interested parties*** (potentially having an interest in the project) and
- ***vulnerable/ disadvantaged groups*** (who may require special engagement efforts due to their vulnerable status).

Identified affected participants of the Water Security and Sanitation Project are the following*:*

- Government of Republic of Moldova and relevant agencies (e.g. relevant Ministries)
- Regia Apa Canal Cahul
- Local Public Administrations of the localities involved in the project
- Local Health public establishments, including the public health laboratory responsible for the water and wastewater quality control
- Free Economic Zone of Vulcanesti town
- Water service consumers: general population, agricultural cooperatives, businesses.
- Individual and companies located in the vicinity of the Project facilities.

Other Interested Parties

Other Interested Parties include peoples/entities/groups that could not have a direct impact from the Project, but who believe their interests as affected by the project and/or who could affect the project and/or the process of its implementation in some way.

Likewise, they could include government institutions that may be involved in various ways in the project, as well as academia, local NGOs, international organizations, the media along with others:

I. Ministries and government agencies
   - Ministry of Environment, Ministry of Education, Culture and Research, Ministry of Health, Ministry of Labor and Social Protection, Ministry of Finance, Ministry of Internal Affairs

- The National Agency of Energy Regulation (ANRE), also mandated for regulation of water and sanitation services
- Environmental protection inspection
- The National Water Agency "Apele Moldovei"

II. Civil Society Organizations:
- National Level Organizations:
  - ✓ Moldova Apa Canal Association (AMAC)
  - ✓ Congress of Local Authorities from Moldova (CALM)
- Local Non-Governmental Organizations
- Local TV and radio channels
  - ✓ Gagauziya Radio Televizionu

III. Academic institutions
- Technical/Agricultural Universities of Moldova
- Continuous Training Centers

IV. The World Bank

Vulnerable Groups

The stakeholder identification process examined if there were any groups of affected people who might be more vulnerable to potential negative impacts from the project.

During the assessments and preparation of this SES, groups were examined who might be affected by the projects differently due to their gender, age, ethnicity, physical or mental disability or other attributes. The assessment identified that the most numerous vulnerable groups are retired people, followed by the people with disabilities and recipients of social assistance. Likewise, families with 3 or more children and single parent ones are present, but not in high numbers.

The assessment conducted as part of the preparation of SES had identified the following vulnerabilities as specified in the table below.

Table 10-3: Groups of people whose vulnerability may increase during project implementation

Vulnerable groups	Description of vulnerability	Level of Analysis (H=High, M=Medium, L=Low)	
		Interest in the project	Influence
Elderly people from the Railway Zone of Vulcanesti town, who depend on medical and social assistance located in Vulcanesti	This group is vulnerable and can be affected by works on the public roads and changed itinerary of public bus during construction works	**H**	**L**
School children and adolescents from Gavanoasa, Pelinei, Vulcanesti who are enrolled in educational institutions in their localities	This group is vulnerable and can be affected by closure of roads, construction of pipes (near Gavanoasa gymnasium-kindergarten, Pelinei gymnasium) and changed itinerary of public transportation during construction works	**H**	**L**

Landowners and inhabitants from project affected communities, who are vulnerable due to their low social status and income, disability, education, etc.	This group can be negatively affected by low access to information about the project and proposed mitigation measures.	**M**	**L**
Construction workers who are engaged informally without a written contract and are not aware of their rights and conditions of employment	These categories of workers are vulnerable, and their condition may aggravate if their rights are further infringed. These categories have specific needs for information about their rights and conditions of employment according to the legislation of Moldova. Poor OHS, poor labor inspection has a direct impact on them.	**H**	**L**
Underaged workers (under the age of 16 years old) prohibited from participating in the project	Employment of under aged workers can have a negative influence on the project, and construction contractors should be required to put measures in place to ensure that the incidence of forced labour and harmful child labour does not take place.	**H**	**L**
Community general population from Pelinei, Gavanoasa, Railway Zone of Vulcanesti town	Their vulnerability is linked with potential risks or negative impacts on the environment, community health and safety generated by the construction of water distribution network.	**H**	**L**

10.5.2. Stakeholder Engagement Methods

The objective of the SES is to consolidate the techniques, protocols, policies and undertakings that the Local Public Administration will implement. This aims to comprehensively and promptly inform stakeholders about the possible impacts of the Project.

Within the SES, there is a stakeholder identification table, accompanied by the most suitable channels and tactics for communication, specifications for revealing information, and protocols for addressing grievances. If any stakeholders are omitted from the SES, they have the option to initiate contact with the LPA to receive project information; and subsequently be added into the stakeholder engagement program detailed in this SES.

As families with children who are enrolled in school or kindergarten must have some sort of Internet access, due to the needs of today's requirements to consult the search engines as well as with the overcome of pandemia when children were home schooled via internet, we believe that the elderly people and the ones with disability will require a closer communication campaign to ensure they will be proper informed about the works, quality of water, possibility to file a complaint/grievance publicly or anonymously and the possibility to connect to water distribution network.

In the locality of Gavanoasa, where the water distribution network will be constructed, live 842 people that are of different ethnic minority (including 16 Roma individuals). Also, in Alexanderfeld 50% of the population speak Russian as they are of Ukrainians, Russian, Bulgarians and Gagausians. In these two localities, together with inhabitants of Vulcanesti town and Railway Zone will require information to be disseminated to them mainly in Russian.

Nevertheless, it is critical that these vulnerable groups, especially people who have less accessibility to new, internet media, are properly included in the exposure and consultation process.

Another purpose of the SES is to provide pertinent information and increase awareness among all stakeholders who are impacted by, or hold an interest in, the project. This information pertains to the existence and accessibility to the Grievance Redress Mechanism (GRM).

The following methods will be explained in the MWSSP-SES report:

a) Public consultations and information disclosure requirements

In this method, the Project Implementation Unit must ensure that there is a two-way dialogue between them and the stakeholders. The main objective is to ensure that all “affected parties” are informed and have the opportunity to participate and speak freely. At this stage of the project preparation first public consultations has been carried out in Gavanoasa locality and Vulcanesti town where population from all affected localities have been involved, see the Minutes of the public consultation mitings in the Annex 9. Second stage of public consultations is planned in January 2024.

b) Online groups

With the development of new technologies and channels of communications, many local communities have created Facebook groups where they are posting news and events of the community as well as important announcements. Likewise, many people have modern mobile phones/tablets that have Viber application where, they can communicate for free with each other if Internet is available. Local administration can create a Viber group where they all stakeholders and members of the community. These two ways of communication do not require financial investments and can be used. This is the new way by which one can provide core information about the project and to ensure accessible online feedback from sanitation customers and to support several citizen engagement activities.

- Publish all documents to be disclosed, including ESIA and ESMP, and other important information related to project implementation.
- Disseminate the public consultation events.
- Likewise, such public groups could provide internet links to all websites of relevant institution involved in the project at the national, regional or local level. Dissemination through social media will ensure citizens can easily find relevant information.
- If necessary, support consultations through digital feedback surveys at regular intervals.

c) Distribution of leaflets/informative notes.

Leaflets with information (in Romanian and/or Russian) can be used to inform about the implementation of works, areas where works will be carried out, the consequence of Traffic Management Plan and the outlines of Grievance Redress Mechanism (GRM) (for instance, template of grievance form) for people in the community and those living in the vicinity of worksites.

d) Informative boards.

Establish info boards in the main work sites during the construction phase will inform population about the project (technical outlines, amount of investment, expected benefits) as it is a mandatory information method foreseen by the national legislation.

e) The grievance mechanism for all citizens to lodge complaints.

Grievance Redress Mechanism. The GRM Project was established in line with the World Bank's ESS-10 requirements. A dedicated grievance mechanism was set up for the Project. The stakeholders are able to raise grievances anonymously by phone or over email, or also in written form to the LPA and the Local Council for Water and Sanitation. The Grievance Log will be a data base collecting any information about reception and treatment of all complaints sent by all the means available to the stakeholders.

The mechanism of addressing the complaints will be the following:

Stage 1: Receiving the Complaints/proposal/suggestion (all together named future "complaint") do not matter what form of receiving: verbal, writing, online etc. An initial screening is done by the receiver - Social specialist and included obligatory in the GRM Log. All complaints that meet the admissibility criteria (related to the Project) are transmitted also to the concerned to obtain their views/proposals on the complaints or allegations of violations contained therein.

Stage 2: ***The screening / reviewing of complaints.*** The Social specialist together with other specialists investigates and decides on the complaint and assesses the case including whether the complaint alone or in combination with other complaints appear to reveal a consistent pattern of reliably attested future steps.

During its review, the social specialist may propose to Project manager to decide to:
 dismiss a complaint if it is not admissible because is not related with Project directly or indirectly and inform the applicant.
 keep a complaint under review and request the other stakeholders concerned and/or the complainant to provide further information within a reasonable time.
 solve the grievance in 15 days and inform the applicant about the decision with explanations.
 If it is not in his competence to transmit a file containing all admissible communications as well as recommendations thereon to the MIRD and WB for further consideration.

Stage 3: ***MIRD, PIU, WB***. The Ministries and WB may express their opinion to:
 discontinue its consideration of the situation.
 keep the situation under review for further consideration or additional information.
 transmit the situation to the other Moldova State institutions for their opinion or solving.

All the stages of solving grievances have to be documented and the resolution included in the GRM Log. The GRM log will be regularly (monthly base) sent to MIRD and WB for information.
The Contractor will set up the own GRM in the line with the GRM of the project and will inform the workers about the methods and ways of sending complaints.

10.5.3. Stakeholder Engagement Strategy

Stakeholder engagement Strategy is an inclusive process that must be carried out throughout the project cycle.

The **Table 10-4** describes key stakeholder engagement activities to take place during the preparation of Cahul sub-project, construction and operation stages.

Table 10-4: Stakeholder Engagement Strategy for the Cahul-Vulcanesti Water Supply Sub-Project

Time	Topic	Method	Site or target area	Issue	Timeline	Expected results	Target Stakeholders
PREPARATION PHASE (ESIA)							
ESIA – Inception meeting (Already done)	Project presentation	Public consultation Adverted by social networks (Facebook of local websites of the LPAs, regional Television and radio), information boards with the city hall	Conference room of Vulcanesti city hall, Gavanoasa cultural center	Outline of the Project		Information about the Project partners	All
ESIA- Assessment stage (after acceptance by WB)	ESIA and ESMP presentation	Online publication/ disimination of the ESIA draft report Public consultation Adverted by social networks (Facebook of local websites of the LPAs, regional Television and radio), information boards with the city hall	Conference room of Vulcanesti city hall, Gavanoasa cultural center	Impact, mitigation measures, ESMP, SEP, GRM		Suggestion/modification of ESMP	All
CONSTRUCTION PHASE							
Before launching works	Information on Project	Public consultation Local radio and TV broadcasts, community Facebook groups, LPA official websites, Community Viber groups	Local cultural centers from the Project localities, Vulcanesti Railway neighborhood	Description of works Construction Schedule Elaboration of Traffic Management Plan (TMP) where needed. Reminder of ESMP, SEP, GRM Starting date and duration	First 3 months	Public information Draft TMP (where needed) Prevention of grievances and complaints	Contractor, Supervisor, LPA, General population
	Information on Project	Billboards	Within the project affected localities, Vulcanesti Railway neighborhood. Vicinity of WSSP site	Non-Technical Summary - NTS Amount of Investment Name of project owner, Municipality and partners Starting date and duration Construction schedule GRM process	Remaining Period	Public information Prevention of grievances and complaints	General population including Neighbors of WSSP site

Time	Topic	Method	Site or target area	Issue	Timeline	Expected results	Target Stakeholders
Before starting the work at a specific section of the water distribution network	Traffic management plan	Facebook groups, LPA official websites, Community Viber groups Leaflets	Along the water distribution network to be constructed	Traffic rules	Remaining period	Public information Prevention of complaints, Prevention of traffic and car accidents	Population from Pelinei (inc.Satuc) and Gavanoasa (inc Vladimirovca, Nicolaevca) localities, Vulcanesti railway zone (inc.FEZ)
During all the Construction stage	Grievance	Social media GRM and Grievance log	All over the WSSP localities	Complaint relevance and treatment	First 3 months and Remaining period	All relevant complaints are properly treated	General population
Six months after the start of the works	Information on Project construction	Mid-term Construction meeting	Cultural center or conference room	State of the work Schedule revision (if necessary)	Six months after the start of the works	LPA is informed and provides for new relevant measures	Contractor, Supervisor, Local Public Administration
At the end of the works	LPA auditing of construction	Local radio and TV broadcasts, community Facebook groups, LPA official websites, Community Viber groups Final Construction meeting	Cultural center or conference room	Final description of works. Difficulties met. Review of Grievance log		LPA is informed and may suggest additional action to be taken to restore local environment and solve the grievances	Contractor, Supervisor, Local Public Administration
OPERATION PHASE							
During all operation phase	Grievance	Community Facebook groups, LPA official websites, Community Viber groups GRM and Grievance log	Within the project affected localities	Complaint relevance and treatment	Year 1 & 2, and Years >2	All relevant complaints are properly treated	General population

10.5.4. Public consultations

Two stages of Public Consultations were planned during the implementation of the ESIA Study, first one at the beginning of the ESIA (inception) and the second to present the main findings of assessment. These Consultations have been scheduled according to the development of the different activities of the study.

First round of consultations with the public Inception Public Consultation was held on August 10, 2023, in the following locations:Gavanoasa village, Cahul district (conducted in Romanian language) and Vulcanesti town (conducted in Russian language).

The participants of public consultations were particularly interested in when they would be connected to the MTP and the costs of connection to public water system. During these Inception Public Consultations, the stakeholders and the general public (from Vulcanesti and Alexandru Ioan Cuza localities at Vulcanesti location; and from Pelinei, Satuc, Alexanderfeld, VIadimirovca, Nicolaevca at Gavanoasa location) were informed about the objectives of the ESIA, the details about the assignment, and Project timelines, also the people were informed about the GRM and importance of community engagement. The notification of the LPA and the interested public regarding scheduled consultations and the possibility to participate, started on July 27, 2023.

The Mayor of Alexandru Ioan Cuza village was informed about the need to complete the delimitation procedure and registration in the cadastral register of the land where the SP-2 pumping station is to be located, in accordance with art. 17/22 of Law No. 29/2018.

It was also discussed with the beneficiary Mayors about the need to change the destination of the land plots from "agricultural" to "for construction" use. The Minutes of meetings of inception public consultations are attached in Annex 9.

The main subjects presented and discussed during the initial consultation sessions with the public in Gavanoasa and Vulcanesti were:

- The inclusion of the Cahul-Vulcanesti MTP sub-project in the regional development program at the national and regional levels;
- The progress of the sub-project and the current stage of development;
- The localities included in the sub-project and the planned water infrastructure;
- The environmental and social standards of the World Bank;
- The purpose and objectives of the environmental and social assessment report;
- The team that is involved in the elaboration of the ESIA and ESPM;
- Key environmental aspects to be addressed in the ESIA;
- The key social aspects addressed in the ESIA;
- The purpose and objectives of the ESMP;
- Implementation schedule and planning of the second round of consultations with the public;
- The Grievance Redress Mechanism;
- The World Bank's GRM.

➢ **The second round of consultations with the public**

The second round of consultations with the public took place on February 28, 2024 in the village of Gavanoasa (conducted in Romanian language) and in the city of Vulcanesti (conducted in Russian language). The procedure for informing the public about the meetings that are being organized has been carried out since February 12, 2024, see the model of the Announcement in Annex 10. The announcements were distributed on the official pages of the Local Public Administrations, official websites, pages and groups of social networks used by the community, notices printed on information boards available in the town hall/house of culture/post office, etc.).

The executive summary of the ISIA and ESMP reports could be consulted in both Romanian and Russian by accessing the links published on the ONDRL website[51].

During the second round of consultation with the public, the following topics were addressed:

- Objectives and purpose of consultations with interested parties;
- The procedure and stages of realization of EIMS and PMMS;
- WB environmental and social standards taken into consideration;
- How to attribute the significance of environmental and social impacts;
- Potential impacts of high and moderate significance identified;
- The main measures proposed to exclude or mitigate impacts;
- Safety, health and welfare of the local population;
- Temporary and permanent use of land;
- The environmental management plan and the duties of the Contractor;
- Examples of complaints that could arise during construction;
- Grievance redress mechanism.

Minutes of meetings and lists of participants are presented in Annex 11.

Both during the physical public consultations and through the e-mail message, it was announced that the interested public could send written comments and suggestions regarding the ESIA and ESMP reports within 10 days. No comments or suggestions were received from interested parties.

10.6. Grievance redress mechanism

Grievance redressal is a critical component of effective Project implementation. The purpose of GRM is to provide a forum to the internal and external stakeholders to voice their concerns, queries, and issues within the Project. The project-affected parties were introduced to the GRM during the first public consultation, where they found out that they can address signed or anonymous grievances to their local Citizen Water and Sanitation Committees (CWSC) and regional offices, for instance if there are issues with the design or construction works, restricted access to certain sites, expropriation actions, but also if complaints arise from workers of the implementation company (for instance, regarding work schedule or wages, safety conditions of work) , SEA/SH (sexual exploitation and

[51] Romanian version https://ondrl.gov.md/wp-content/uploads/2024/02/Sumar_executiv_EIMS_ROM.pdf
Russian version https://ondrl.gov.md/wp-content/uploads/2024/02/Sumar_executiv_EIMS_RU.pdf

abuse/sexual harassment) cases arise, there will be involved dedicated services that fight against all forms of violence and SEA/SH cases (www.noviolence.md) etc.

Likewise, the WB ESS10 stipulates that the PIU shall respond to grievances and concerns of the project-affected parties related to the environmental and social performance of the project. The GRM should be accessible to all stakeholders and project-affected parties, at no cost, and should also allow anonymous grievances to be raised and addressed. This mechanism will not prevent access to administrative or legal remedies. The procedure to submit grievances should be easy to understand and disseminated to the public via social media of the locality (for example, Facebook groups, public billboards, Viber groups, etc.) and should indicate the expected timelines for response and resolution of the grievances.

To follow the approach from the Environmental and Social Management Framework of the Moldova Water Security and Sanitation Project and SEP Report (2021), the Grievance Redress Mechanism will be established at 3 levels:

- Local level. The supervisor of the works will be responsible for collecting the grievances from local residents and Contractor's employees. The channels for grievance submission will be communicated near the construction site on public billboards, specially installed for this project. For Contractor's employees a special grievance email and box will be available for submitting grievances (including anonymous) in the Supervisor's premises. The supervisor company will be in charge of collecting grievances from Contractor's personnel. Likewise, the GRM will be accessible at the Local Public Administration headquarters and among the members of the Citizen Water and Sanitation Committees.
- South Development Agency (subprojects from Cahul rayon). Complainants could be submit grievances to email or postal address of the agency.
  address: Republic of Moldova, MD-4101, Cimislia, 12 Stefan cel Mare Bd.
  email: adrsud@adrsud.gov.md
  tel.: 0 241 2 62 86
- Project Implementation Unit (PIU) level or Ministry of Infrastructure and Regional Development. The complainant will be able to submit grievances to PIU over email or postal address/phone.
  PIU/National Office for Regional and Local Development
  address: Chisinau, MD-2012, 51A Alexandru cel Bun Street, floor 2
  email: reclamatii@ondrl.gov.md
  tel.: 069131817

- **Ministry of Infrastructure and Regional Development**
  address: Chisinau, MD-2012, Piata Marii Adunari Naionale 1
  email: secretariat@midr.gov.md or petitii@gov.md
  tel.: Green Line 022 250 500

In addition to these regional levels, the project-affected parties shall also be able to submit complaints to the World Bank's Grievance Redress Service (GRS). Information on how to submit a complaint to the GRS is available at: https://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-servicen

Project-affected individuals shall also be able to submit Also grievances to the WB directly, using one of the options explained below:

- ✓ Via email: grievances@woldbank.org
- ✓ Via post: 1818 H Street, NW Washington, DC 20433 USA
- ✓ Via the Local Office of the World Bank:
  Puskin street 20/1, MD-2012, Chisinau, Republic of Moldova
  022 262262/ 022 262236, moldova_contact@worldbank.org

During the implementation of the project grievances related to gender-based violence can arrise, especially sexual harrassment, abuse and sexual exploitation, as well as verbal violence. To address this concern, pertinent information shall be disseminated among the local population, with a particular focus on women, to inform them about the specialized services available to support victims of violence. At the national level, Moldova has a confidential, toll-free helpline intended to support women and girls victims in violence cases (08008 8008 or dedicated site noviolence.md).

10.7. Reception and registration of complaints

Once the grievance/complaint is received, it will be examined at the level where it was received, preferably to be used in the form presented in the Annex 5.

All grievances will be acknowledged and responded within 15 calendar days, according to the term foreseen in the Operational Manual of the Project.

The period for responding and solving the grievance can be prolonged in cases when additional consultations, activities are needed for preparing the final answer or the intervention of state institutions is required.

A specially nominated and trained member of the Citizen Water and Sanitation Committees will record grievance information in a grievance log and will inform the complainant about the estimated timeframe for solving the grievance. This will include:

- Stakeholder name and contact details.
- Details of the grievance and how and when it was submitted, acknowledged, responded to and closed out.

World Bank grievance standards require the Grievance Redress Mechanism to provide a structured way of receiving and resolving grievances. This grievance mechanism covers both employees of the Contractor and non-employees (i.e. affected people and other relevant stakeholders).

Also, one cannot exclude the fact that some inhabitants will seek for a job in the Contractor's company. For the period of implementation of the project, the Contractor must also have a person appointed to address the grievances that may arise from the employees or local population. The contractor is responsible for guaranteeing the well-being of their employees by providing suitable working conditions. This includes furnishing protective footwear and uniforms, implementing noise-reduction measures, ensuring a water supply during hot weather, and providing sanitary facilities, among other things. If these points requirements are not complied with, the employees also have the right to

complain to the Citizen Water and Sanitation Committees and to the Supervisor company. CWSC will ensure equal and non-discriminatory access to grievance mechanisms, with special attention to the most vulnerable groups: individuals who are less knowledgeable about legal matters, the most economically disadvantaged members of the community, and those who have limited or no internet access.

According to WB standards, the individuals can request the right to have their name kept confidential and this mechanism does not eliminate the right for stakeholders to process grievances through other judicial means.

The mechanism of addressing the complaints will be the following:

- Stage 1: Receiving the Complaints. An initial screening is done by the Citizen Water and Sanitation Committees included obligatory in the GRM Log. All complaints that are related to the Project are transmitted also to the concerned to obtain their views/proposals on the complaints or allegations of violations contained therein.
- Stage 2: The review of complaints. The CWSC together with other specialists investigates and decides on the complaint and assesses the case including whether the complaint alone or in combination with other complaints appear to reveal a consistent pattern of reliably attested future steps.

During its review, the Citizen Water and Sanitation Committees may propose to:

- ✓ Dismiss a complaint if it is not admissible because it is not directly or indirectly related with the Project and inform the applicant;
- ✓ Keep a complaint under review and request the other stakeholders concerned and/or the complainant to provide further information within a reasonable time;
- ✓ Solve the grievance in 15 days and inform the applicant about the decision with explanations.
- ✓ If it is not in their competence to transmit a file containing all admissible communications as well as recommendations thereon to the MIRD and WB for further consideration.

- Stage 3: MIRD, PIU, WB. The MIRD/PIU and WB may express their opinion to:

  - ✓ discontinue its consideration of the situation;
  - ✓ keep the situation under review for further consideration or additional information;
  - ✓ transmit the situation to other Moldova State institutions for their opinion or solving.

At all the stages, the grievance solving process has to be documented and the resolution included in the GRM log (Excel/database). The GRM log will be shared on line with the PIU, which will regularly track and monitor the status of complaints to ensure that all grievances are resolved within the established timeframe.

The PIU will also provide and publish reports available to the World Bank team, and all stakeholders that would contain the following information:

- Status of establishment of the GRM (procedures, staffing, awareness building, information of the population etc.);

- Quantitative data on the number of complaints received, the number that were solved, and the term of solving them;
- Qualitative data on the type of complaints and answers provided, the most frequent causes that result in the appearance of complaints;
- Time taken to resolve complaints;
- Any issues faced with the procedures/staffing or use;
- Factors that may be affecting the use of the GRM/beneficiary feedback system;

The PIU will compile a report summarizing the implementation of Stakeholder Engagement Plan (SEP) results on annual basis. This report will provide a summary of all public consultation problems, grievances and resolutions. The report will provide a summary of relevant public consultations' findings from informal meetings held at the local level. This report will be available on-line for general population. Stakeholders should be reminded again that the grievance mechanism is available and important. This GRM will be revised and updated, supplemented as needed with project-specific arrangements and will be publicly disclosed.

10.8. ESMP estimated costs

In the Table 10-5 are estimated the costs of the ESMP implementation for the ”Cahul – Vulcanesti Water Supply” sub-project. The estimated construction period is 24 calendar months. Cost associated with Contractor’s good practices in environment, social protection and occupational health and safety as well as those associated with monitoring during the construction phase cannot be determined as such. But these costs are real and will be comprised as “shadow costs” in the financial proposals of both Contractor and Supervisor. It should be noted that the involvement of the community in the process of ESMP implementation is completely voluntary participation for the benefit of own community and households. Therefore, communities partaking in monitoring the ESMP will not get paid.

Table 10-5: Estimated cost for the implementation of the Environmental and Social Management Plan

Item	Unit	Unit price (USD)	Quantity*	Total cost (USD)	Period	Budget
Contractor’s Environmental Health and Safety Officer	Monthly wage	5 000	24	120 000	Construction	BoQ, Lump sum in the bidding documents
Implementation of trainings with Contractor’s workers about HIV/AIDS, STD, SH/SEA cases	Lump sum	2 000	1	2 000	Construction	Project
Supervisor’s Environmental, Social and Safety Officer	Monthly wage	5 000	24	120 000	Construction	Construction Supervision Consultant Proposal
Grievance Redress Mechanism Unit (construction)	Monthly lump sum (overtime, displacement, lawyer assistance, etc.)	500	24	12 000	Construction	Project
Grievance Redress Mechanism Unit (operation)	Monthly lump sum (overtime, displacement, lawyer assistance, etc.)	-	-	Operation cost	Operation	Apa Canal Cahul
Monitoring in construction phase on necessity (air, noise, water, soil)	Monthly lump sum	2400	24	56600	Construction	Project. Contractor BoQ. Lump sum
Monitoring in operation phase (covered by the tariff)	-	-	-	Operation cost	Operation	Apa Canal Cahul

ANNEXES

Annex 1: The result of the drinking water analysis from 27.09.2023[52]

S.A. Apă-Canal Cahul

Apă-Canal Cahul
Str. 31 August, 1 or. Cahul

Linie fierbinte: 0299 22000
www.apacanalcahul.md

REZULTATUL ANALIZEI APEI POTABILE

Analiză realizată de Laboratorul Apă-Canal Cahul
Data prelevării probei: 15.08.2023
Data efectuării analizelor: 15.08.2023 - 16.08.2023

Tabel 1

Nr.	Indicatori organoleptici şi fizico-chimici	Unitate de măsură	Valoarea concentraţiei maxim admisibile (CMA)	Valori obţinute
1	Aluminiu	µg/l	200	93
2	Amoniu	mg/l	0,5	0.03
3	Cloruri	mg/l	250	27.8
4	Clor rezidual liber	mg/l	0,5	0.96
5	Culoarea	grade	Acceptabil pentru consumatori şi nici o modificare anormală	Acceptabil (2,0)
6	Reziduu sec solubil total	mg/l	1500	276.4
7	Duritatea totală	grade germane	min. 5	8.7
8	Fier	mg/l	0,3	0.03
9	Gust	puncte	Acceptabil consumatorilor şi nici o modificare anormală	Acceptabil
10	Miros	puncte	Acceptabil consumatorilor şi nici o modificare anormală	Acceptabil
11	Temperatura	°C		25.0
12	Turbiditatea	UNT.	</=5	0.16
13	pH	Unit. de pH	>/= 6,5; </= 9,5	7.6
14	Oxidabilitatea	mg O2/l	5	2.0
15	Alcalinitatea totală	mol/m³	nu se normează	2.4
16	Nitriţi	mg/l	0,5	0.003
17	Nitraţi	mg/l	50	3.1
18	Sulfaţi	mg/l	250	77.8
19	Cupru	mg/l	1,0	0,05

Tabel 2

Nr.	Indicatori bacteriologici	Unitate de măsură	Valoarea concentraţiei maxim admisibile (CMA)	Valori obţinute
1	Bacterii coliforme	nr./100 ml	0	0
2	Enterococi (Streptococi fecali)	nr./100 ml	0	0
3	Escherichia coli (E.Coli)	nr./100 ml	0	0

Concluzie: Conform analizelor fizico-chimice şi microbiologice, proba de apă este potabilă şi se încadrează în prevederile HG. 934 din 15.08.2007 pentru indicatorii prevăzuţi la secţiunea "monitorizare de control şi audit"

Informaţii certificate

Moldovanu Vladimir
Director general interimar

Ghirov Valeria
Laborant superior

[52] http://www.apacanalcahul.md/storage/2023/09/05/1693906282_40285900.pdf

Annex 2: Sanitary authorization for operation

MINISTERUL SĂNĂTĂȚII, MUNCII ȘI PROTECȚIEI SOCIALE AL REPUBLICII MOLDOVA
МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ ТРУДА И СОЦИАЛЬНОЙ ЗАЩИТЫ РЕСПУБЛИКИ МОЛДОВА
AGENȚIA NAȚIONALĂ PENTRU SĂNĂTATE PUBLICĂ
НАЦИОНАЛЬНОЕ АГЕНСТВО ОБЩЕСТВЕННОГО ЗДОРОВЬЯ
2028, mun. Chișinău, str. Gheorghe. Asachi, 67 a
Tel. + 373 22 574501, fax + 373 22 729725
IDNO 1018691000021
e-mail: anspp@ansp.md; anticamera@ansp.md

APROBAT:
Anexa nr. 3 la Legea nr. 10 din 03 februarie 2009 privind supravegherea de stat a sănătății publice (Monitorul Oficial nr. 67 art nr : 183 din 03.04.2009)

AUTORIZAȚIE SANITARĂ PENTRU FUNCȚIONARE

Nr. **P-0435/2019**

Data emiterii **06 martie 2019** Valabilă pînă la **21 februarie 2024**

1. Denumirea unității economice **SA Apa-Canal Cahul**
2. For tutelar **Societatea pe Acțiuni APĂ-CANAL CAHUL**
3. Adresa, numărul de telefon, fax, e-mail **Republica Moldova, r-ul. Cahul, mun. Cahul, str. 31 August 1989, 1, 3901, 067301311, , info@apacanalcahul.md**
4. Profilul, genul de activitate **Captarea, tratarea și distribuția apei, E 36.00** (cod CAEM)
5. Grupele de produse (mărfuri) care urmează a fi fabricate, depozitate, utilizate, serviciile care urmează a fi prestate:

(cod OCPO)

6. Volumul/capacitatea **17,6 mii m3**
7. Autorizația sanitară a fost eliberată în baza materialelor de supraveghere de stat a sănătății publice, a rezultatelor investigațiilor de laborator și, după caz, măsurătorilor instrumentale

13.02.2019
(data, luna, anul)

8. **Clauze de funcționare:**
   Deținătorul autorizației sanitare de funcționare este obligat:
   1) să respecte legislația sanitară a Republicii Moldova;
   2) să solicite Agenției Naționale pentru Sănătate Publică sau subdiviziunilor teritoriale ale acesteia prelungirea valabilității autorizației sanitare cu 30 de zile pînă la expirarea termenului de valabilitate;
   3) să notifice imediat Agenția Națională pentru Sănătate Publică sau subdiviziunile teritoriale ale acesteia despre orice modificare ori extindere a genurilor de activitate, cu excepția celor indicate în autorizație.
9. **Nerespectarea legislației sanitare în vigoare conduce la aplicarea măsurilor de constrîngere administrativă în conformitate cu prevederile art. 65, 66, 67 ale Legii nr. 10/2009.**

L.Ș.

Director Agenției Naționale pentru Sănătate Publică/ șef CSP teritoriale

Svetlana Bruma
(prenumele, numele)

CSP Cahul
(denumirea teritoriului deservit)

semnat electronic
(semnătura)

Annex 3: Scheme of water supply system of localities

Overview of the Pelinei water supply system

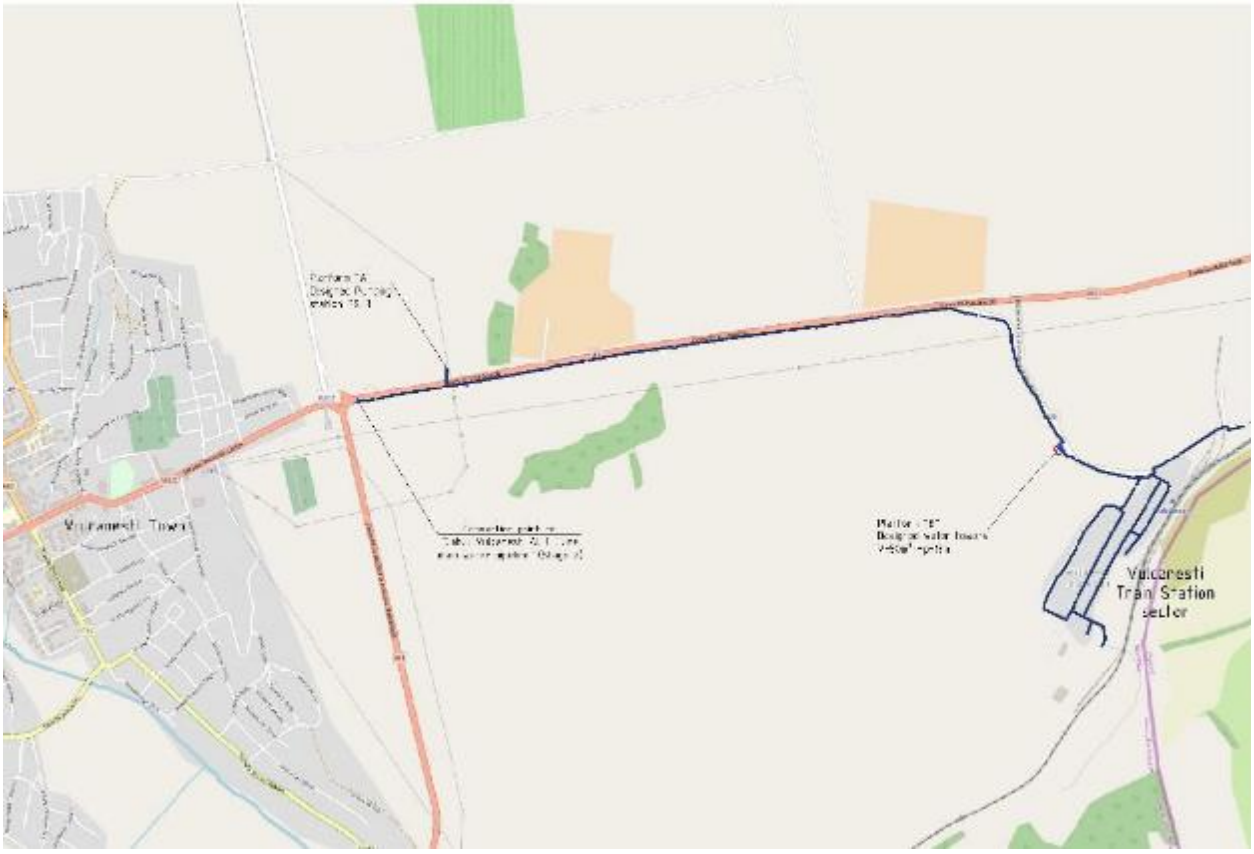
Overview of the water supply system of Satuc, Pelinei commune

Overview of the water supply system of Gavanoasa

Overview of the water supply system of Nicolaevca, Gavanoasa commune

Overview of the water supply system of Vladimirovca, Gavanoasa commune

Overview of the water supply system of Vulcanesti Railway zone



Annex 4: The Notice of the archaeological expertise No. 335 of 27.10.2023

Oficiul Național
de Dezvoltare Regională și Locală

Nr. doc. intrare 01-23/ 1318 din 27.10.2023

REZOLUȚIA DIRECTORULUI

Dr. D. Andros

Rog dispunerea măsurilor care se impun

S. Cojocari

MINISTRY OF CULTURE OF THE REPUBLIC OF MOLDOVA

NATIONAL AGENCY FOR ARCHAEOLOGY
MD 2065, Chișinău, 50, Mihai Eminescu str.
tel./fax (37322) 227792

50

ul expertizei arheologice

Către:
IP Oficiul Național de Dezvoltare Regională și Locală,
Bd. Ștefan cel Mare și Sfânt, nr.124, etaj 3,
Mun. Chișinău, MD-2001, Republica Moldova.
Email: office@ondrl.gov.md

Cu privire la executarea proiectului *„Apeduct magistral Cahul – Lebedenco – Pelinei – Găvănoasa – Vulcănești (satele) – Alexandru Ioan Cuza și rețelele interioare în satele: Lebedenco, Hutulu, Ursoaia, Pelinei, Sătuc, Găvănoasa, Vladimirovca și Nicolaevca, raionul Cahul (Etapele I și II)"*.

În temeiul prevederii art. 6 al Legii privind protejarea patrimoniului arheologic (nr. 218 din 17 septembrie 2010, Monitorul Oficial al Republicii Moldova nr. 235-240, din 3 decembrie 2010, art. 738, cu modificările operate prin Legea nr. 153 din 30 iulie 2015 pentru modificarea și completarea unor acte legislative, Monitorul Oficial al Republicii Moldova nr. 223, din 14 august 2015, art. 443), Agenția Națională Arheologică a examinat proiectul *„Apeduct magistral Cahul – Lebedenco – Pelinei – Găvănoasa – Vulcănești (satele) – Alexandru Ioan Cuza și rețelele interioare în satele: Lebedenco, Hutulu, Ursoaia, Pelinei, Sătuc, Găvănoasa, Vladimirovca și Nicolaevca, raionul Cahul (Etapele I și II)"*, efectuând un control preventiv în ceea ce privește prezența/lipsa vestigiilor arheologice pe traseul proiectului respectiv.

În rezultatul expertizei arheologice a traseului, Agenția Națională Arheologică **avizează** proiectul nominalizat dar cu următoarele condiții:

- La sud-est de localitatea Pelinei traseul proiectului traversează o zona cu vestigii arheologice și anume: așezarea din epoca romană târzie / sec. III-IV d. Hr, Pelinei III. În perimetrul sitului, pe traseul proiectului apeductului magistral, se impune efectuarea descărcării de sarcina arheologică, în conformitate cu prevederile art. 5, alin. (2) din Legea nr. 218 al Legii privind protejarea patrimoniului arheologic (vezi anexa 1).
- La nord de orașul Vulcănești, în zona în care traseul proiectului apeductului magistral din direcția sudică cotește spre est (terenul cu nr. cadastral 94172060106), traversează longitudinal pe o lungime de cca 1,2 km situl arheologic Valul lui Traian de Jos. Pentru evitarea pericolului distrugerii patrimoniului arheologic reperat în această zonă, solicităm mutarea traseului cu 40 m spre nord (vezi anexa 2), în conformitate cu prevederile art. 6, alin. (3) din Legea nr. 218 al Legii privind protejarea patrimoniului arheologic
- La nord de orașul Vulcănești, traseul proiectului apeductului magistral traversează transversal situl arheologic Valul lui Traian de Jos. Fiind conștienți de imposibilitatea schimbării traseului în această zonă, fiind îndreptat spre direcția sudică, se impune efectuarea descărcării de sarcina arheologică, în conformitate cu prevederile art. 5, alin. (2) din Legea nr. 218 al Legii privind protejarea patrimoniului arheologic (vezi anexa 3).

Digitally signed by Popovici Serghei
Date: 2023.10.27 08:53:18 EEST
Reason: MoldSign Signature
Location: Moldova

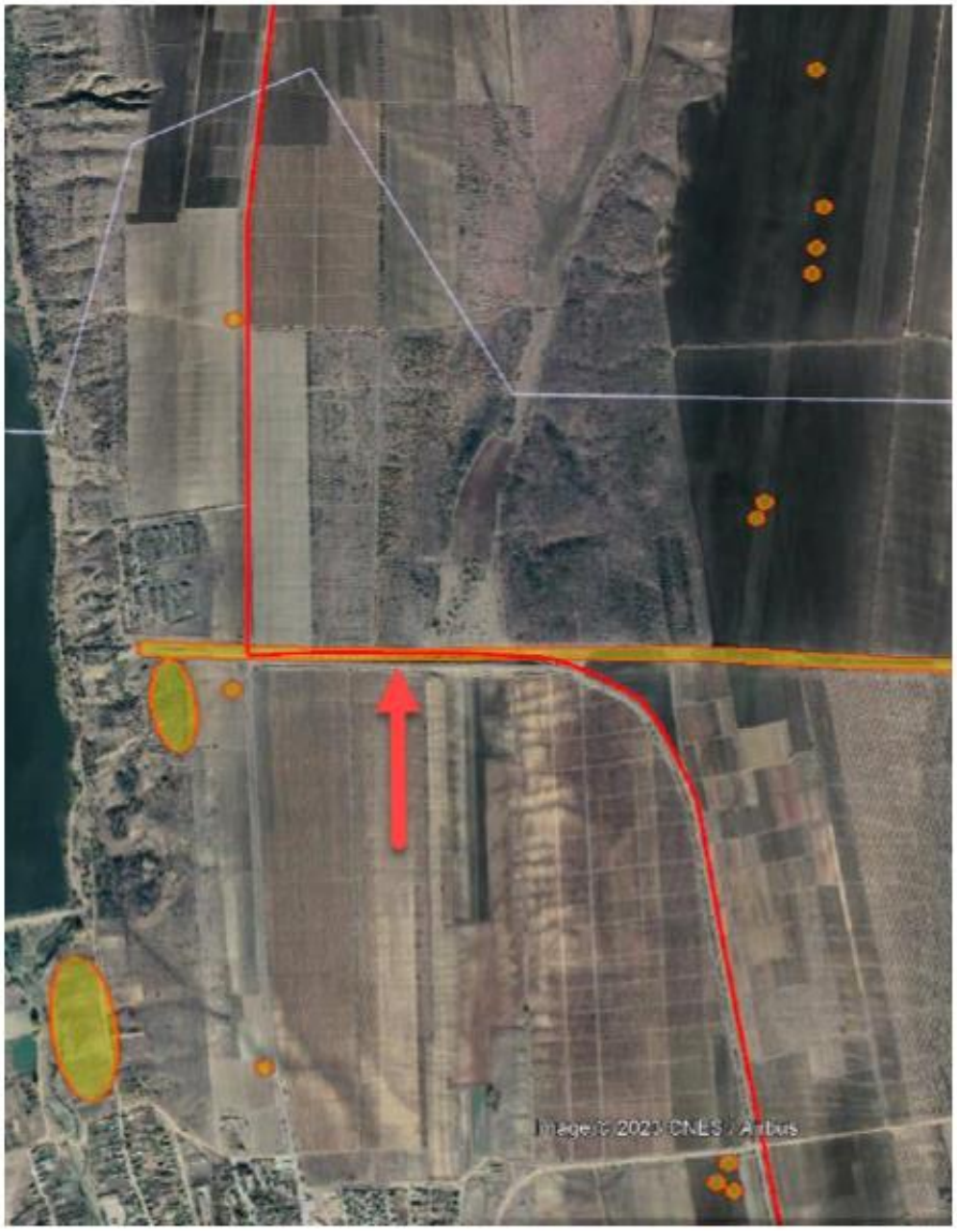
Cu respect

dr. Sergiu Popovici
Director general adjunct

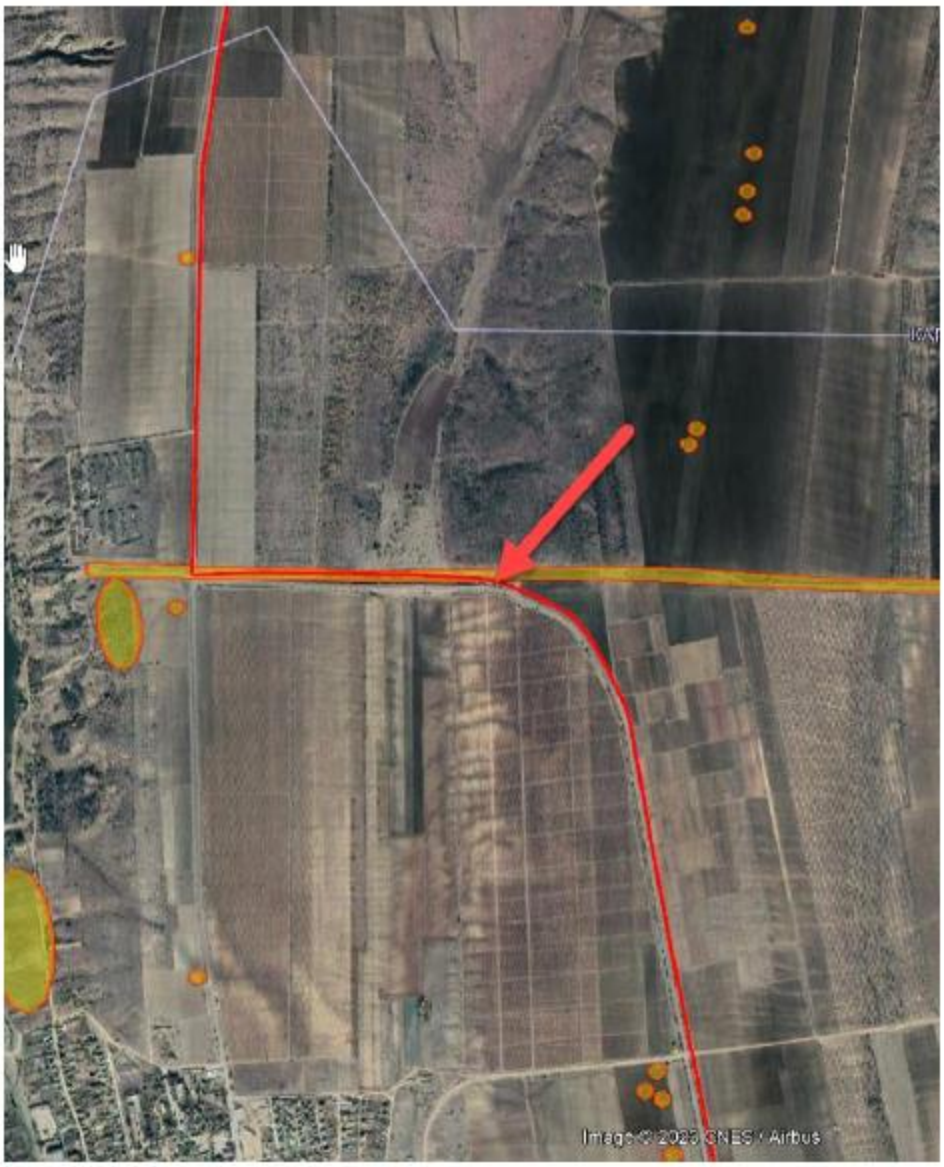
OFICIUL NAȚIONAL DE DEZVOLTARE REGIONALĂ ȘI LOCALĂ
Nr. de intrare 01-23/1318
„27" octombrie 2023

Info: 079820092

Anexa 1. La sud-est de localitatea Pelinei traseul proiectului traversează o zona cu vestigii arheologice şi anume: aşezarea din epoca romană târzie / sec. III-IV d. Hr, Pelinei III.



Anexa 2. Pentru evitarea pericolului distrugerii patrimoniului arheologic reperat în această zonă, solicităm mutarea traseului cu 40 m spre nord



Anexa 3. La nord de oraşul Vulcăneşti, traseul proiectului apeductului magistral traversează transversal situl arheologic Valul lui Traian de Jos.

Annex 5: Complaint/Grievance Form

Reference No:

Note: you can remain anonymous if you prefer or request not to disclose your identity to the third parties without your consent.

First Name _____

Last Name _____

❑ I wish to raise my grievance anonymously

❑ I request not to disclose my identity without my consent

Contact Information

Please mark how you wish to be contacted (telephone, e-mail).

❑ By Telephone: _____

❑ By E-mail _____

❑ By post: Please provide mailing address:

_____

_____

Preferred Language for communication: ❑ Romanian ❑ Russian

Description of Incident or Grievance (*What happened? Where did it happen? Who did it happen to? What is the result of the problem? Date of Incident/ Grievance)*

❑ One-time incident/grievance (date _____)

❑ Happened more than once (how many times? _____)

❑ On- going (currently experiencing problem)

What would you like to see happen to resolve the problem?

Signature: _____ Date: _____

Please return this form to your Local Public Administration office, Local Council for Water and Sanitation, South Development Agency, Project Implementation Unit (PIU) level or Ministry of Infrastructure and Regional Development

Tentative grievance monitoring Log

The following template will assist in recording comments, complaints and grievances for monitoring purposes:

Name/ Contact details	Date received	Details of complaint/comment	Responsibility	Actions taken	Date resolved

Annex 6: Biodiversity in the southern region of the Republic of Moldova

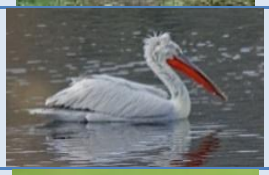
Table 1: The images of the main representative species of the forest bodies

Name of species Scientific/Eng/Rom	The images of the representative species	
Robinia pseudoacacia / Black logust /Salcam		
Ulmus campestris L. /European field elm/ Ulm-de- camp)		
Tilia cordata/ Small-leaved linden – Tei pucios		
Gleditsia triacanthos/ Honey logust /Glădiță		

Juglans regia/ Common Walnut/ Nucul comun		
Euonymus europaea/ Spindle Salbă moale		
Carpinus betulus/ European hornbeam /Carpen		

Table 2: IUCN Red data Book listing for RM IUCN 2012. Red List of Threatened Species of Fauna

Critically Endangered Species:		
Mustela lutreola (European Mink)	Status: Critically Endangered A3ce ver 3.1 Pop. trend: decreasing	
Endangered Species:		
Branta ruficollis (Red-breasted Goose)	Status: Endangered A2bcd+3bcd+4bcd ver 3.1 Pop. trend: decreasing	

Vulnerable Species:		
Anser erythropus (Lesser White-fronted Goose)	Status: Vulnerable A2bcd+3bcd+4bcd ver 3.1 Pop. trend: decreasing	
Pelecanus crispus (Dalmatian Pelican)	Status: Vulnerable A2ce+3ce+4ce ver 3.1 Pop. trend: decreasing	
Limosa limosa (Black-tailed Godwit)	Status: Near Threatened ver 3.1 Pop. trend: decreasing	
Tetrax tetrax (Little Bustard)	Status: Near Threatened ver 3.1 Pop. trend: decreasing	
Anser erythropus (Lesser White-fronted Goose)	Status: Vulnerable A2bcd+3bcd+4bcd ver 3.1 Pop. trend: decreasing	
Near Threatened species:		
Aythya nyroca (Ferruginous Duck)	Status: Near Threatened ver 3.1 Pop. trend: decreasing	
Spermophilus citellus (European Ground Squirrel)	Status: Vulnerable A2bc ver 3.1 Pop. trend: decreasing	
Testudo graeca (Spur-thighed Tortoise)	Status: Vulnerable A1cd ver 2.3 (needs updating)	
Vipera ursinii (Meadow Viper)	Status: Vulnerable B2ab(iii) ver 3.1 Pop. trend: decreasing	
Emys orbicularis (European Pond Turtle)	Status: Lower Risk/near threatened ver 2.3	

Lutra lutra (Eurasian Otter)	Status: Near Threatened ver 3.1 Pop. trend: decreasing	
Spermophilus suslicus (Speckled Ground Squirrel)	Status: Near Threatened ver 3.1 Pop. trend: decreasing	

Table 3: Fish and other aquatic species included in the Red Book and IUCN 2012 Red list

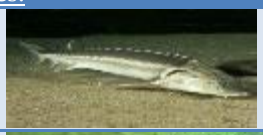
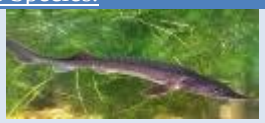
Critically Endangered Species:		Vulnerable Species:	
***Acipenser gueldenstaedtii* (Russian Sturgeon)**		*Acipenser ruthenus* (Sterlet)	
***Acipenser stellatus* (Stellate Sturgeon)**		*Alosa immaculata* (Pontic shad)	
***Anguilla anguilla* (European Eel)**		*Astacus astacus* (Noble Crayfish)	
***Huso huso* (Beluga)**		Cyprinus carpio (Wild Common Carp)	

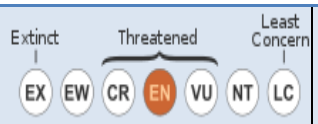
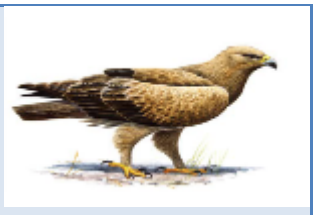
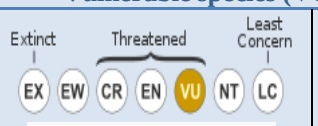
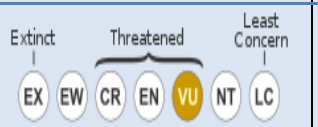
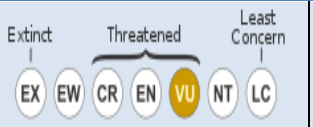
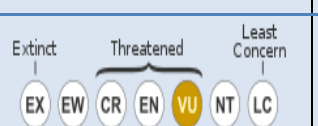
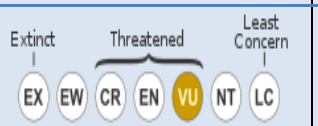
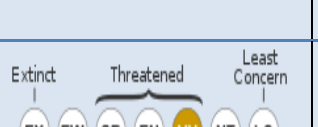
Table 4: The bats species listed in the Red Book (RB) of the Republic of Moldova (2015) with different rarity criteria

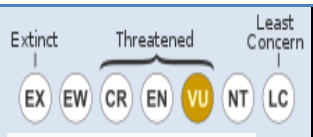
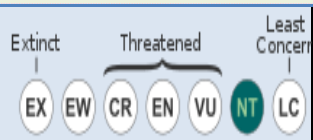
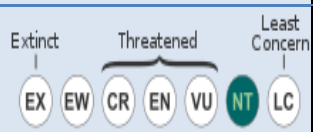
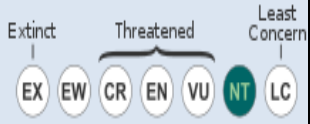
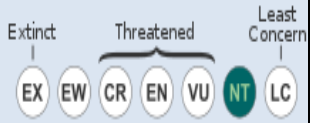
Name of species	The vulnerability status of the species, according to RB of the RM	Imagines
Myotis bechsteinii/ *Bechstein's bat*/ Liliac-cu-urechi-mari	Critically Endangered (CR)	
Myotis dasycneme/ The pond bat/ Liliac-de-iaz	Endangered (EN)	

Myotis daubentoniid/ Daubenton's *bat* / Liliac-de-apă	Vulnerable (VU)	
Vespertilio murinus/ Particoloured bat/ Liliac bicolor	Critically Endangered (CR)	
Plecotus austriacus / Grey long-eared bat / Liliac-urechiat-brun	Endangered (EN)	

Table 5: The status of birds' species in the RM included in the IUCN List 3.1

Species/Status of the RB of the RM	Status IUCN	Images of the Species	
Criticaly and Endangered species (EN) according to IUCN			
Falco cherrug (Șoim dunărean / Saker Falcon)	Extinct | Threatened | Least Concern EX EW CR EN VU NT LC Endangered (IUCN 3.1)		
Neophron percnopterus (Hoitar /Egyptian Vulture)	Extinct | Threatened | Least Concern EX EW CR EN VU NT LC Endangered (IUCN 3.1)		
Oxyura leucocephala **(Rață-cu-cap-alb/Headed Ducks**	Extinct | Threatened | Least Concern EX EW CR EN VU NT LC Endangered (IUCN 3.1)		

Aquila clanga (Great Spotted Eagle)	 Endangered (IUCN 3.1)		
Vulnerable species (VU) according to IUCN			
Anser erythropus (Gârliță-mică/Lesser White-fronted Goose)	 Vulnerable (IUCN 3.1)		
Aquila heliaca (Acvilă-de-câmp/ Eastern imperial eagle)	 Vulnerable (IUCN 3.1)		
Aythya ferina (Rață-cu-cap-castaniu/common pochard) Not included in the RB.	 Vulnerable (IUCN 3.1)		
Branta ruficollis (Gâscă-cu-gât-roșu /Red-breasted Goose)	 Vulnerable (IUCN 3.1)		
Falco verspertinus **(Vânturelul-de-seara/Red-footed Falcon)** **Status: Vulnerabile (VU)**	 Vulnerable (IUCN 3.1)		
Otis tarda (Dropie/Great bustard) Status: Critically Endangered (CR) in the Republic of Moldova.	 Vulnerable (IUCN 3.1)		

Pelecanus crispis **(Pelicanul creț/Dalmatian pelican)** **Status: Critically Endangered (CR) in the Republic of Moldova.**	 Vulnerable (IUCN 3.1)		
Near Threatened species (NT) according to IUCN			
Aegypius monachus (Cinereous Vulture) **Not included in the RB. Accidental species. It does not nest.**			
Anthus pratensis **(Fâsă de luncă/Water pipit)** **Not included in the RB.**	 Near Threatened (IUCN 3.1)		
Limosa limosa (Black-tailed godwit/black-tailed godwit) **Not included in the RB.**	 Near Threatened (IUCN 3.1)		
Turdus iliacus **(Sturzul viilor /Redwing)** **Not included in the RB.**	 Near Threatened (IUCN 3.1)		

Annex 7: Socio-cultural environment

Table 1: Percentage of population of localities according to the age groups

	Total population	Age groups			Dependency ratio
		0-14	15-57/62	58/63+	
A.I. Cuza	2468	20%	62%	16%	0.6
Alexanderfeld	1316	17%	63%	20%	0.6
Pelinei	2163	18%	62%	3%	0.3
Gavanoasa	2109	18%	62%	20%	0.6
Vulcanesti	15213		59%	15%	0.7

Source: local Mayoralties

Table 2: Total number of pupils for 2 high schools and 1 gymnasium from Vulcanesti town

	Girls	Boys	Total
Total number of children in institution	849	868	1717
Number of children raised in vulnerable families:	232	235	
- of which with parents with a degree of disability	0	2	
- from families receiving social aid	0	0	
- who come from single-parent families	120	118	
Number of children from socially vulnerable families who come from Vulcanesti town	188	187	
Number of children who come from neighboring villages	58	54	
- Mother is abroad	39	57	
- Father is abroad	38	78	
- Both parents abroad	14	21	

Source: Educational Institution from the locality

Table 3: Total number of children from 5 kindergarten in Vulcanesti town (except Railway Zone Vulcanesti)

	Girls	Boys	Total
Total number of children	343	362	705
Number of children raised in vulnerable families	20	17	
of which with parents with a degree of disability	3	2	
from families receiving social aid	12	4	
who come from single-parent families	13	14	
Mother is abroad	0	1	
Father is abroad	22	36	
Both parents abroad	1	1	

Source: Educational Institution from the locality

Table 4: Total number of children from kindergarten, Gavanoasa locality

Group	Gender	Nr	Gavanoasa &Nicolaevca &Vladimirovca	Gavanoasa	Vulnerable children	Parents are abroad	Single parent family
Small	Girls	10	12	10	11	3	
	Boys	12					
	Total	22					
Large	Girls	12	10	12	12	7	2
	Boys	10					
	Total	22					
Preparatory	Girls	10	8	10	11	3	1
	Boys	8					
	Total	18					

Source: Educational Institution from the locality

Table 5: Data about pupils from Gymnasium Gavanoasa

	Girls	Boys	Total
Total number of pupils in institution	77	67	144
Number of pupils raised in vulnerable families	21	11	32
Number of pupils raised in vulnerable families in Vladimirovca	-	-	4
Number of pupils raised in vulnerable families in Nicolaevca	-	-	4
Mother is abroad	-	-	10
Father is abroad	-	-	26
Both parents abroad	-	-	30

Source: Educational Institution from the locality

Table 6: Total number of children from kindergarten, Pelinei locality

	Total	Girls	Boys
Total number of children	87	37	50
Number of children raised in vulnerable families	23	**Pelinei**	**Satuc**
of which with parents with a degree of disability	9	9	-
from families receiving social aid	6	5	1
who come from single-parent families	8	8	-
Mother is abroad	2	-	-
Father is abroad	21	-	-
Number of children who have both parents abroad	1	-	-

Source: Educational Institution from the locality

Table 7: Data about pupils from Gymnasium Pelinei (all Moldovan)

	Girls	Boys	Total
Total number of pupils in institution	81	96	177
Number of pupils raised in vulnerable families	21	11	32
of which with parents with a degree of disability	-	-	17
from families receiving social aid	-	-	9

who come from single-parent families	-	-	
Mother is abroad	-	-	11
Father is abroad	-	-	30
Both parents abroad	-	-	4

Source: Educational Institution from the locality

Table 8: Data about pupils from Gymnasium "S. Esenin" village Alexanderfeld

	Girls	Boys	Total
Total number of children in institution	51	45	96
Number of children raised in vulnerable families	-	-	35
of which with parents with a degree of disability	-	-	10
from families receiving social aid			
who come from single-parent families	-	-	25
Mother is abroad	-	-	8
Father is abroad	-	-	4
Both parents abroad	-	-	2

Source: Educational Institution from the locality

Table 9: Data about children from Kindergarten "Beriozka", village Alexanderfeld

	Girls	Boys	Total
Total	17	32	49
Families with many children (3 and more)	-	-	17
Living with mother (single-parent family)	-	-	5
Living with father	-	-	0
Vulnerable	-	-	8
Father is abroad	-	-	4

Source: Educational Institution from the locality

Table 10: Number of children from 2 kindergartens, village Alexandru Ioan Cuza

	Girls	Boys	Total
Total number of children	-	-	114
Number of children raised in vulnerable families	-	-	11
Single-parent families	-	-	15
Mother is abroad	-	-	13
Father is abroad	-	-	9
Both parents abroad	-	-	4

Source: Educational Institution from the locality

Table 11: High School "Alexei Mateevici", village Alexandru Ioan Cuza

Number of pupils	**270**
Girls	131
Boys	139
Pupils raised in vulnerable families	147
Pupils who come from neighboring villages	1
Pupils who come from social-vulnerable families	147
Girls	87

Number of pupils	270
Boys	60
Both parents abroad	26
Mother is abroad	18
Father is abroad	40

Source: Educational Institution from the locality

Figure 1: Presentation of the Free Economic Zone 'VALKANES'

Annex 8: Temporary affected lands, during the execution of construction- assembly works

N.o.	Description	Ownership	Cadastral number*	Dimenssions of the affected section, m		Estimated percentage of the affected land	Comments
				Lenght	Width		
	Drinking water transmission main						
1.	From F-77 (WPS-2a) to F-1 (WPS-5)	Crihana Veche village	1720208.109	30.80	3.20	1,40	
			1720208.108	11.45	2.28	1,42	
			1720208.107	34.63	3.00	3,90	
			1720208.106	38.53	2.70	3,53	
			1720208.105	24.62	1.64	2,90	
			1720208.104	17.43	0.50	1,09	
			1720112.140	63.36	3.40	0,91	
			1720112.139	20.82	2.83	0,72	
			1720112.138	20.99	2.77	0,45	
			1720112.137	14.09	2.72	0,46	
			1720112.136	14.17	2.68	0,45	
			1720112.135	21.39	2.63	0,36	
			1720112.134	21.56	2.57	0,25	
			1720112.133	7.23	2.54	0,17	
			1720112.132	7.25	2.52	0,10	
			1720112.131	21.87	2.46	0,04	
2.	From F-12 to Platform E_Water desinfection station, Ursoaia	Lebedenco comm, Ursoaia village	-				
3.	From Platform E_Water desinfection station, Ursoaia to F-15	Lebedenco comm., Lebedenco village	1727301.666	136.00	2.55	0,7	
4.	From F-15 to F-18	Pelinei comm., Pelinei village	1736204.139	152.58	3.70	11,8	
			1736204.117	116.75	2.95	7,2	
			1736201.284	19.66	2.20	1,1	
			1736201.285	18.06	2.20	1,8	
			1736204.083	52.30	7.55	0,2	
			1736204.060	22.75	7.15	0.3	
5.	From F-18 to F-21	Pelinei comm.	-				
6.	From F-21 to F-28	Gavanoasa comm.	-				

N.o.	Description	Ownership	Cadastral number*	Dimenssions of the affected section, m		Estimated percentage of the affected land	Comments
				Lenght	Width		
7.	From F-28 to F-35	Gavanoasa comm., Gavanoasa village	-				
8.	From F-35 to F-38	Gavanoasa comm., Gavanoasa village	-				
9.	From F-3 to Platform C_Water repumping station WRPS-1	Gavanoasa comm., Gavanoasa village	9417211.224	70.00	3.75	8,7	
			9417211.149	100.07	3.45	14,0	
			9417211.157	29.00	3.10	3,6	
			9417211.178	75.80	3.93	9,9	
10.	From Platform C_Water repumping station WRPS-1 to F-43	Gavanoasa comm.	9417211.118	50.91	3.00	1,5	
			9417211.119	11.63	3.20	5,0	
			9417211.120	25.27	3.30	2,6	
			9417211.121	23.43	3.30	2,2	
			9417211.122	14.00	3.20	3,4	Is not registered
			9417211.123	20.23	3.10	2,1	
			9417211.124	12.32	3.10	3,2	
			9417211.131	49.67	2.35	0,9	
			9417211.132	35.00	1.55	0,6	
			9417211.229	12.20	1.50	1,6	
			9417211.230	29.10	1.60	0,6	
			9417211.231	36.88	2.30	0,5	
			9417211.232	13.53	3.20	1,8	
			9417211.233	12.95	2.50	2,1	
			9417211.234	24.40	1.20	0,6	
11.	From F-43 to F-47	Gavanoasa comm.	9417204.084	208.10	3.57	13,7	
			9417204.108	165.23	3.60	10,8	
			9417204.109	126.54	3.80	8,7	
		ATU Gagauzia, Vulcanesti city	9603301.165	33.21	4.65	1,4	
			9603301.203	490.08	8.90	3,0	
			9603301.202	130.43	8.20	0,6	
			9603301.006	99.55	5.90	1,9	
			9603301.017	116.88	6.40	0,7	
			9603301.031	32.51	3.10	0,6	
			9603301.032	32.53	3.00	0,6	
			9603301.033	32.63	3.60	0.7	
			9603301.034	32.71	4.60	0.9	

N.o.	Description	Ownership	Cadastral number*	Dimenssions of the affected section, m		Estimated percentage of the affected land	Comments
				Lenght	Width		
			9603301.035	35.06	5.46	1.2	
			9603301.036	35.98	7.26	1,6	
			9603301.037	15.00	8.50	0.8	
			9603302.125	99.96	3.95	1,7	
			9603302.070	48.48	3.35	1,5	
			9603302.044	101.28	3.90	1,4	
			9603302.029	99.20	3.25	1,0	
			9603302.002	99.65	4.20	13,0	
			9603302.166	62.76	4.25	5,3	
			9603216.088	100.26	3.35	0,5	
			9603216.095	100.00	1.95	0,7	
			9603216.096	106.65	3.53	8,0	
			9603216.031	109.35	4.50	8,0	
			9603216.035	86.23	4.20	6.0	
12.	From F-47 to F-1 (Connection point to Ob.no.01.3/18)	ATU Gagauzia, Vulcanesti city	-				
13.	From F-1 (Connection point to Ob.no.01.3/18) to Platform F_Water repumping station WRPS-2 (Alexandru Ioan Cuza)	ATU Gagauzia, Vulcanesti city	9603309.016	28.00	4.15	0,2	
			9603309.022	263.30	3.35	5,7	
			9603309.023	125.50	3.90	0,2	
			9603309.029	155.60	3.95	1,2	
			9603312.041	188.45	2.95	0,3	
			9603312.035	208.00	4.00	0,3	
			9603312.034	203.00	4.05	1,3	
			9603312.029	201.75	5.00	37,3	
			9603312.028	149.00	2.20	2,6	
			9603224.054	17.65	1.25	1,3	
			9603224.055	12.75	2.25	1,6	
			9603224.056	5.90	2.30	3,4	
			9603224.057	3.95	2.20	5,0	
			9603224.058	13.72	2.10	1,4	
			9603224.059	13.68	1.85	1,3	
			9603224.060	13.65	1.40	1,2	
			9603224.061	18.40	0.80	0,8	
			9603224.062	14.45	0.20	0,9	
			9603224.006	17.26	1.25	0,4	
			9603224.007	20.23	1.40	0,4	
			9603224.008	14.70	1.60	0,7	
			9603224.009	11.25	2.20	1,2	
			9603224.010	25.97	2.55	0,6	
			9603224.011	30.92	2.25	0,4	

N.o.	Description	Ownership	Cadastral number*	Dimenssions of the affected section, m		Estimated percentage of the affected land	Comments
				Lenght	Width		
			9603224.012	24.14	2.50	0,7	
			9603224.013	14.06	3.35	1,7	
			9603224.014	15.64	3.80	1,7	
		Alexandru Iona Cuza village	9410101.060	52.55	4.40	11,0	
			9410101.059	122.21	4.05	22,0	
			9410101.242	24.57	1.75	0,9	
			9410101.241	11.53	1.00	0,5	
			9410101.243	90.36	1.50	1,2	
			9410101.244	36.32	2.05	2,0	
			9410101.245	28.33	2.30	2,2	
			9410101.246	8.23	2.50	0,2	
			9410101.309	88.40	3.00	3,4	
			9410101.308	39.21	3.50	3,2	
			9410101.307	30.08	3.90	3,5	
			9410101.306	25.52	4.15	2,9	
			9410101.310	84.90	4.00	17,0	
			9410101.311	39.12	3.65	3,3	
			9410101.312	30.00	3.45	3,2	
			9410101.313	25.28	3.30	3,1	
			9410101.314	17.60	3.25	2,5	
			9410102.010	101.88	3.00	15,0	
			9410102.009	46.38	2.80	6,0	
			9410103.580	25.43	3.00	9,0	
			9410103.579	53.85	3.45	24,0	
			9410103.422	7.76	3.10	4,0	
			9410103.423	26.40	3.90	4,0	
			9410202.506	148.00	2.20	6,5	
			9410202.485	165.93	1.70	12,0	
			9410202.454	161.14	2.15	5,7	
			9410202.423	29.00	2.00	0,2	
			9410202.422	62.60	2.00	0,1	
			9410202.564	13.55	1.90	1,0	
			9410202.420	95.00	2.50	0,2	
			9410202.579	105.00	2.75	6,0	
			9410202.023	17.15	4.30	1,7	
			9410202.024	28.83	3.50	0,8	
			9410202.025	15.44	3.60	2,0	
			9410202.026	22.92	3.70	1,5	
			9410202.027	23.06	3.05	1,6	
			9410202.028	40.19	2.50	0,8	
			9410202.029	27.62	2.15	0,9	
			9410202.030	23.08	2.90	1,4	

N.o.	Description	Ownership	Cadastral number*	Dimenssions of the affected section, m		Estimated percentage of the affected land	Comments
				Lenght	Width		
			9410202.031	23.63	3.40	1,7	
			9410202.032	69.20	3.40	1,0	
			9410202.269	41.50	3.90	3,5	
			9410202.261	59.97	3.70	1,2	
			9410202.262	20.36	1.80	0,4	
14.	From Platform F_Water repumping station WRPS-2 (Alexandru Ioan Cuza) to F-67 (Connection point for pentru Etulia, Etulia Noua and Cismichioi localities)	Alexandru Iona Cuza village	-				
15.	From F-1 (Connection point to Ob.no.01.3/18) to Platform B_Water tower for Gara Vulcanesti sector	ATU Gagauzia, Vulcanesti city	-				
16.	Pelinei comm.	Pelinei village Satuc village	-				
17.	Gavanoasa village	Vladimirovca village Nicolaevca village	-				

N.o.	Description	Ownership	Cadastral number*	Dimenssions of the affected section, m		Estimated percentage of the affected land	Comments
				Lenght	Width		
		Gavanoasa village					
18.	Vulcanesti Station sector		-				

*__Note__: The lands with the indicated cadastral numbers are private lands, unless otherwise indicated in the Comments.

Annex 9: Minutes of meetings, of the inception public consultation

Project	**Moldova Water Security and Sanitation Project**	**Circulation**
Assignment	**Development the Environmental and Social Impact Assessment and Environmental and Social Management Plan for the Cahul – Vulcanesti water supply Sub-projects**	**NORLD, Municipalities-beneficiaries, Interested parties**
Subject:	Initial Public Consultations	
Place/Site	**Gavanoasa village**	
Date: 10 August 2023 10:30 - 12:00	Pages __	
Attendees (see the list below)		

MINUTES OF THE PUBLIC CONSULTATIONS MEETING

Items discussed	
1.	Mrs. Ilescu, the team leader from TCD, greeted the audience and introduced the NORLD members present at the meeting. Mr. Busuioc, PIU/NORLD environmental expert, made a brief introduction about the Security of Water Supply and Sanitation Project in Moldova and mentioned that one of the strategic sub-projects is the "Cahul-Vulcanesti Main Water Transmission Pipeline" sub-project, which includes the seven localities in Cahul district. The purpose of the meeting and the expected results were presented. It was mentioned that the opinion of the interested parties is important at this stage. The design company "Flux Proiect" SRL executes the updating works of the technical project developed and approved in 2019, and the consulting company "Tehno Consulting and Design" SRL is at the stage of initiating the Environmental and Social Impact Assessment Report (ESIA) and the plan of environmental management (ESMP). During this period, the population of the beneficiary localities has the opportunity to know the future plans regarding the supply of drinking water and to express their questions / opinions / dissatisfactions related to this activity.
2.	Mrs Tatiana Ilescu presented in general terms what is the role of ESIA and ESMP and what can be the potential impacts on the environment. The public was informed about the fact that the technical design project was completed in 2019 and approved by the environmental institutions of the Republic of Moldova (Approval of State Ecological Expertise), and at the national level no ESIA is required according to law no. 86/2014. Thus, as per the request from World Bank, the ESIA to be developed by TCD will be in accordance with the requirements of the environmental and social standards of the WB.
3.	Mrs. Gloria Jigau presented the social aspects that will be taken into account when preparing the ESIA report. Among the most important issues explained are: optimal working conditions of employees, hygienic conditions, respect for gender aspects by employing both men and women, respect for the local population, respect for working hours, protection against noise, dust, vibrations, prior information of the beneficiaries before starting the construction works, informing the inhabitants regarding the storage of materials, etc. Mrs. Jigau explained also about the Grievance Redress Mechanism, how it works and the possibility to file for a complaint both in open and anonymous form.
4.	Mayor of Gavanoasa village stated that with other words the inhabitants need to ask for help of people that write grievances and then we will have water in 7 years from now. With other words, we need to inform about any impediments that will take place, in every village we might have a tree that disturbs the works or an abandoned building. These things need to be announced obligatory in written form with exact information about the person filing the complaint.

	The mayor of Gavanoasa village mentioned to the inhabitants of the village that it is very good that the population have the opportunity to express themselves and to be involved, but we must be aware that the complaints that are to be made must be objective and to the point in order not to delay the project implementation. Mrs Natalia Vladicescu, PIU/NORLD social expert, stated that it is absolutely normal for residents to be dissatisfied with various aspects (e.g. blocked access to the household, theft of materials, noise, etc.), but the request is to announce in advance about possible problems. The Local Committee for Water and Sanitation established in each LPA of the sub-project should be notified. Together, we aim for this sub-project to be implemented in a qualitative and successfully way. The main idea is to prevent some problems during the planning stage. The contractor will be tasked with updating the ESMP and strictly following it during the construction works. For instance, if a person will have his gate blocked, the Contractor needs to offer a way for the inhabitant to exit his household or at least tell him for how many days the entrance will be blocked, meaning the inhabitant will not be able to bring his harvest with his car into the household. More about the content of the ESIA/ESMP will be discussed at public consultations in November, when TCD will present the draft reports. Mr Busuioc added that TCD experts, at the second round of public consultations, will present a summary of the ESIA/ESMP that will answer the following questions: What are the potential impacts? How are these remedied or mitigated? Who is responsible? etc.
5.	Mrs. Vladicescu asked to address in advance any concerns regarding the risks of the project implementation. For example, one main concern is the number of household connections to the water pipe system. We are implementing the project, but we know that many people migrated abroad. The more households to be connected, the lower the costs will be. There could be requests to connect from people that live abroad, but want to have the water infrastructure, because they are visiting during the holidays. This is one of the risks that needs to be analyzed.
6.	The mayor of Pelinei village expressed the need to construct the water supply system as soon as possible because the population has an acute shortage of drinking water. For various reasons, the water in existing wells is of poor quality, e.g. laboratory results from the own well showed that the quantity of nitrates has increased 10 times in recent years.
7.	The mayor of Gavanoasa village believes that it is necessary to update the number of the population and households that will be connected to the water system. Also, the residents want to know what will be the price of connecting to the water system and what will be the value of the contribution to the connection. Mr Busuioc mentioned that according to the information, FluxProiect SRL intends to use the population data from the census 2014 in the updated design project. It is well known that the population calculated in the last census does not correspond to the reality in the rural localities of Moldova. Thus, during the joint meeting scheduled for August 15, 2023, this topic together with the designers. Mrs Ilescu emphasized the fact that the design company is currently updating the design project, respectively, now is the time to accurately establish the number of inhabitants calculated for the project. The dimensioning of the water system according to the number of inhabitants (including the provision of the future perspective) is the responsibility of the designing company.
8.	A resident of the village of Gavanoasa questioned about the cost of connecting to the local water system. Mrs Vladicescu specified that the contribution from APL in the amount of 3% is necessary. The exact amount will be known after finalizing the project cost estimate and contracting the works. The LPAs will later decide how to provide this 3% (voluntary contributions from the population, national funds, the municipality budget, etc.).

9.	The mayor of the Gavanoasa village intends to carry out a study in the village and they will know better the situation of families settled abroad, abandoned houses and existing families. Is it necessary to include into the project the abandoned houses, or not? If they are not included at the moment, does it mean that in the future they will have to pay a cost established (possibly a higher cost) by the operator? Mrs Ilescu explained that when calculating water consumption, the actual number of inhabitants in the locality is taken into account, and also 5-10% for perspective. Thus, the dimensioning of the system will not limit the access to drinking water for residents who return to the locality after several years. This aspect will be discussed with the design team also. Mrs Mitablanda, specialist within the Cahul District Council, said that all existing households will be connected within this project. In the future, households that will request connection to the water system will do it from their own budget.
10.	Mr Busuioc mentioned the primary need for the beneficiary Mayors to complete the procedures for granting the land plots allocated for the construction of the water infrastructure (reservoirs, pumping stations, etc.). It is important that the land plots are registered for "construction" use, but not "agricultural land".
11.	Mr Argint, Councillor from Pelinei village, asked whether or not LPA should cover the construction works for the water main system. Mrs Mitablinda replied that the district authorities will cover the contribution for the construction of the water main system. The beneficiary LPAs will contribute financially to the construction of internal water networks.
12.	Mrs. Ilescu mentioned that after the field visit, she noticed water infrastructure (water castle, visiting dormitories) in the village of Satuc from Pelinei commune. What is the current state of the water system within the village? Has a technical expertise of the existing infrastructure been done? The mayor of Pelinei replied that the current situation is unknown because there is no water supply in the village, and it cannot be checked. Mrs. Vladicescu stressed the fact that the evaluation and all documents need to be ready before the start of the project, as we are interdependent from each other.

Prepared by:

1. Tatiana Ilescu
2. Gloria Jigau
3. Ludmila Bodeanu

Public Consultations Meeting - list of Attendees

Proiectul „Securitatea aprovizionării cu apă şi sanitaţie în Moldova"
Проект „Безопасность водоснабжения и водоотведения в Молдове"

Sub-proiectul "Apeduct magistral Cahul – Lebedenco – Pelinei - Găvănoasa - Vulcăneşti (satele) - Alexandru Ioan Cuza şi reţelele interioare a satelor: Lebedenco, Hutulu, Ursoaia, Pelinei, Sătuc, Găvănoasa, Vladimirovca şi Nicolaevca, raionul Cahul"
Проект "Главный водопровод Кагул– Лебеденко–Пелиней–Гавэноаса–Вулканешты (села) – Александру Иоан Куза и внутренние сети сел: Лебеденко, Хутулу, Урсоая, Пелиней, Сэтук, Гавэноаса, Владимировка и Николаевка, Кагульский район "

LISTA DE PARTICIPANŢI la şedinţa de consultări publice / СПИСОК УЧАСТНИКОВ общественных консультаций
10 August 2023 / 10 Августа 2023
Casa de cultura, sat. Gavanoasa

Nr.	Nume, Prenume **Имя, Фамилия**	Localitate **Село/город**	Telefon de contact **Номер телефона**	Semnătura **Подпись**
1.	Stoiceva Alla	s. Vladimirovca	069426118	Stoiceva
2.	Morev Galina	s. Vladimirovca	060544135	
3.	Sizova Vasilisa	s. Nicolaevca	069763830	
4.	Stefoglo Alexandra	s. Nicolaevca	068164374	
5.	Andreev Sergiu	s. Vladimirovca	068186165	
6.	Rufa Victor	s. Nicolaevca	060319440	
7.	[illegible]	C. Pelinei	069703777	
8.	Ivanov Valeri	com. Gavănoasa	068007748	

MINISTERUL INFRASTRUCTURII ȘI DEZVOLTĂRII REGIONALE · WORLD BANK GROUP · AUSTRIAN DEVELOPMENT COOPERATION · ONDRL · TCD

Nr.	Nume, Prenume Имя, Фамилия	Localitate Село/город	Telefon de contact Номер телефона	Semnătura Подпись
9.	Ivanov Vadim	Giurgiulesti	26807355 4	
10.	Alexandrova Angela	Gaidaicoia	068017202	
11.	Sirbu Mihaela	Selinei	069496004	
12.	Luca Ivan	Selinei	78213777	
13.	Luca Sofia	Selinei	78203777	
14.	Luca Maria	Selinei	[illegible]	
15.	Ferig Olga	Selinei	07953787 0	
16.	Arnautova Liubov	Alexanderfeld	069954095	
17.	Horvet Larisa	Al.-feld	069361562	
18.	Ивлиева Татьяна	Александровка	079637482	
19.	Loginska Irina	Alexanderfeld	079640442	
20.	Serban Anatoli	Alexanderfeld	069486373	
21.	Bogdan Corneli	Chisinau, MF	069106796	
22.	Ciobanu D-na	Alexanderfeld.	069709042	
23.	Alexandrov Larisa	s. Ivanovca	069962484	
24.	Groza Alexandra	Consiliul Raional Cahul	069711988	

Page 2

Nr.	Nume, Prenume **Имя, Фамилия**	Localitate **Село/город**	Telefon de contact **Номер телефона**	Semnătura **Подпись**
25.	Violina Mițabtindo	Cahul mun. Cahul	06080874	
26.	Rikul Vira	Vulcănești	069698850	
27.	Vladicescu Natalia	ONDRL / UIP	068334895	
28.	Ciobanu Eugen	Chișinau	079196657	
29.	Jigău GORIA	Tehno - Design	069553571	
30.	Ludmila Bodeanu	Techno - Consulting	06828641	
31.	Tatiana Ilescu	Tehno-Consulting	068230196	
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Project	**Moldova Water Security and Sanitation Project**	**Circulation**
Assignment	**Development the Environmental and Social Impact Assessment and Environmental and Social Management Plan for the Cahul – Vulcanesti water supply Sub-projects**	**NORLD, Municipalities-beneficiaries, Interested parties**
Subject:	Initial Public Consultations	
Place/Site	**Vulcanesti city, City Hall**	
Date: 10 August 2023 13:30 - 15:45	Pages __	
Attendees (see the list below)		

MINUTES OF THE PUBLIC CONSULTATIONS MEETING

Items discussed	
13.	Mrs. Ludmila Bodean from TCD presented in Russian general information and environmental aspects of the project: „Security of water supply and sanitation in Moldova". The info about TCD was presented and also about the role of FluxProiect that have to review the project.
14.	Mr Cornel Busuioc presented the institution of National Office for Local and Regional Development. The TCD company is here to start a dialogue between the beneficiaries and the company that will produce by December the important Environmental and Social documents. Some questions raised in these consultations are related to the water price. In November 2023 it will take place the second round of consultations where the mitigation measures will be presented. Then the beneficiaries will have the opportunity to agree or disagree with the conclusions presented to them. Mr. Busuioc asked the participants to be proactive during the construction works also and to complain if the Contractor company that will install the water pipe system and did not respect the access to private households, this means they disregard the regulations of their contract.
15.	A question was addressed by Evghenia Bratan from Vulcanesti saying that on her street there is no water at all, and she wants to know when there will be water. Mr. Busuioc answered that it is a matter of respecting and fulfilment of all needed procedures.
16.	Floor was given to Mrs. Gloria Jigau, who referred to the social aspects of the project. The future Contractor has to respect the employees and offer them adequate conditions for working, hire both women and men and respect also local population which will be the final beneficiaries and the Grievance Redress Mechanism, how it works, where to file for complaints and the possibility to file for a complaint even anonymously. Also, it is important that the Contractor informs the beneficiaries about where and how long they will work, etc.
17.	Mr. Busuioc specified that the meeting is to discuss about the project now during the project update and when the works will start the complaints will be filed as well. For example, the noise produced; the workers don't finish work at 6pm but at 8pm, not cleaning the garbage after themselves, etc. One thing sure for beneficiaries is: they will have water because the decision has already been taken. First, we need to wait to finish the work of engineers that are updating the project. On August 15, 2023, they are meeting in Gavanoasa village where they will discuss the entire design project. The design project was executed in 2019, since that moment, pandemic took place and the prices increased for everything, so the project estimates need to be updated. We estimate the works will start in the summer of 2024, after all the tenders take place during Spring 2024, Mr Busuioc stated.
18.	Mrs Efimia Pavlioglo from Vulcanesti mentioned that they are still waiting for 20 years for the water system. The major problem is when the water from the wells on their street finishes, they need to walk with big buckets of water to the neighboring lower areas on Boris Glavan Street to take water and that is very hard for them. Mr. Busuioc wanted to assure the participants that they will have access to water because they are a big city and have many users that will consume the water from the system.

19.	The floor was given to Mayor of Alexandru Ioan Cuza village, Mr. Nicolae Calaidjoglu. In A.I.Cuza village the waterpipe system was done with the help of European Union, ApaSan, Switzerland and Austria, and because this was a new project they included all the streets of the village, and all the houses. The system is new. The financing donor wanted to include the maximum number of households from the village. Still, there is no access to water in the village, the artesian well dry at the moment. The pump works for 3 minutes then stops, due to the lack of water. The mayor mentioned that he is interested to help finish this current project because he wants his inhabitants of the village to have water, as well as people from Vulcanesti, Gavanoasa, etc. Mr. Busuioc reminded people that water in the new system will come from Prut River and it is of good quality that will be available 24h a day, 7 days a week. The Mayor of A.I. Cuza village believes that Vulcanesti town, Apa-Canal company will become a regional operator and in 2024-2025 the problem of the water supply will be solved. The tests of water show that the quality of water from local artesian wells is worse than the water that is coming from Prut River. Mr. Busuioc added that 80% of the water coming from wells is not of good quality for drinking or other purposes, according to the analyses.
20.	Mayor of A.I. Cuza mentioned that the water supply problem is mainly during May, June and July months. In August people stop using water for irrigation, and then more water is available in the wells. The village is located on the slope of the hill, when there are no water people are unsatisfied and complain to the Mayor about lack of water. This new project will supply water to the people that have no water at all in the village. For the time being, we are trying to solve the problems that are related to this Project regarding all the documents and requests.
21.	Mr. Busuioc has a question to the Mayor regarding the land plot for the purposes of the Project, where the future PS of the project's infrastructure will be located. Currently this land plot is not registered in the cadastre register. The mayor replied that it will be registered by 1st of October 2023. This plot of land was allocated long time ago by the local council, but the cadastral procedures have not been finished in time. Mr. Busuioc mentioned that for this land plot also the registration should be for construction use.
22.	Mr. Busuioc said that the design company FluxProiect stated that there might be issues also related to the new road infrastructure developed in the last years. The discussions will continue during the meeting on August 15, 2023, for the options and alternative routes.
23.	Mrs Vladicescu asked the mayor of A.I. Cuza about the number of population in the locality. The last update of the A.I. Cuza population was done due to the local elections coming and it is 2031 inhabitants, the mayor advised.
24.	Mr. Mitioglo Valerii from Comrat, representative of the Gagauzia RDA, asked about the details and deadlines for the design actualization process. Mr. Busuioc answered that more details can be given on August, 15 at the meeting with FluxProiect designers.
25.	The mayor of A.I. Cuza stated that he has frequent meetings with Mayor of Vulcanesti and they often discuss about these issues, due to the insufficiency of water in the artesian wells, the machinery often gets out of order because the water is insufficient. Unfortunately, the locality of A.I. Cuza is behind with paperwork for the land plot, and they are still waiting for permits from the regional Cadastral office.
26.	Mr. Busuioc stated that basically this entire engineering project had all the necessary documents ready in 2020. This was a condition of the World Bank as they concluded that due to the social aspects, this project is one that is included in the risk category. All the environmental and social aspects should be identified and clarified.

Proiectul „Securitatea aprovizionării cu apă și sanitație în Moldova"

Sub-proiectul "Apeduct magistral Cahul – Lebedenco – Pelinei - Găvănoasa - Vulcănești (satele) - Alexandru Ioan Cuza și rețelele interioare a satelor: Lebedenco, Hutulu, Ursoaia, Pelinei, Sătuc, Găvănoasa, Vladimirovca și Nicolaevca, raionul Cahul"

LISTA DE PARTICIPANȚI la ședința de consultări publice

10 August 2023

Sala Primăriei, or. Vulcănești/ Зал Примэрии города Вулканешты

Nr.	Nume, Prenume / Имя, фамилия	Localitate / Село, город	Telefon de contact / Нр. тел.	Semnătura / подпись
1.	Павлюкло Ефимия Трифон	Вулканешты	068524465	Павлюкло
2.	Браман Евгения Пантелеймона	Вулканешты	060196919	Браман
3.	Мищенко Василий	мун. Кишинэу	067172000	
4.	Гарунц Ксения	Вулканешты	068151698	
5.	Шекерин Майя	Вулканешты	067343172	
6.	Иванюгу Светлана	Вулканешты	068064718	
7.	Бою Юля	Вулканешты	079799656	
8.	Іванеско Єлізавета	с. А. Ї. Куза	069805448	
9.	Дідер Валя	А. Ї. Куза	062194874	
10.	Сирітяну Ольга	Вулканешты	068383060	

Nr.	Nume, Prenume	Localitate	Telefon de contact	Semnătura
11.	Pogorelaia Marianna	Vulcanești	069035189	
12.	Cernea Marina	— " —	068929757	
13.	Onofrei Raisa	— " —	068008774	
14.	Gaidarji Ivan	— " —	0293-2-32-33	
15.	Onoprienco Oxana	" —	078937107	
16.	Chisacova Valentina	— " —	069206600	Chisacova
17.	Ciubuc Marina	— " —	069622708	
18.	Ilieșă Mihail	— " —	068575670	
19.	Tohal Larisa	" — "	069813866	
20.	Țigău Gloria	Chișinău, TCS	069553571	Țigău
21.	Tatiana Hlescu	Chișinău, TCS	068280641	
22.	Ludmila Bodeanu	Chișinău, TCS	068230196	
23.	Natalia Vladicescu	ONSRL / UIP	069334995	
24.	Cornel Busuioc	ONSRL / UIP	069106796	
25.	Violina Moșă Blândă	Consiliul R. Cahul	069088874	
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Annex 10: Examples of notices published to inform the public about the Public Consultations (round II)

Comuna Pelinei
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ANUNȚ

PRIVIND CONSULTAREA PUBLICĂ

(Runda II)

în cadrul proiectului
„SECURITATEA APROVIZIONĂRII CU APĂ ȘI SANITAȚIE ÎN MOLDOVA"

Se invită cetățenii interesați la consultările publice privind Evaluarea impactului asupra mediului și impactul social și a Planului de Management de Mediu și Social pentru sub-proiectul **"Apeduct magistral Cahul – Lebedenco – Pelinei - Găvănoasa - Vulcănești (satele) - Alexandru Ioan Cuza și rețelele interioare a satelor: Lebedenco, Hutulu, Ursoaia, Pelinei, Sătuc, Găvănoasa, Vladimirovca și Nicolaevca, raionul Cahul" (Etapa I si Etapa II)"** din cadrul proiectului „Securitatea aprovizionării cu apă și sanitație în Moldova", implementat de către Oficiul Național de Dezvoltare Regională și Locală (ONDRL) cu suportul Băncii Mondiale și a Agenției Austriece de Dezvoltare (ADA).

Evaluarea Impactului Social și de Mediu (EIMS) și Planul de Management de Mediu și Social (PMMS) au fost elaborate de către compania "Tehno Consulting & Design" SRL. Sumarul executiv al raportului EIMS și PMMS îl puteți găsi accesând link-ul:
https://ondrl.gov.md/wp-content/uploads/2024/02/Sumar_executiv_EIMS_ROM.pdf

Scopul consultărilor publice este de a informa părțile interesate (locuitorii, ONG-urile, instituțiile publice, agenți economici și alte persoane/ grupuri interesate) despre principalele impacturi identificate în cadrul evaluării de mediu și sociale, semnificația și măsurile de atenuare a acestora.

Consultările vor avea loc **miercuri, 28 februarie 2024, ora 10.30**
Locația: **Casa de cultură, s. Găvănoasa r-nul Cahul**

Pentru informații suplimentare privind organizarea consultărilor publice, vă rugăm să ne contactați la numărul de telefon 068230196 - Tatiana Iliescu.

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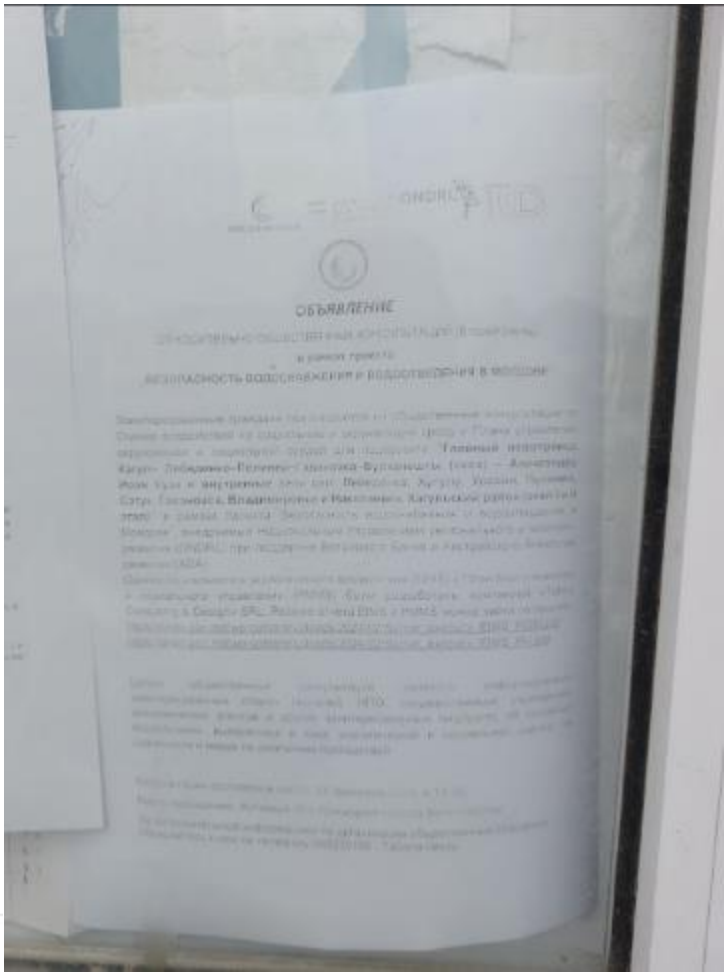

Annex 11: Minutes of meetings, of the second public consultation

Project	**Moldova Water Security and Sanitation Project**	**Circulation**
Assignment	**Development the Environmental and Social Impact Assessment and Environmental and Social Management Plan for the Cahul – Vulcanesti water supply Sub-projects**	**ONDRL, Municipalities-beneficiaries, Interested parties**
Subject:	Initial Public Consultations	
Place/Site	Gavanoasa village/Vulcanesti town	
Date: 28 February 2024 10:30 - 12:00 / 13.30-14.30	Pages _2_	
Attendees (see the lists below)		

MINUTES OF THE PUBLIC CONSULTATIONS MEETING

Items discussed	
1.	Mrs. Tatiana Ilescu, environmental TL from TCD, and Ludmila Bodeanu, Project Coordinator, presented general information about the preparation of the ESIA and ESMP reports, the main environmental impacts identified and the proposed measures to eliminate or reduce the impacts.
2.	Mrs. Jigau, social expert, explained to those present in the room the main social issues that may occur during the project's construction works. The aspects that must be monitored during the site preparation period, the construction period and also at the completion of the construction were addressed. Particular attention was drawn to ensure that every member of the room knows how to submit complaints. Several concrete examples of complaints/complaints that may arise were also given.
3.	The mayor of the village of Gavanoasa asked how the damage will be compensated for the mature trees planted by the locals that will require cutting. Also, how will the problem of flowers/grass that are planted annually on the public land near the household be solved.
4.	Mrs. Natalia Vladicescu, PIU/ONDRL social expert, explained that it will be calculated according to the national legislation of the country. Obviously, the Contractor is not obliged to reimburse the destruction of the gras, flowers on public property after being granted right of way. The Local Committees for Water and Sanitation in the villages will have to monitor the situation and if they see irregularities to announce. If the Contractor has damaged the crop on his own property without the owner's consent, then the Contractor will be required to provide financial compensation for the damages. Mrs. Ilescu explained that the Contractor is obliged to comply with the provisions of the technical project where there are works to restore the road/sidewalks from the same materials as in reality (asphalt, gravel, concrete). The contractor will avoid the cutting of trees as much as possible, but if cutting is necessary, authorization will be obtained from the environmental authorities according to the legislation.
5.	A woman from Gavanoasa asked if the waterpipe system will be a central one in the locality or for every household individually? The answer was that there will be water wells from which the households will connect individually.
6.	Mayor of Gavanoasa stated that it would be best to be presented the technical project for information of the public to find out details. Mr Busuioc, PIU/NORLD environmental expert, answered it will be presented to the public.
7.	The public asked when the works will start? The answer was that they will start next year in 2024.
	Vulcanesti Public Consultation questions from the public
8.	A man asked what is foreseen in the Railway Zone Vulcanesti?

	Mr. Busuioc answered that it is foreseen a distribution network of water that will bring water from Prut river. In 2 months will be announced the international tender and this procedure will last 6 months. When the tender will be finalized there will also be elected a Supervision company that will monitor the works.
9.	Will there be supplied water also in the town of Vulcanesti? Mr. Busuioc replied that the water from the Prut river, treated in the town. Cahul, will be distributed in the current water management system in the city of Vulcanesti. Water will be available 24/7.

Second Public Consultations Meeting - list of Attendees (Gavanoasa)

Proiectul „Securitatea aprovizionării cu apă și sanitație în Moldova"

Sub-proiectul "Apeduct magistral Cahul – Lebedenco – Pelinei - Găvănoasa - Vulcănești (satele) - Alexandru Ioan Cuza și rețelele interioare a satelor: Lebedenco, Hutulu, Ursoaia, Pelinei, Sătuc, Găvănoasa, Vladimirovca și Nicolaevca, raionul Cahul"

LISTA DE PARTICIPANȚI la ședința de consultări publice (runda II)
28 Februarie 2024
Casa de cultură, s. Găvănoasa r-nul Cahul

Nr.	Nume, Prenume	Localitate	Telefon de contact	Semnătura
1.	Belaia Evdochia	A.I. Cuza	069177331	
2.	Bezbec Ismil	A.I. Cuza	069916625	
3.	Abrigolo Vera	A.I. Cuza	069920247	
4.	Pikul Vera	Găvănoasa	069698850	
5.	Sizova Vasilina	Găvănoasa	069763130	
6.	Stoiceva Alla	Găvănoasa	069426118	
7.	Moroz Galina	Găvănoasa	060544135	
8.	Dorogenco Olga	Găvănoasa	060087580	Dorogenco
9.	Ignatova Liubov	Alexanderfeld	069954095	
10.	Doginska Ivana	Alexanderfeld	079640742	

Nr.	Nume, Prenume	Localitate	Telefon de contact	Semnătura
11.	Cioban V. na	Alexanderfeld	069728042	[signature]
12.	Cazangi Ecaterina	Gavanoasa	0299577198	[signature]
13.	Marandiuc Elena	Taraclia	069158453	[signature]
14.	Ангел Сергей	Владимировка	068186165	[signature]
15.	Пыра Виктор	Николаевка	060319440	[signature]
16.	Alexandrova Angela	Găvănoasa	068017202	[signature]
17.	Stefoglo Alexandra	com Găvănoasa	068082921	[signature]
18.	Рыжкова Вера	Владимировка	—	[signature]
19.	Иванов Вера	Николаевка	067404367	[signature]
20.	Ignat Lilia	Nicolaevca	069937218	[signature]
21.	Ignat Anna	Găvănoasa	069881584	[signature]
22.	Savastin Ecaterina	Nicolaevca	—	[signature]
23.	Ceredinic Evghenia	Nicolaevca	-	[signature]
24.	НМ. ВИЛИЯ ТРАН Л.	Тараклия	0-60274671	[signature]
25.	Rudenco Dumitru	c. Pelinei	068822398	[signature]
26.	Sergheicanu Raisa	Nicolaevca	068723383	[signature]

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MINISTERUL INFRASTRUCTURII ȘI DEZVOLTĂRII REGIONALE | WORLD BANK GROUP | AUSTRIAN DEVELOPMENT COOPERATION | ONDRL | TCD

Nr.	Nume, Prenume	Localitate	Telefon de contact	Semnătura
27.	Пунтузенко Ф.В	Рущавода	069434279	[signature]
28.	Бурлаченко А. Е.	Табака	029957049	[signature]
29.	Иткачев С. И	Александровка	06994802	[signature]
30.	IVANOV VADIM	Găvănoasa	069073554	[signature]
31.	Țigău Gloria	Chișinău	069553571	[signature]
32.	Crocholan Tudor	A. I. Cuza	069166337	[signature]
33.	Violina Mitrăblindă	Consiliul r-nul Cahul	060808874	[signature]
34.	Negru Ecaterina	CR Cahul	078431208	[signature]
35.	Vladicescu Natalia	Chișinău, UIP	069334995	[signature]
36.	Bușmic Corneliu	Chișinău, UIP	069106796	[signature]
37.	Ludmila Bodeanu	Chișinău, TCD	068280641	[signature]
38.	Mleșcu Tatiana	Chișinău, TCD	068230196	[signature]
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Second Public Consultations Meeting - list of Attendees (Vulcanesti)

Proiectul „Securitatea aprovizionării cu apă și sanitație în Moldova"
Проект „Безопасность водоснабжения и водоотведения в Молдове"

Sub-proiectul "Apeduct magistral Cahul – Lebedenco – Pelinei - Găvănoasa - Vulcănești (satele) - Alexandru Ioan Cuza și rețelele interioare a satelor: Lebedenco, Hutulu, Ursoaia, Pelinei, Sătuc, Găvănoasa, Vladimirovca și Nicolaevca, raionul Cahul"
Проект "Главный водопровод Кагул– Лебеденко–Пелиней–Гавэноаса–Вулканешты (села) – Александру Иоан Куза и внутренние сети сел: Лебеденко, Хутулу, Урсоая, Пелиней, Сэтук, Гавэноаса, Владимировка и Николаевка, Кагульский район "

LISTA DE PARTICIPANȚI la ședința de consultări publice / СПИСОК УЧАСТНИКОВ общественных консультаций (раунд II)
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