REPUBLIC OF ALBANIA

MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT

CLIMATE RESILIENT and AGRICULTURE DEVELOPMENT PROJECT

Consulting services for:

Feasibility Study, Detailed Design & ESMPs for Janjary System, including Janjari's canal, irrigation scheme of Konispol, and Janjari & Mursi dams and Supervisory Services for rehabilitation works of Janjari System"

Contract Ref.No. WRIP/1/CS/001, IBRD Loan No.:8211-AL

Updated for the contract: Ref.: No. AL-MARD-389921-CS-QCBS – CA dated 15 Nov 2024

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

	PN		Version	Final
Date	Written:	Approved:	Check:	Pages
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GAUFF

GR ALBANIA

November,2019 - Updated August 2025

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Abbreviations

ASIG- State Authority for Geospatial Information
ASL – Above sea level
BOD- Biochemical oxygen demand
BNPM-Butrint National Park Management Plan
CLO- Community Liaison officer
COD- Chemical oxygen demand
DCM- Decision of Council of Minsiters
ESFD- Environmental and Social Framework Document
EIA-Environmental Impact Assessment
EMP- Environmetal Management Plan
ESMP- Environmental and Social Management Plan
FS- Feasibility Study
HSE- Health, Safety and Environment
ICM- Institute of Cultural Monuments
INSTAT- Albanian Insitute for statistics
IPM- Integrated pest management
IVMS- In Vehicle Monitoring System
JSA- Job Safety Analysis
KM- Kilometer
MOARD- Ministry of Agriculture and Rural Development
MoTE-Ministry of Tourism and Environment
NAO-National Archaeological
NAPA- National Agency of Protected Areas
NEA- National Environmental Agency
NAO- National Archaeological Office
OM- Operation & Maintenance
OP- Operational Policy
PGA- Peak Ground Acceleration
RAP- Resettlement Action Plan
PR- Performance Requirement
RDCH- Regional Directorate of Cultural Heritage
RDPA- Regional Directorate of Protected Areas
TOR- Terms of Reference
SOPs- Standard operation procedures
WB- World bank
WDB- Water Drainage Board
WRIP- Water Resources and Irrigation Project

1 INTRODUCTION

This Environmental and Social Management Plan (ESMP) has been prepared for the Janjar and Mursi Irrigation Scheme, located in the Konispol district, the southernmost part of Albania, approximately 1 km from the Albanian–Greek border. The command area covers 5,400 hectares, comprising two sub-schemes:

- Janjar: 3,200 hectares served by the Janjar Reservoir (15 million m³ capacity).
- Mursi: 2,200 hectares served by the Mursi Reservoir (4 million m³ capacity, replenished via a feeder canal from the Pavlla River).

The scheme lies in one of Albania's most important high-value agricultural regions, known for mandarins, olives, and other fruit crops. Water quality in both reservoirs remains suitable for irrigation, with no reported concerns.

The irrigation system was originally planned and partially implemented under the World Bank–financed Water Resources Investment Project (WRIP) (2012–2017), with the Janjar sub-scheme rehabilitated and operational, while the Mursi sub-scheme's aging gravity-fed canals have become largely non-functional. Farmers in Mursi have increasingly turned to small-scale pumping from drainage canals for pressurized irrigation, reflecting a shift in irrigation practices and a need for modernized infrastructure.

An initial environmental and social screening was conducted in 2018 under the World Bank's former Safeguard Policies (OP/BP 4.01). In 2019, detailed designs were prepared for modernization works, including a combined gravity and pressurized system (Option 3) to utilize the natural elevation difference from the Janjar Canal to irrigate the fields of Shalës, Mursi, Vrina, and Bufi.

In 2024–2025, the project design was reviewed in consultation with the Municipality of Konispol to update priorities, reflect current agricultural needs, and remove outdated infrastructure components (e.g., pumping station) while expanding secondary lines and coverage to high-use areas. These updates were modeled hydraulically using WaterCad to ensure optimal flow and pressure under the revised layout.

This 2025 ESMP replaces the earlier safeguard-based screening with a full ESF-compliant management plan in line with the World Bank Environmental and Social Framework (effective October 1, 2018) and its ten Environmental and Social Standards (ESS). The updated ESMP:

- Incorporates the latest baseline data and technical design changes from the 2025 scheme review.
- Expands environmental and social risk assessment to include labor and working conditions (ESS2), climate change and resource efficiency (ESS3), community health and safety (ESS4), biodiversity conservation (ESS6), cultural heritage (ESS8), and stakeholder engagement (ESS10).
- Provides detailed mitigation, monitoring, and reporting measures for the construction and operational phases of the modernized system.
- Assigns clear institutional responsibilities, capacity building requirements, implementation timelines, and budget provisions.

The objective of this ESMP is to ensure that the modernization works for the Janjar & Mursi Irrigation Scheme are implemented in an environmentally and socially sustainable manner, safeguarding local communities, protecting natural resources, and enhancing agricultural productivity in the region.

2 EXECUTIVE SUMMARY

The Janjar & Mursi Irrigation Scheme is located in the district of Konispol, in the southernmost part of Albania, only 1 km from the Albanian–Greek border. The total command area covers 5,400 hectares, divided into two sub-schemes: 3,200 hectares served by the Janjar Reservoir and 2,200 hectares served by the Mursi Reservoir. The region is primarily known for the cultivation of high-value crops, particularly mandarins.

The main water sources for the proposed irrigation scheme are the Janjar Reservoir, with a capacity of 15 million cubic meters, and the Mursi Reservoir, with a capacity of 4 million cubic meters. The Janjar Reservoir is mainly fed by rainfall, while the Mursi Reservoir is replenished through a feeder canal that draws water from the Pavlla River.

There have been no reported concerns regarding the water quality from either reservoir for agricultural use. This indicates that both reservoirs are considered safe for providing irrigation water.

The selection of the Janjar/Mursi irrigation scheme was made as part of the previous Water Resources Investment Project (WRIP), financed by the World Bank from 2012 to 2017. Under this project, a Feasibility Study, Design, and Detailed Designs for the modernization of the irrigation system were developed.
The implementation of the civil works was divided into two phases:

- **The Janjar Scheme (covering 3,200 hectares)**
- **The Mursi Scheme (covering 2,200 hectares)**

Key characteristics of the irrigation scheme:

- **The Janjar Scheme includes** the dam and 22 km of the main irrigation canal, with branches such as the Bufi Branch (14 km) and the Konispol Canal (11 km), all supplied by the Janjar Canal for a total of 3,200 hectares.
- **The Mursi Scheme includes** the dam, 33 km of main canals (V1 and V2), their secondary canals, a 5 km feeder canal, and associated secondary canals for 2,200 hectares.

The dam and the main/primary canals, along with some secondary canals of the Janjar Reservoir, were built under the WRIP and are now fully operational. Farmers in this area have benefited from these improvements and are satisfied with the investments.
In contrast, the situation in the Mursi Scheme is quite different. The original gravity-fed irrigation canal network, designed in the late 1980s, is no longer functional and is considered outdated. Increasingly, farmers have shifted to using small pumps to draw water from drainage canals for pressurized irrigation methods, such as drip irrigation, micro-sprinklers, or sprinklers.

2.1 IRRIGATION CANAL INFRASTRUCTURE AND CURRENT SITUATION

During the feasibility study and implementation design stages, the consulting company and its engineers carried out multiple field inspections to determine the existing condition of the canals. After the contract was signed, the design team held meetings with stakeholders such as the "Irrigation and Drainage Board," the Municipalities of Konispol and Finiq, local farmers, the "Ministry of Culture," and the "Archaeological Service Directorate of Butrint."

All these meetings were held before starting the project design in order to gain a detailed understanding of the irrigation system's problems as well as its management up to that point. Following the meetings, the design team, together with topographic engineers, inspected the terrain and canal conditions, building a clear picture of the technical and social issues in the field.

Observations revealed that the irrigation canals in the Mursi fields are mostly damaged, with multiple blockages, and that hydraulic structures are generally completely deteriorated. Vegetation growth inside the canals is visible throughout, which reduces their functionality. The siphons are constructed with steel pipes and have been in use for over 30 years.

The Mursi Scheme, with a total of 55 km of canals, is almost entirely out of service. Farmers in the area irrigate by pumping water from drainage canals supplied by the Pavlla River and from water released from the Mursi Reservoir. This method has been chosen as an alternative, given that the irrigation canals are no longer functional.

2.2 DESCRIPTION OF THE PROPOSED SCHEME

In a meeting held at the Ministry of Agriculture and Rural Development with its representatives and the World Bank on 22/07/2019, the options proposed in the feasibility project were discussed. The preferred option is the third one, which combines pressurized and gravity irrigation by utilizing the natural elevation difference between the Janjar Canal and the fields of Shalës, Mursi, Vrina, Bufi, etc. This elevation difference will be used to construct a pressurized system that would help balance the area's water resources, increase work efficiency, improve production efficiency, and be easier to operate compared to gravity irrigation.

A schematic presentation of Option 3 is shown below:

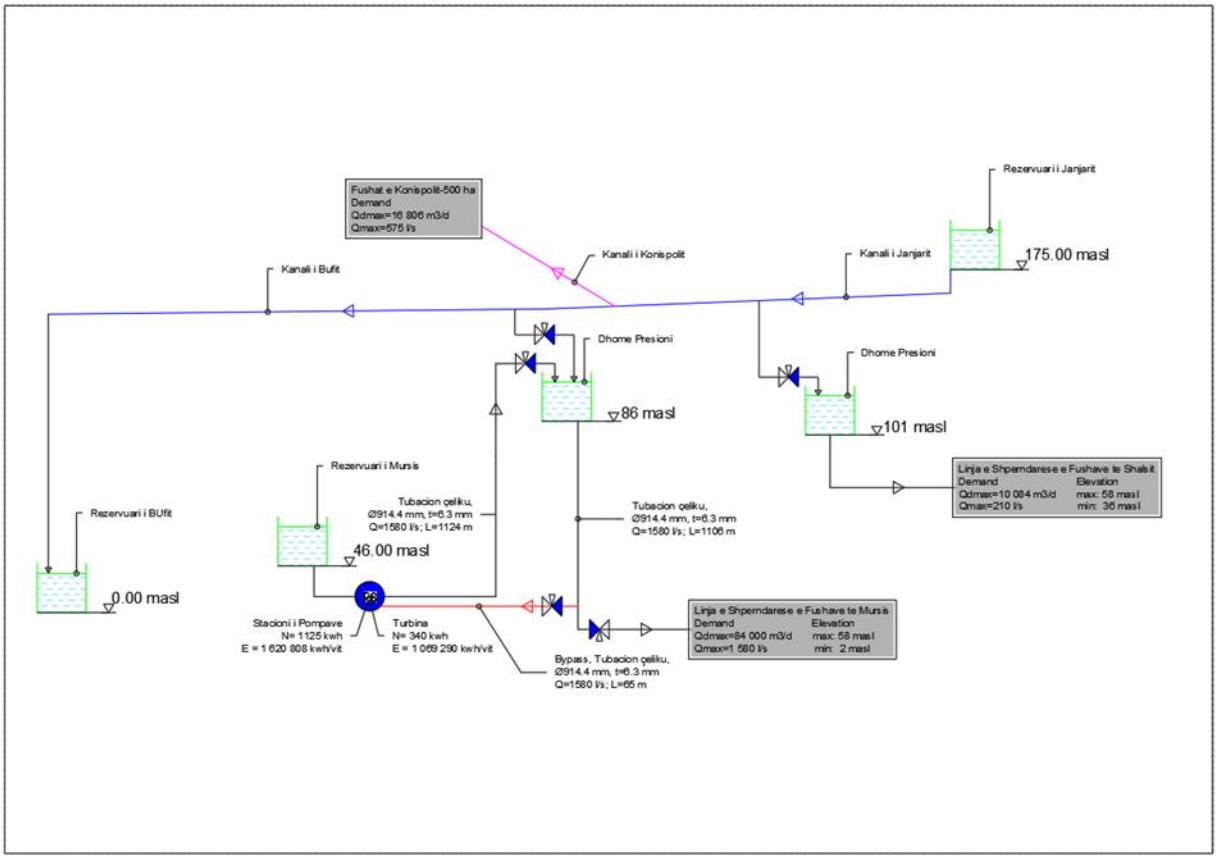

Figure 1: Schematic presentation of option 3

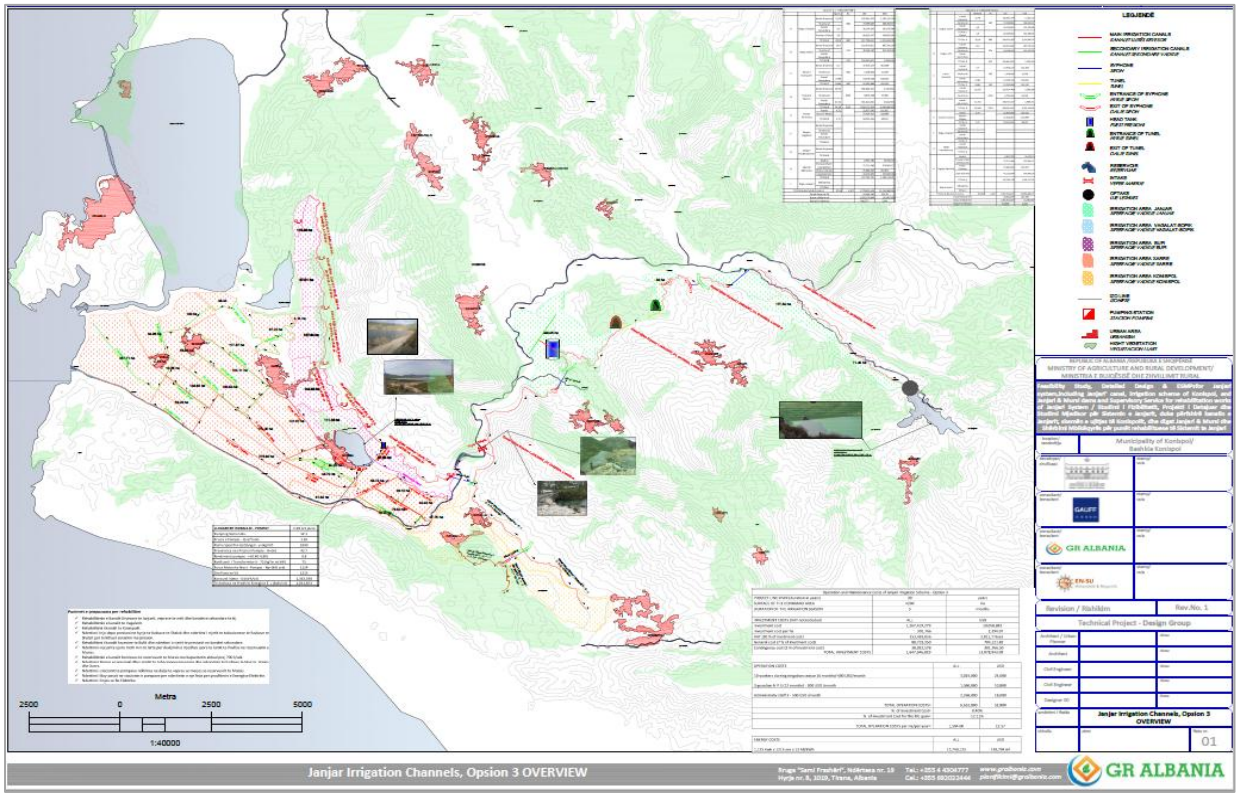

Figure 2: Schematic presentation of option 3

Option-3 will be divided into two lots on which the implementation project will be developed;

- Lot-1 which includes Janjari dam rehabilitation, Mursi dam, the feeder channel of the Mursi dam, the main channel of Janjari, Bufi Channel and Konispol Channel along with their secondary channels.
- Lot-2 which includes the pressurized system of Mursi, Vrina and Xarra fields.

Considering that the construction works of Lot 1 were carried out within the framework of WRIP, are currently fully functional and the farmers in this area have benefited from these improvements and are satisfied with the investments, this report will be built based on Lot-2 which consists of construction of the pressurized system of Mursi, Vrina and Xarra fields.

3 PROJECT DESCRIPTION

The assignment aims to deliver a comprehensive package of technical, environmental, and social services to ensure the sustainable rehabilitation and modernization of the Janjar and Mursi irrigation schemes.

Since the original project shown above was prepared by the same team of consultants (JV GAUFF and GR Albania), the current project review focuses mainly on addressing the specific requirements and priorities of the Municipality of Konispol as well as updating the estimate with current prices. This review process includes adapting the project to meet any updated needs, ensuring that the irrigation system is in line with the current objectives and standards of the Municipality.

The focus of the review is not on fundamental design changes, as the original design remains largely adequate. Instead, the review emphasizes refining and optimizing the existing infrastructure to better meet the practical needs of the municipality, improve system efficiency, and adapt to modern irrigation practices. This may include adjustments to the system layout, materials, and technology to better support local agricultural activities and ensure the long-term sustainability of the irrigation network in the region.

An Environmental and Social Management Plan (ESMP) will be prepared specifically for the Mursi scheme, ensuring full alignment with the World Bank's Environmental and Social Framework (ESF) and relevant Environmental and Social Standards (ESS). The assignment will also extend to the provision of construction supervision services, ensuring that the works are executed in compliance with the approved designs, specifications, and environmental and social requirements.

The ESMP within this assignment has several specific objectives. It will identify potential environmental and social impacts that may occur during the planning, design, construction, and operational phases. It will propose appropriate mitigation measures to prevent, minimize, or offset adverse effects, while enhancing positive outcomes. The plan will include a robust environmental and social monitoring program to track the implementation of mitigation measures, with mechanisms for timely corrective action where necessary. Furthermore, it will define the institutional arrangements, roles, and responsibilities of all stakeholders involved in ESMP implementation and monitoring, along with recommendations for capacity building and coordination mechanisms.

3.1 PROJECT OBJECTIVES

The scope of the assignment includes:

- Reviewing the detailed designs of the Xarra sub-scheme, which were originally developed under "Feasibility Study, Detailed Design & PMMS for the Janjar system, including the Janjar canal, the Konispol irrigation scheme, the Janjar and Mursi dams and Consulting Services for the rehabilitation works of the Janjar system".
    - Developing detailed engineering designs for the selected rehabilitation options for the irrigation systems.
    - Preparing an Environmental and Social Management Plan (ESMP) for the Mursi irrigation scheme, ensuring full alignment with the World Bank's Environmental and Social Framework (ESF) and Environmental and Social Standards (ESS).

- Providing construction supervision services to ensure the works are executed in compliance with the approved designs, specifications, and environmental and social requirements.

3.1.1 The specific objectives of ESMP

The ESMP within this assignment focuses on:

- Identifying potential environmental and social impacts during the planning, design, construction, and operational phases.
- Proposing mitigation measures to prevent, minimize, or offset adverse impacts and to enhance positive outcomes.
- Establishing an environmental and social monitoring program to ensure the effective implementation of mitigation measures and to enable timely corrective action.
- Defining the institutional arrangements, roles, and responsibilities of all stakeholders involved in ESMP implementation and monitoring.
- Recommending capacity-building measures and coordination mechanisms to ensure compliance with the ESMP throughout the project lifecycle.

3.2 PROJECT COMPONENTS

Following the situation described above, the consultant decided to send an official letter to the municipality, requesting their formal input regarding any updates or changes they wished to see in the project. The aim was to ensure that the design review accurately reflected the current needs and priorities of the municipality. The Municipality of Konispol responded with an official letter describing the specific changes and updates they wanted incorporated into the project. This letter included a detailed list of their requirements, which were carefully reviewed and integrated into the revised project to ensure it met the municipality's expectations and local needs.

These updates will help refine the design and ensure that the irrigation system is fully adapted to current agricultural practices, existing infrastructure, and the region's sustainability goals.

The key points requested by the Municipality of Konispol for inclusion in the project were as follows:

- **Removal of the pumping station from this phase:** Since the updated pressurized system in Mursi uses the high drop from the Janjar Canal to convert the system from open channels (gravity-fed) to a closed pressurized pipeline network, the municipality decided that the pumping station should be removed from this phase. A pumping station would only be necessary if the water from the Janjar Canal proved insufficient for the scheme, but the focus is on utilizing the natural drop of the canal.
- **Inclusion of secondary lines:** The Municipality of Konispol requested the inclusion of secondary irrigation lines, marked in yellow on the attached general plan, in this phase of the project. They also requested the removal of several lines marked in red, which are currently not used by farmers.
- **Completion of irrigation elements in the Ciflik and Shalës irrigation areas:** The municipality requested that the irrigation zones of Ciflik and Shalës be re-examined within the scope of this phase in order to provide irrigation elements for several small but high-use areas frequently cultivated by farmers, which are located within the previously addressed irrigation scheme.

- **Expansion of the Konispol Scheme:** In the Konispol scheme, they requested an additional 300 meters of irrigation pipeline to cover an active irrigated area that is currently not fully served.

These changes reflect the municipality's priorities for improving irrigation coverage and efficiency, while aligning with the updated design for the Mursi system. The consultant incorporated these adjustments into the revised project to ensure it better meets the region's agricultural needs. The photograph below shows the General Plan of the Municipality of Konispol Proposal:

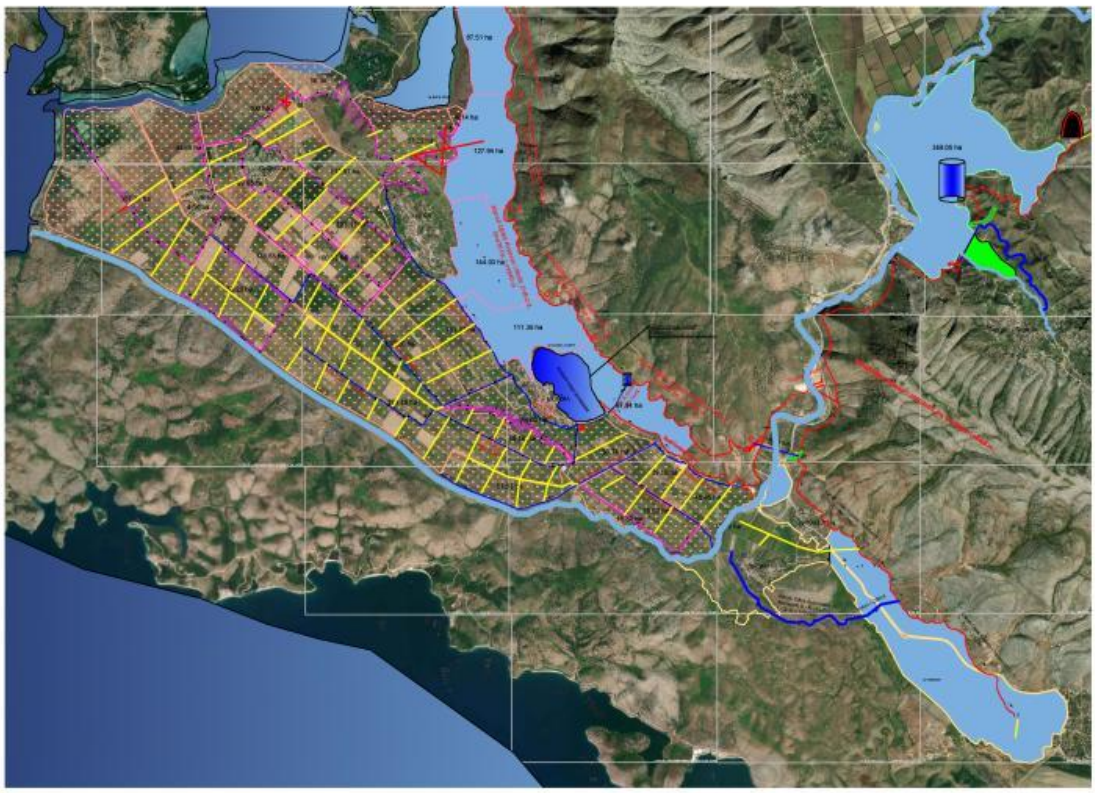

Figure 3: Devlopment Plan of Municipality of Konispol

Based on the municipality's proposal, the consultant prepared an updated project that meets all their requirements. The revised project includes the requested changes and updates to ensure that the irrigation system meets the current needs of the Municipality of Konispol.

The new General Plan illustrating the updated design shows the following:

- Removal of the pumping station.
- Inclusion of the secondary lines marked in yellow, which will now be part of this phase.
- Removal of the lines marked in red, which are currently not in use.
- Addition of irrigation elements in the Ciflik and Shalës areas.
- Extension of the irrigation pipeline by 300 meters in the Konispol scheme to cover more active agricultural areas.

This new general plan will guide the implementation of the revised irrigation system, ensuring that it meets the updated needs of the municipality and increases agricultural productivity in the region.

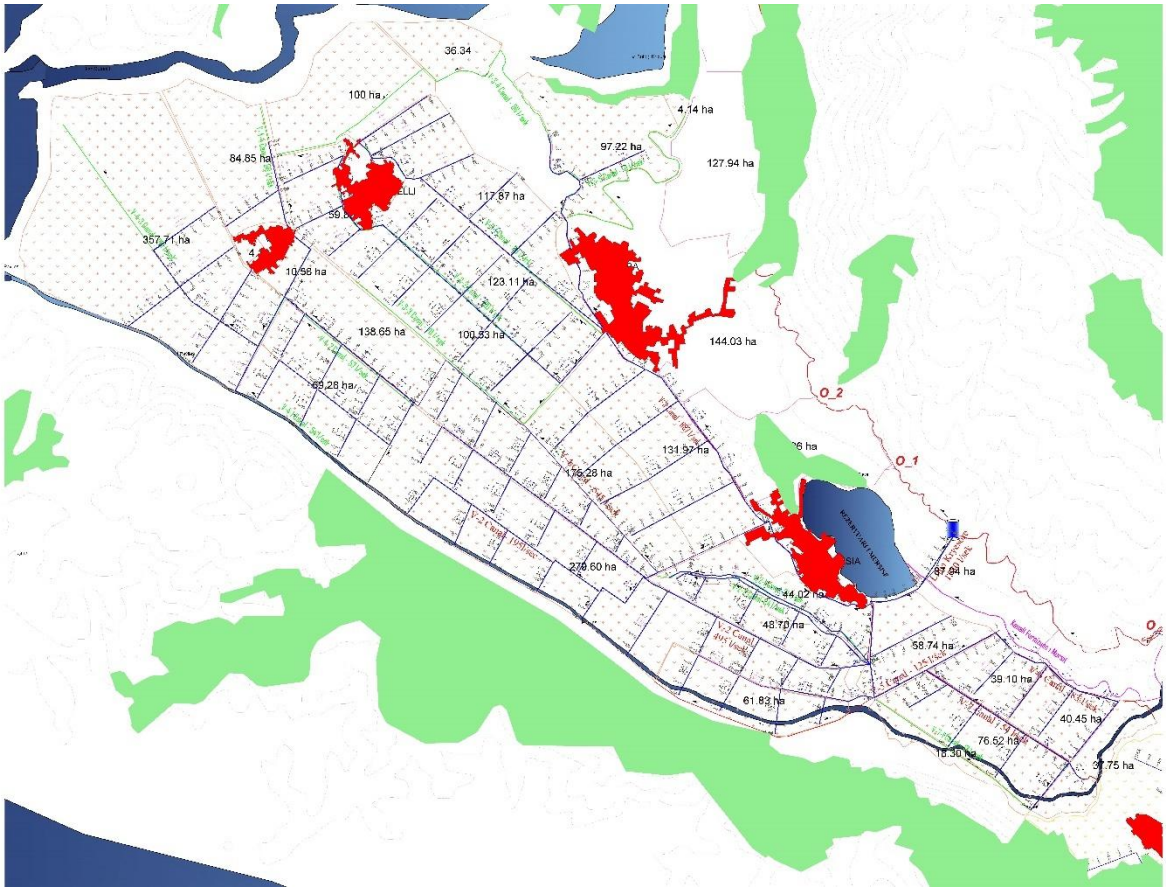

Figure 4: The new general plan will guide the implementation of the revised irrigation system.

The hydraulic model of the updated Mursi irrigation scheme was developed using the specialized WaterCad software. This program was used to simulate and analyze the hydraulic performance of the new system, incorporating the changes and updates requested by the Municipality of Konispol.

The hydraulic modeling helps ensure that the revised system will operate effectively, providing the required water flow and pressure throughout the irrigation network. It takes into account the transition from an open gravity-fed channel system to a closed pressurized pipeline system, which utilizes the high drop of the Janjar Canal. This update also reflects the integration of secondary lines and the removal of inactive lines.

4 LEGAL FRAMEWORK AND POLICIES CONSIDERATION

4.1 NATIONAL LEGAL FRAMEWORK

The main Albanian legal framework to be considered for the preparation of the ESMP study is summarized as below:

- **Law No. 10431, dated 10.03.2011 "On Environmental Protection.**

This law aims to protect the environment at a high level, preserve and improve environmental quality, prevent and reduce risks to human life and health, and ensure and improve the quality of life for the benefit of present and future generations, while also ensuring the conditions for the sustainable development of the country.

Basic Laws

- **Law No. 10431, dated 09.06.2011** – On Environmental Protection
- **Law No. 10440, dated 07.07.2011** – On Environmental Impact Assessment (as amended by Law No. 12/2015)
- **On Integrated Waste Management** – Law No. 10463, dated 22.09.2011 "On Integrated Waste Management" (as amended), which aims to protect human health and the environment and ensure environmentally sound waste management through integrated waste management.

Council of Ministers Decisions

- Decision No. 402, dated 30.06.2021 "On the approval of the waste catalogue" replaces the previous Decision No. 402/2021 "The Albanian Waste Catalogue." This decision classifies waste based on industry types and criteria for assessing waste hazards, codifying waste types according to the European Waste Catalogue.
- Decision No. 229, dated 23.04.2014 "On the approval of rules for the transfer of non-hazardous waste and the information to be included in the transfer document" (as amended) requires waste to be transferred to a licensed company, ensuring final disposal at approved facilities. It mandates documentation of waste transfer and submission of final disposal certificates to the National Environmental Agency (NEA). All waste-generating companies must register with the NEA and obtain a personal waste generation number.
- Decision No. 371, dated 11.06.2014 "On the approval of rules for the transfer of hazardous waste and their transfer document" (as amended) requires hazardous waste to be transferred to licensed companies for final disposal in approved facilities, with documented transfer and submission of disposal certificates to NEA. Waste-transporting companies must obtain a Type III.2.B license as required.
- **National Sectoral Plan for Solid Waste Management**, approved by the National Territorial Council Decision No. 1, dated 13.01.2020, which aligns with the National Strategy for Solid

Waste Management, aiming to provide sustainable services nationwide, reduce and recycle waste, reduce uncontrolled dumpsites, and protect the environment.

- Decision No. 418, dated 27.05.2020 "On the approval of the strategic policy document and the National Plan for Integrated Waste Management 2020–2035" serves as a mechanism linking all actors and operators in the cycle to meet sustainability goals, prevent and reduce adverse health and environmental impacts, and adapt to climate change.
- Decision No. 175, dated 19.01.2011 "On the Approval of the National Strategic Plan for Waste Management" created the National Council for Nature and Biodiversity to monitor its implementation.
- Decision No. 418, dated 25.06.2014 "On Separate Waste Collection at Source" sets rules and measures for differentiated waste stream collection to reduce landfill disposal.
- Decision No. 575, dated 24.06.2015 "On the Approval of Applications for Solid Waste Management" defines inert waste owner and operator obligations, construction sector requirements, and rules for the approval, construction, and operation of inert waste landfills and temporary storage sites.

On Biodiversity Protection

- **Law No. 9587, dated 20.07.2006 "On Biodiversity Protection"** (as amended) defines requirements for conserving and protecting biological diversity, including protected areas, sensitive habitats, and species, requiring biological assessments as part of environmental assessments. Aligns with Council Directive 92/43/EEC.
- **Law No. 81/2017 "On Protected Areas"** regulates protected areas, categories, and management rules.
- **Law No. 10006, dated 23.10.2008 "On Wild Fauna Protection"** (as amended) safeguards wild fauna as a national asset.
- Decision No. 303, dated 10.05.2019 – updated list of national natural monuments.
- Ministerial Order No. 1280, dated 20.11.2013 – approval of red lists for flora and fauna.

On Cultural Heritage and Archaeological Resources Protection

Includes laws and decisions on workplace safety, site safety, chemical and biological agent risks, mechanical vibration and noise exposure, medical checks, occupational disease lists, carcinogen/mutagen exposure, labor inspections, and worker protection standards.

On Air Quality and Noise Management

- **Law No. 162/2014 "On Environmental Air Quality Protection"** – fully transposes EU Directive 2008/50/EC, aiming to improve air quality, reduce emissions, and protect health.
- Various decisions and instructions set emission limits, air quality norms, noise exposure limits, and vehicle emission standards.
- **Law No. 155/2020 "On Climate Change"** sets national GHG reduction targets.
- **Law No. 9774, dated 12.07.2007 "On Environmental Noise Assessment and Management"** – defines noise pollution prevention and mitigation rules.

On Water Protection

- **Law No. 111/2012 "On Integrated Water Resources Management"** (as amended) – transposes EU Water Framework Directive 2000/60/EC.
- Decision No. 246, dated 30.04.2014 – environmental quality standards for surface waters.
- **Law No. 9115/2003 "On Wastewater Treatment"** (as amended) – defines wastewater management obligations.
- Decisions set discharge limits, zoning criteria for receiving waters, and drinking water quality standards with protective zones.

International Conventions

- Aarhus Convention – Access to Information, Public Participation in Decision-Making, and Access to Justice in Environmental Matters.
- Bern Convention – Conservation of European Wildlife and Natural Habitats.
- CBD (Rio de Janeiro, 1992) – Convention on Biological Diversity.
- CMS (Bonn Convention) – Conservation of Migratory Species of Wild Animals.
- Espoo Convention – Environmental Impact Assessment in a Transboundary Context.
- UNESCO World Heritage Convention – Protection of Cultural and Natural Heritage.

4.2 WORLD BANK ENVIRONMENTAL AND SOCIAL FRAMEWORK

The legal and policy framework ensures that the rehabilitation and modernization works are fully compliant with the World Bank's Environmental and Social Framework (ESF) and relevant Albanian legislation, so that the project avoids, minimizes, and manages environmental and social risks and prevents lasting adverse impacts on people, the natural environment, or cultural heritage. The ESF provides broad, systematic coverage of environmental and social risks through ten Environmental and Social Standards (ESS) and the Bank Policy: Environmental and Social Policy for Investment Project Financing.

Applicable World Bank Standards under the ESF

The project will be prepared and implemented in line with the ten ESS (as applicable):

- ESS1 – Assessment and Management of Environmental and Social Risks and Impacts
- ESS2 – Labor and Working Conditions (incl. LMP, OHS)
- ESS3 – Resource Efficiency and Pollution Prevention and Management (incl. pesticides/IPM, GHGs, water/energy efficiency)
- ESS4 – Community Health and Safety (incl. traffic safety, emergency preparedness, dam safety—Annex 1)
- ESS5 – Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
- ESS6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources (replacing natural habitats/forests coverage)
- ESS7 – Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities

- ESS8 – Cultural Heritage (replacing "Physical Cultural Resources"; includes chance-find procedures)
- ESS9 – Financial Intermediaries (not expected to apply unless FI components are used)
- ESS10 – Stakeholder Engagement and Information Disclosure (incl. SEP and GRM)

Note: The ESMP for this project is prepared under ESS1, with linkages to ESS2–ESS10 as relevant.

5 ENVIRONMENTAL CONDITIONS

5.1 CLIMATE

Saranda region has a typical Mediterranean climate with dry and hot summer, and mild winter. The number of sunny days per year is 280-300. The highest average temperatures are up to 28 degrees and the lowest in winter 0-2 grade.[1] The daily maximum of rainfalls is 76mm. The wind has regional and local characteristics conditioned mostly by the relief of the area. According to the climatic classification of the study area (the river basin of the river Pavëll), the upper part of the river has a southern Mediterranean mountain climate; the middle part has the southern Mediterranean climate, while the lower part of the river has a southern Mediterranean climate. Air temperature is one of the main climatic elements that serve to determine the climate of a country or region with its average regime, its monthly and annual performance, as well as extreme values affecting construction structures.

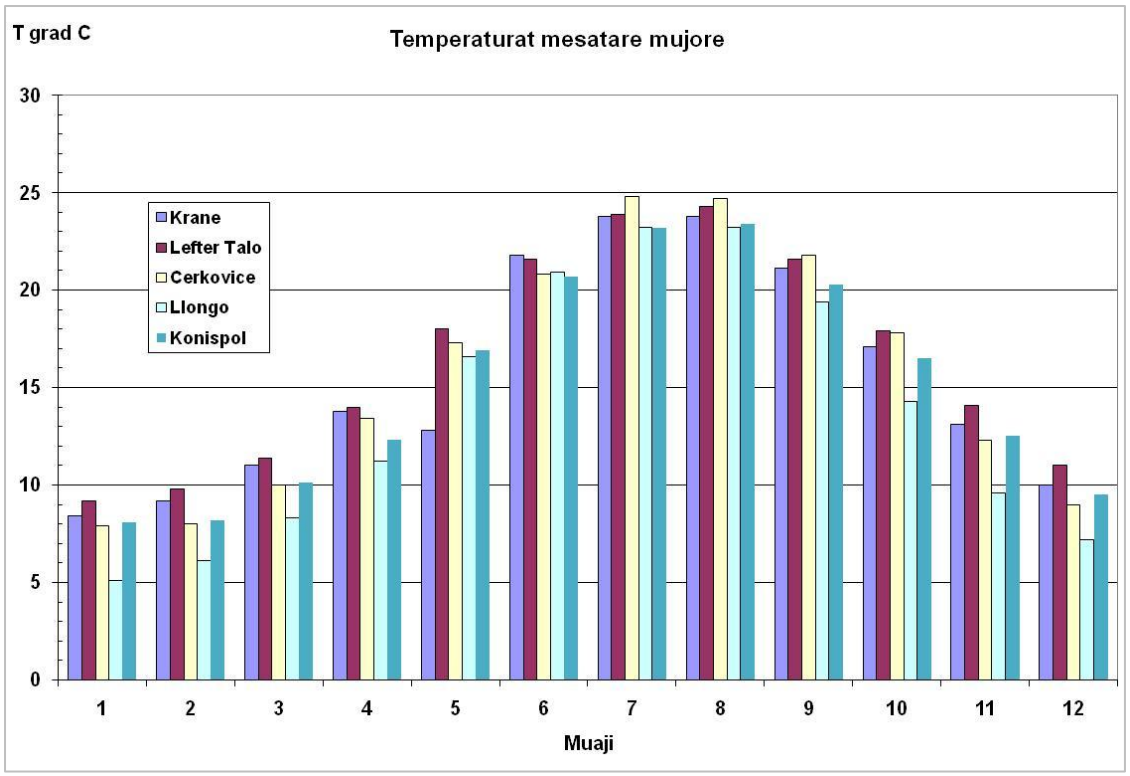

Figure 5: Monthly average temperatures, Pllava's basin

The position near to the Ionian Sea makes its impact visible throughout the year. This side represents the warmest part of our country, but but with increasing altitude temperatures drop considerably. Temperatures range from 13.7 to 16.4 ° C per year, while January's average temperatures range from 5.1 to 9.2 ° C, and the average temperatures in July and August range from 23.2 ° C to 24.7 ° C. As can be seen from table below there is a constant air temperature for the entire study area.

Atmospheric rainfall

[1] http://opensaranda.com/sq/klime

Due to the difference in the relief of the area in the study, from +150 m a.s.l to 1200 m a.s.l. and the distance from the sea, rainfall is abundant and is above the average of the territory of Albania. Rainfall distribution in the "U" form that is typical of a Mediterranean rainfall regime. The largest amount of rainfall is expected during the colder months of the year and the wetest months are November-December-January (260, 235, 213mm). The highest temperatures are in July with rainfall of 28, 14, 36 mm for Krane meteorological location.

Table 1: Meteorological data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Rainfall, mm	211	170	114	89	60	25	13	13	116	165	235	277	1448
Mean Max temp °C	13.6	14.1	16.5	19.2	23.6	28.4	31.0	31.1	28.2	22.4	17.3	15.0	
Mean Min temp °C	4.7	5.2	6.8	10.6	16.1	19.7	22.4	22.3	19.1	10.5	7.5	6.1	
Relative humidity %	79	76	73	71	69	62	57	59	67	76	81	82	
Windspeed 10m, m/s	2.0	2.4	2.1	2.1	1.7	1.9	1.8	1.6	1.3	1.4	1.8	2.0	
Windspewd 2m, m/s	1.5	1.7	1.5	1.5	1.2	1.4	1.3	1.2	0.9	1.0	1.3	1.5	
Av.Daily sunshine, hours	4.0	5.0	5.0	7	9.0	11.0	13.0	11.0	9.0	7.0	5.0	4.0	
ETo mm/month	32	39	66	88	128	163	195	171	117	69	36	29	1133

Source: Hydrometeorological Insitute, GIZ Xarra project, RENARDET & BETA STUDIO

Snowfall in study area

In the study area the snow is dissolved in the upper parts of the watershed of the River Basin (above 1000m a.s.l.) up to 30cm height. The snow layer lasts for a short period of time. Only on the northern slopes, in the sun and wind protected area, it can stay for a longer period of time. According to the statistical processing of the snow element, it results that the maximum snowfall with probability once in 50 years is 25 to 50 cm of snow depth.

The particular geographic position at the southernmost point of Albania, the influence of the warm Ionian Sea and the relatively closed character, especially from the north and east, have made this pond of the river Pllava one of the warmest in Albania, a real oasis climate. In the region are counted in total 343 days or over 2700 hours a year sunny.

Frosts generally occur in January, during which temperatures in rare cases decrease from 0 to 5ºC but with short duration (1 to 3 hours). Temperature decreases below -5ºC are even rarer and lower chances.

The annual average rainfall is subject to considerable territorial changes. Thus, in the plain area fall 1300-1350mm rainfall per year in mountainous interior fall 1650-1800mm. This is related to the orographic influence of the altitude and the orientation of the mountains.) The annual rainfall distribution in this area is more disordered than in other parts of the country. In the summer months 3-4% of the annual rainfall decreases.

5.2 GEOLOGY

From the geological point of view is in the Ionian Zone, built by the Triassic – Eocene carbonate formation and Oligocene flysch deposits. Small Pliocene and Quaternary deposits are found Saranda County.

The place where will be built the Janjari irrigation system at Saranda County represent the slopes of hills from Janjari up to Mursi. These hills are made by mudstone sandstone and limestone; they have the different height. The slopes of the hills are cover by vegetation. Most of the hills are made of limestone, they have stable slopes and in general they are dressed from the vegetation. The hills built by mudstone and sandstone have unstable slopes, and they are covered with vegetation. The Janjari Irrigation System is located in the middle of the slopes (Allkja 2019).

The alluvial Quaternary deposits of plain Mursi are composed of sandy, gravelly and clayey layers containing little organic matter. The colluvial & alluvial deposits are represented by the deposit of the terrace of Pavlla River.

Terrace of the small river sand stream represented by gravel, silty clay, sand, silty sand, silt clay layers. They are medium to consolidated deposits and are encountered at all the area where will be built the JanjariIrrigation System (Allkja 2019). Nearby Janjari hills the Cretaceous limestones are encountered. The site investigation aims to determine the geological characteristics of the area where the site is located and those of the site itself. During this phase numerous disturbed and undisturbed samples were collected and sent to the laboratory for analyses and various geological maps and cross sections were produced.

It is during this phase also that the physical and geological processes that have taken place in this area and have, or might have a negative impact on the object, were identified. The field notes of The Contractor's engineers were than compared to the data obtained by the laboratory tests. The geological report was compiled based on the corrected data, field description and on the tests' results. The determination of the geological and hydrogeological conditions, based on the actual study, carried out by ALTEA& GEOSTUDIO 2000, as well as on existing case studies, carried out for different objects, in this area. The part of the geological map, attached to this document, shows the geological formations that is encountered in our study area.

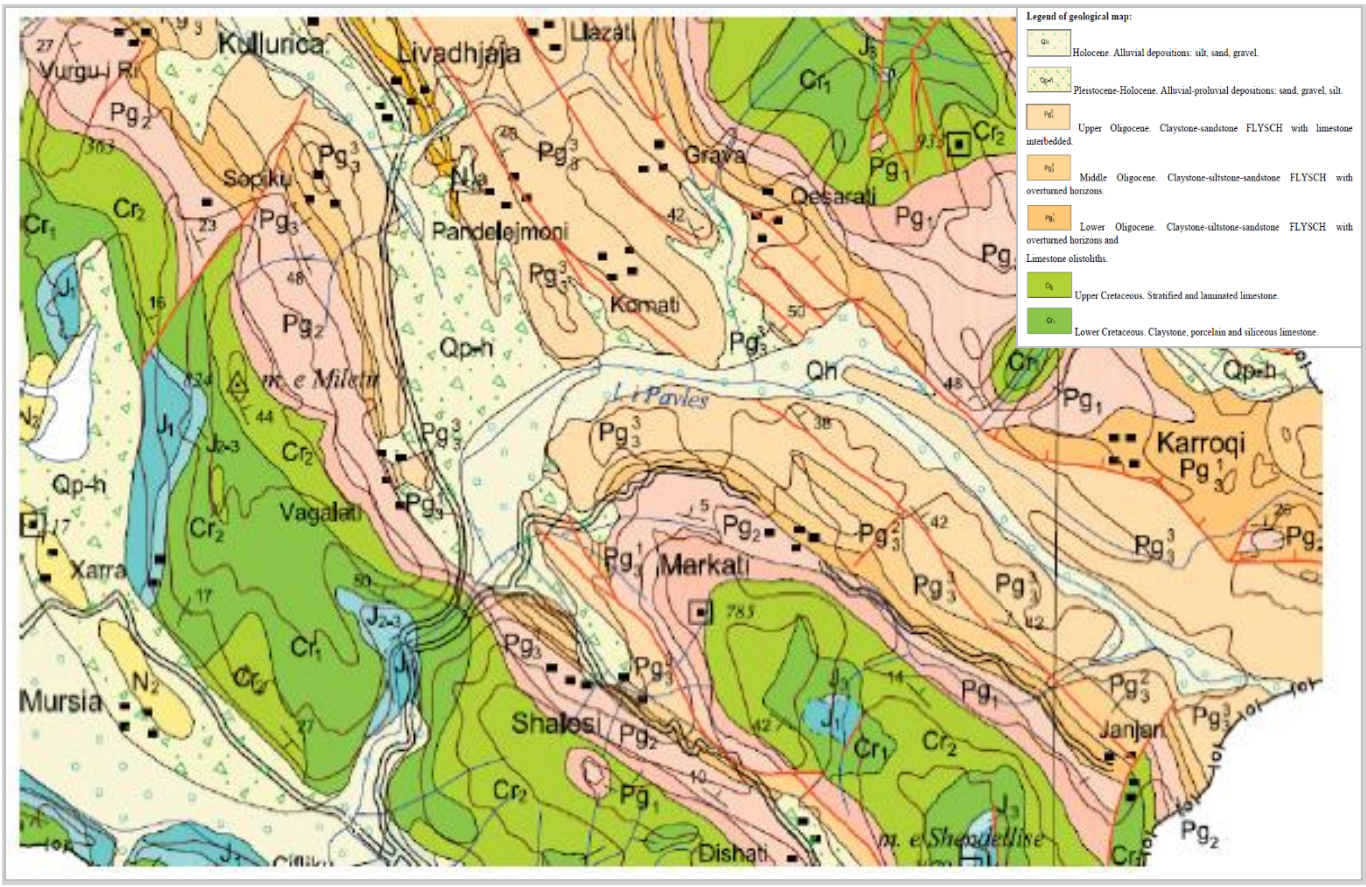

Figure 6: Geological Map (Scale 1:200 000)

The study area is part of the Ionian tectonic zone, where are encountered these geological formations:

- **Holocene (Qh) and Pleistocene (Qp-h)**

The Pleistocene-Holocene formation is represented by alluvial-proluvial deposits, that build the accumulative part of the terraces over the rivers basement, the proluvial deposits, the cones and debris of the slopes, the colluvial depositions, the mixed, the glacial and the lake formations.

a) Alluvial deposits

Alluvial deposits of Pleistocene-Holocene are mainly represented by accumulative and erosion-accumulative terraces; spread in the middle and upper streams of rivers. Alluvial terraces deposits have been met in the Pavlla River.

b) Proluvial deposits

The presence in the Pleistocene of a differentiated terrain, in the interurban period, the harsh and intermittent streams, have formed strong debris cones, composed of conglomerates and gravel. They are placed mainly above intact rocks.

c) Colluvium deposits

The colluvium depositions of Pleistocene are largely encountered along limestone slopes and are mainly represented by breccia of relatively large thickness. Beside breccia, the loose formations are met also at the bottom of the flysch mountain slopes.

d) Alluvial-proluvial deposits

Alluvial-proluvial deposits are typical for Albania, as it has existed and it is a shortdistance hydrographic network with temporary flow. In these cases we have the interplay of old alluvial

deposits with those proluvial and old debris flow cones. They have thickness from several meters to 40-50m and consist of chaotic mixtures of sandy-silt and gravel material with very fine of clayey material.

- **Upper Oligocene (Pg33)**

The upper Oligocene deposits are more limited distributed and participate in the construction of syncline structures. In the upper part of the upper Oligocene predominates the sandstone, which occasionally passes through massive sandstone rocks. Generally in the Ionian tectonic zone, these deposits near ground surface, have reconciliation relations with the following medium Oligocene deposits.

- **Middle Oligocene (Pg32)**

The Middle Oligocene deposits are encountered in the three tectonic zones (Berat, Kurvelesh and Çikës), participating in the construction of the sides of anticline and syncline structures. In the central areas of Ionian tectonic zone, these deposits are represented by claystone-sandstone flysch rock, mainly of medium-sized rhythm with mikritic, biomikritic and turbiditic limestone layers.

- **Lower Oligocene (Pg31)**

Lower Oligocene deposition are spread almost throughout the Ionian tectonic zone, taking part in the construction of the sides within anticline and syncline structures.The passage to the flysch deposits is done through a transitional marl package. This package is represented by two packages: the lower part is characterized by marl with biomikritic limestone layers (5-10cm), while the top is represented by marly clay and light bluish clay, rarely with any limestone layer. In our study area, the flysch deposits appear in combination with the claystone-siltstone-sandstone and the sandstonesitstone- claystone thin layers and rare with medium rhythm layers.

- **Upper Cretaceous (Cr2)**

In the Ionian tectonic zone, the upper cretaceous deposits are spread to all carbonate structures, participating in the construction of the sides and partly the top of the anticline structures. The upper Cretaceous deposits throughout the Ionian tectonic zone are successfully deposited on the above of the lower Cretaceous deposits.

- **Lower Cretaceous (Cr1)**

Lower Cretaceous deposits are represented by thin-medium layers of limestone and rare the combination of thick layers with thinly siliceous lenses and turbid limestones. These deposits are distinguished in almost all carbonate structures of southwestern Albania.

5.3 SEISMIC CONDITIONS

In May 2019, on the demand of the company "GR Albania", the company "ALTEA & GEOSTUDIO 2000" prepared the report on evalution of seismic hazard potential of the JANJARI IRRIGATION SYSTEM for the project name "Feasibility study, detailed design &ESMP for Janjari system, including Janjari's canal, irrigation scheme of Konispol, and Janjari & Mursi dams and Supervisory Services for rehabilitation works of Janjarisystem" Loan No. 8211-AL Contract No.: WRIP/1/CS/001, Saranda County in Albania.

This seismic hazard study was based on the following studies: "Seismicity, Seismotectonics and Seismic Hazard in Albania" (Aliaj et al., 2010), and "Geological Reportfor Janjari Irrigation System" (Allkja, Malaj 2019) some boreholes of 10.00 m depth and trialpits were performed in this site (see figure below).

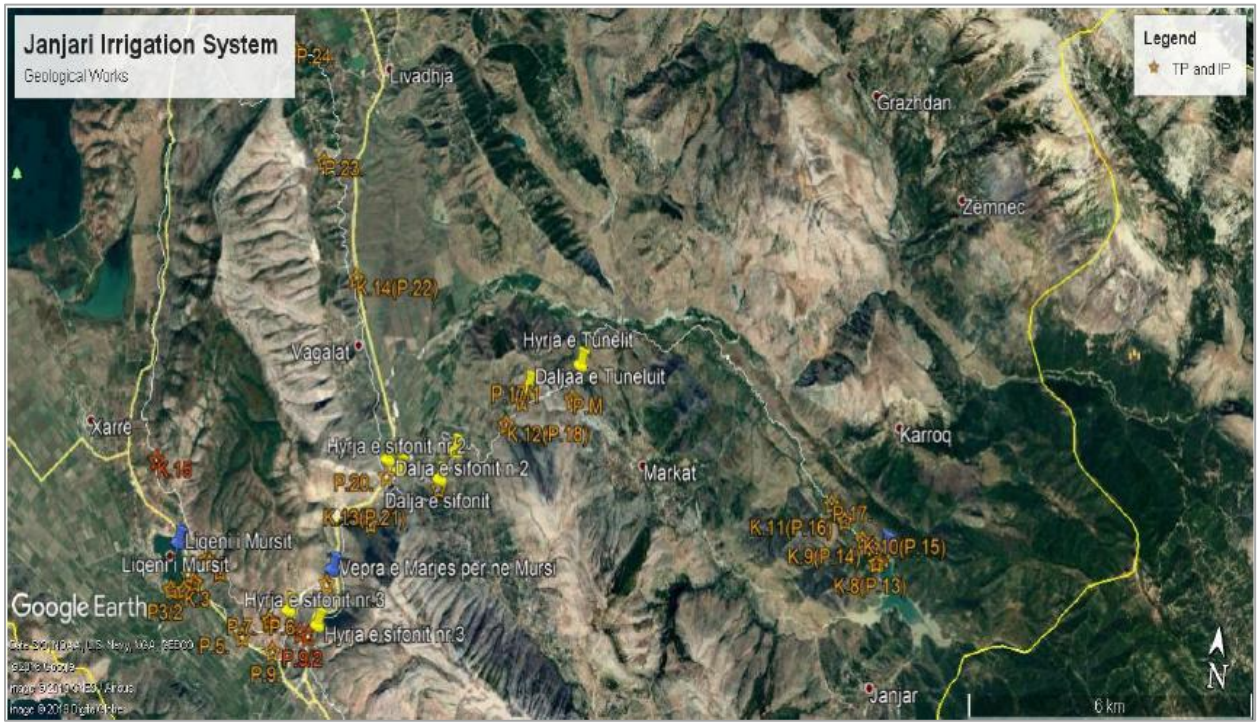

Figure 7: Plan of geological works performed in the Janjari Irrigation System at Saranda County.[2]

The purpose for the seismic hazard evaluation of the Site under study should comprehend:

a) Peak Ground Acceleration (PGA) and Spectral Acceleration (SA) values on rock site conditions for a return period of 475 years (this equates to a 10 % probability of a value being exceeded in a 50-year period) for the site under investigation, using Cornell-McGuire Probabilistic Seismic Hazard Assessment (PSHA) Methodology. b) Seismic Hazard Calculation on specific site conditions, using Computer Programme SHAKE 2000 (G.A. Ordonez, 2011, updated July 2016). Conclusions of this report are as below:

Conclusions:

1. The Janjari Irrigation System Site can be classified at B site class according to Eurocode 8, and at IInd category according to Albanian Aseismic Design Code KTP-N.2-89.
2. The main seismic parameters for the Janjari Irrigation System Site on rock site conditions, estimated by the probabilistic approach, are the followings: For probability 10 % / 50 years (or 475 years return period): PGA = 0.233 g, Sa (0.2 s) = 0.54 g and Sa (1.0 s) = 0.15 g.
3. According to the Albanian aseismic design Code KTP-N2-8 the main seismic hazard parameters for the Janjari Irrigation System Site are: The maximum observed seismic intensity Imax= 8 degree MSK-64, the maximum horizontal acceleration for II soil Category kE = 0.22 g, β(T) = 2.0, and the maksimum spectral acceleration: Sa (T) = 0.22 x 2.0 = 0.44 g, TC = 0.4 s, TD = 1.23 s.

[2] Source : Altea Geostudio Report on *Evalution of seismic hazard potential of the JANJARI IRRIGATION SYSTEM, May 2019.*

4. According to Eurocode 8 the elastic response spectra for B site class of Janjari Irrigation System Site at probability 10 % / 50 years are given below. For Layer 3 at 2.00 m depth: PGAaver. = 0.527 g and AF (S) = 2.262 and peak spectral acceleration Se (T) = PGA aver. X 2.5 x 1 = 0.527 x 2.5 x 1 = 1.3175 g, S = 2.262, TB =0.15 s TC = 0.5 s, and TD = 2.0 s.
For layer 4 at 4.00 m depth: PGAaver. = 0.418 g and AF (S) = 1.797 and peak spectral acceleration Se (T) = PGA aver. X 2.5 x 1 = 0.418 x 2.5 x 1 = 1.045 g, S = 1.797 g, TB =0.15 s TC = 0.5 s, and TD = 2.0 s.
5. An important parameter for the site dynamic response are the vibration periods of soil packet lying on bedrock. The vibration periods of soil packet lying on bedrock forJanjari Irrigation System Site are TS = 0.1-0.3 sec for both layers 3 and 4 (at 2.00 m and 4.00 m depth), arriving the maximum spectral acceleration value 3.2 g for layer 3, and 3.0 g for layer 4 at 0.2 sec with the average peak spectral acceleration value 2.4 g for layer 3 and 2.25 g for layer 4, and the average Period for Soil Column results 0.254 sec. The predominant period of site vibration according to formula Tp = 4H/Vs is Tp = 4 x 15 / 297 = 0.202 sec.

5.4 TOPOGRAPHY AND GEOMORPHOLOGY

Topographic survey

The topographic survey of the project area includes measuring and documenting the form of the terrain and all surface structures and assets, and presenting them in a topographic plan of the scale 1:2000. Coordinates of the points are defined in the WGS 1984 UTM Zone 34 North geodesic reference units.The points of the topographic survey are taken with a density of 20-30 m depending on the terrain and geographic extent of the project.
The information collected from the field measurements is stored in the geodetic instruments in a database, which is updated continuously. Each structure / asset is provided with an identification code.

Geodetic instruments used during topographic surveying include Topcon HiperV GPS, Topcon HiperVR GPS and Topcon OS103 Total Station.Kinematic positioning technique is used to perform topographic survey with GPS. Since plan accuracy and height 10 cm or higher are required, all points will be determined with the fixed solution. During the survey, it was ascertained that the whole project area has coverage from the Virtual Referral System (VRS) "ALBPOS".

Kinematic methods are the methods used to determine the position of moving points or to quickly determine the position of fixed points, which is done with the help of GNSS phase measurements and base data, where measurements are processed in real time.

In cases where access to the project ground area was impossible due to the rugged terrain, the survey was performed with Total Station, using electronic distance measurement (EDM) technique. Topographic survey measurements are processed in Autocad Civil 3D.

Geomorphology

This paragraph will describe:

- The present relief's forms and the geological conditions in which they were formed.

- The geological and geodynamic processes that have taken place in the area.

The project, starts from Janjari Dam in the West-North direction and following almost this direction until it is crossed with more villages; Shale, Vagalat and Mursi. This channel serves as an irrigation system from Konispol to Mursi and in some other villages. The channel crosses the hills of the area with two tunnels, continues on the slopes of the hills and one small valley of a small river on the area from Janjari up to Mursi. The hills are partially covered with shrubs and partly citrus. The channel is generally stable but needs intervention in particular points, which will be described in details below.

The interpretation of the geological processes that took place in this area is based on information taken from existing case studies as well as on data obtained by the actual survey. The most obvious geological and geodynamical process that can be encountered in this area formation is the consolidation.

- The consolidation of the alluvial and colluvium deposits

The alluvial deposits near the site are alternated with the lagoon deposits, which are composed of firm clays, gravelly clay, gravel and beds of sand. The consolidation process of these deposits requires a long time and it is of outmost importance to take into account, when designing the foundations. The alluvial deposits formed by the lake and river are alternated with the colluvium deposits. They are composed of sand beds, gravel beds, clayey silt, sandy silt. The sand and gravel beds are easily consolidated, while the peat and clay beds require a very long time. The presence of organic matter in the soil, causes deformations of the foundations' base.

5.5 SOIL STRUCTURE AND USE

Based on the map of the basic land use categories proposed, according to the general local plan of Konispol Municipality (map as below) the project extends to natural land and agricultural land.

Konispol municipality has a wide variety of terrain, intertwining the plain with hilly terrain. (Actual land use map based on ASIG are presented as an annex 2 at the end of the document)

Proposed land use categories:

Based on zoning by basic categories and subcategories of proposed land use (according to Local Development Plan 2017, Konispol Municipality), a first classification has been made between urban and non-urban land, agricultural land and natural planning systems. The categories of land use are as follows:

1.N- natural Land
2.Agriculture
3.Infrastructure
4.Water
5.A-Residence
6.S-Services
7.M- heritage and monument
8.IE- Economics and Industry
9.IS –Institutions

10.AR- Social and recreational
11.AS-Education
12.Sh-Health Care
13.V-Special Use
14.ZU-Military Zone

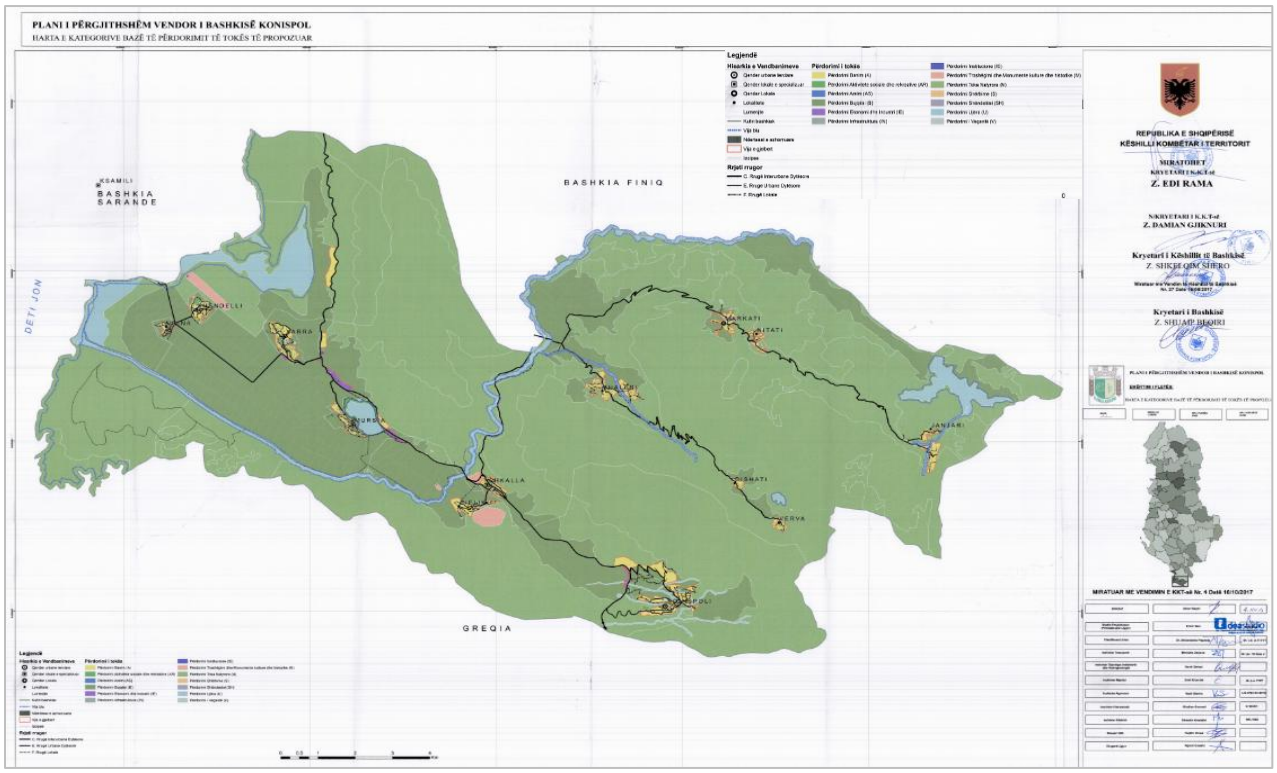

Figure 8: Land use map, Konispol Municipality[3]

5.6 HYDROLOGY

Hydrological features of a region primarily depend on its climate, topography and geology.

The surface of the Pavlla River is F = 381 km^2. Of these 304 km^2 are in the territory of Albania and 77 km^2 in the Greek territory.

The origin of the Pavlla River is located in northwestern Greece on the southwest side of Mount Struga. Before entering the territory of Albania, Pavlla makes a very strong turn from the south-east, immediately to the West. This direction is maintained within the territory of Albania to the area of Vagalat where it then flows in the south-western direction and is located in the Bogas gorge. Pavla's lower stream includes the sector from the exit from the Bogas gorge to the spill.

In the Bogas gorge, its average flow is about 6 m3/s. In the middle part of the flow of the river Pavle, the main branches of the River Leshnica flow from the right bank, and from the left bank Berkuci stream, both with permanent flow.

[3] Map source : Local Development Plan 2017, Konispol Municipality, pg.12

In the watershed of the Pavlla River, two large reservoirs for irrigation were built in the last century. Janjari reservoir with a capacity of 15 million m^3 of water is supplied from the Berkuc stream, the main branch of the Pavlla River on the left bank of a surface of 3000 ha. There is also an artificial reservoir for the watering of Mursis with a water volume of 4.5 million m^3, with irrigation capacity of 2000 ha and supply from the river Pavlla. Groundwater resources in the basin of the Pavlla River are: Markat with average perennial flow over 0.5 m3/s, Leshniqes Q-avg = 0.128 m^3/s and sources of Zminece Grazhdan village as soon as the Pavlla River enters the Albanian State border. In the Pavlla River Basin during the wet (October to May) period there is approximately 66% of annual rainfall. The largest tributaries in the Pavlla River basinare mainly formed by heavy and continuous rains, which are mainly formed by the end of autumn and in winter. In determining the average monthly and annual maximum rainfall, all the data observed at the hydrometric location of Pavla in Bogaz and of the meteorological locations that are in the watershed and outside it are used. Hydrometric location Pavlla Bogas has been operating since 1949 and those of precipitation since 1951.

Hydrography of the River Pavlla consists of water flows in the upper part of it showing the orography of a hilly-mountainous terrain - in the middle it consists of streams, and water lines that in the wet season of the year are dry. The orographic configuration of the study area is presented with the hilly-mountain plain area. This configuration condenses the precipitation regime over the fact that the whole area is exposed to the Ionian Sea. The mountainous area exercises an action that "catches" the currents and consequently the hilly mountainous areas in the interior receive abundant rainfall.

In this configuration, the main morphometric characteristics of the watershed of the river Pavlla in the water intake for H / c is determined by automated procedures.

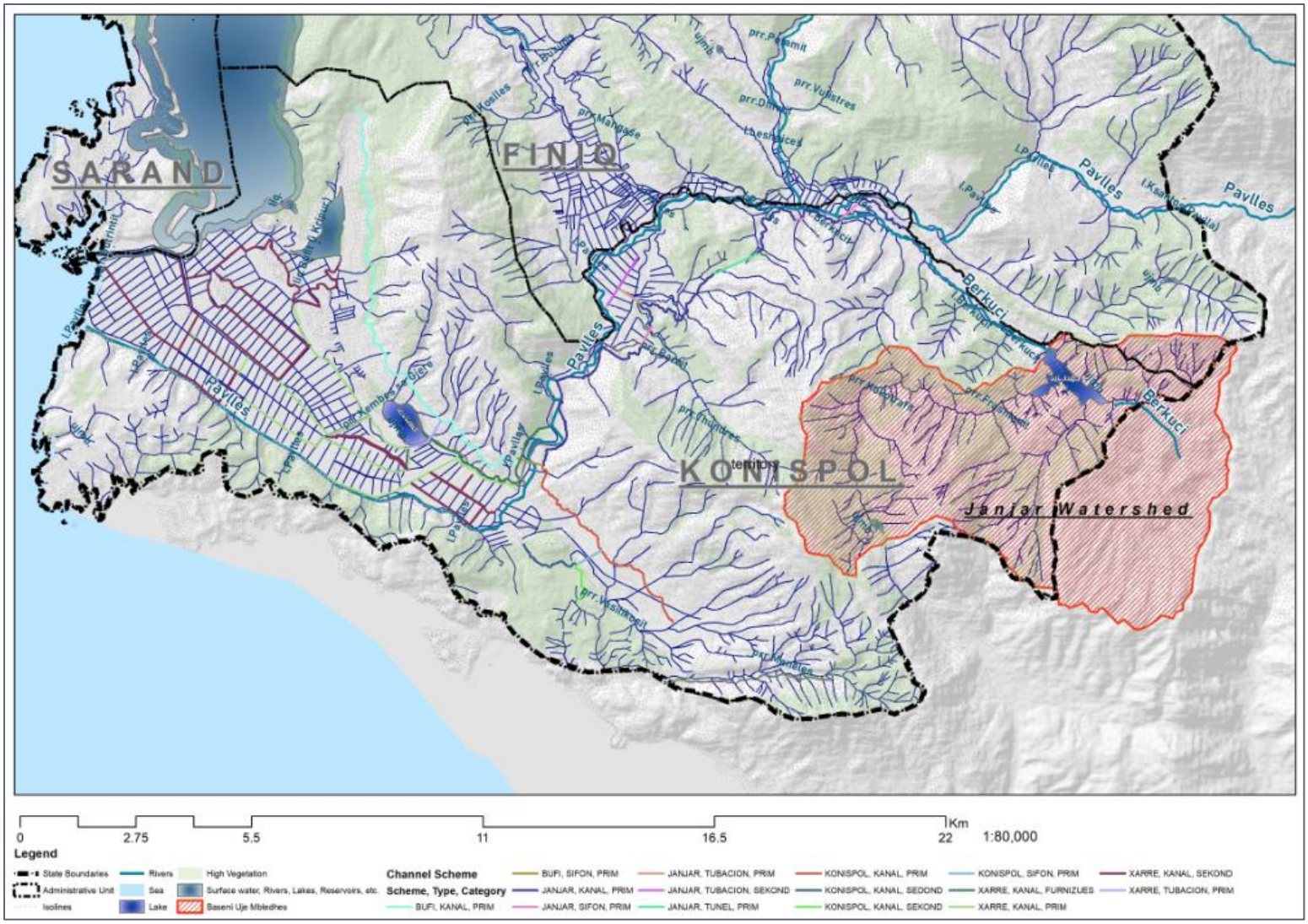

Figure 9: The basin of Pavlla River

5.7 WATER QUALITY

For assessing surface water quality relevant to the Janjar–Mursi Irrigation Scheme, the Butrint National Park aquatic system remains a reference point due to its ecological importance and protected status (IUCN Category II National Park). Updated 2024–2025[4] monitoring data from Butrint Lagoon and Pavlla River show conditions generally similar to those reported in the 2018 screening, with some localized seasonal fluctuations.

- **Butrint Lagoon Monitoring**

The Butrint Lagoon is a coastal saline lagoon located southeast of Saranda, adjacent to Butrint National Park, with a surface area of approximately 16.3 km², an average depth of 14 m, and a maximum depth of 21 m. The lagoon connects to the Ionian Sea via the Vivar Canal.

- **Sampling & Parameters (2024–2025)[5]:**

Monitoring was performed at two depths (surface and 5 m), with parameters including: water temperature, transparency, pH, alkalinity, salinity, electrical conductivity, dissolved oxygen (DO), Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD_5), nitrites (NO_2^-), nitrates (NO_3^-), ammonia (NH_3/NH_4^+), ortho-phosphates (PO_4^{3-}), total phosphorus (Ptotal), suspended solids, and chlorophyll-a.

- Water Temperature & DO: Surface temperatures ranged 18–20°C, with dissolved oxygen levels of 10.2–11 mg O_2/L, confirming well-oxygenated conditions.
- Transparency: Average Secchi disk depth was ~2.3 m, consistent with a mesotrophic classification.
- Chemical Oxygen Demand (COD): Average COD was 13 mg O_2/L, indicating mesotrophic conditions with a eutrophic tendency during late summer.
- Biochemical Oxygen Demand (BOD_5): Averaged 7 mg O_2/L, classifying the lagoon as eutrophic by WFD criteria.
- Nitrates (NO_3^-): Average concentration of 0.10 mg/L meets oligotrophic thresholds (<1 mg/L).
- Total Phosphorus: Average 0.041 mg/L, classifying as eutrophic (0.035–0.1 mg/L range).
- Chlorophyll-a: Results indicate mesotrophic conditions with occasional summer peaks toward eutrophy.

- **Trophic Status Assessment:**

[4] Ministry of Tourism and Environment, Republic of Albania (2025). Annual Environmental Monitoring Report: Butrint National Park and Pavlla River Water Quality. Tirana: National Environmental Agency.

[5] Ministry of Tourism and Environment, Republic of Albania (2025). *Annual Environmental Monitoring Report: Butrint National Park and Pavlla River Water Quality*. Tirana: National Environmental Agency.

Based on combined nutrient, oxygen demand, and chlorophyll-a indicators, Butrint Lagoon remains mesotrophic with seasonal eutrophic peaks. The Water Framework Directive (2000/60/EC) classification remains "Moderate Status" with a slight deterioration tendency compared to pristine reference conditions.

- **Pavlla River Water Quality[6]**

The Pavlla River remains the primary inflow to Mursi Reservoir via the feeder canal. Water quality continues to meet irrigation suitability standards under both EU and Albanian norms.

- Ammonia (NH_3/NH_4^+): 0.03 mg/L, meeting EU maximum allowable limits (0.03 mg/L) and well below Albanian limit (0.1 mg/L).
- Chloride (Cl^-): Within acceptable limits for irrigation.
- Nitrites (NO_2^-) and Nitrates (NO_3^-): Concentrations within safe limits for both irrigation and aquatic health.
- Overall Quality: Classified as good for agricultural use, with no observed salinity or heavy metal concerns.

➢ **Implications for the Irrigation Scheme**

- Both Janjar and Mursi Reservoirs remain suitable for irrigation supply.
- Continued seasonal monitoring is recommended to detect nutrient loading trends, particularly in summer low-flow conditions.
- Integration of ESS3 (Resource Efficiency and Pollution Prevention) into operational management will be important to maintain compliance with the updated World Bank ESF requirements.
- Specific measures under the ESMP should address sediment control, agrochemical runoff management, and riparian vegetation buffers to prevent further nutrient enrichment.

5.8 BIODIVERSITY

5.8.1 Flora & Fauna

Konispol municipality, based on the geological position and height above mean sea level, is characterized by four ecological zones: coastal, field, hilly and mountainous. The area presents a variety of habitats extending from sea level up to 750 m above sea level.

The western area of the project, represents the characteristics of the Euro-Mediterranean or coastal area and is represented by communities, *Euphorbia dendroides, Allianca oleo and Pistacia lentiscus.* Xarra field, which is located 65 m above sea level, is characterized by lowland and hilly habitats. The field area is represented by saline soils, which are mainly located near Vivar canal, in the western part

[6] Ministry of Tourism and Environment, Republic of Albania (2025). *Annual Environmental Monitoring Report: Butrint National Park and Pavlla River Water Quality*. Tirana: National Environmental Agency.

of the village of Vrina, vegetation is represented by Mediterranean bushes of saline soils. Whereas the fields that are classified as agricultural land have turned into citrus plantations.

In Mursi, Xarra and Konispol hills that are mostly bare, medicinal plants are found. While the hills in the eastern part of the Bufi reservoir are covered with *Quercus cerris, Quercus pubescens, Quercus frainetto dhe Carpinus orientalis.*

Fauna also represents a large variety of species, some of which are endangered and protected by national law such as *Lutra lutra* and the birds found within the Butrint National Park. Predominantly small mammals characterize the area at the lower levels: *Vulpes vulpes*, *Meles meles*, *Lepus europaeus*, *Erinaceous concolor*, *Martes foina*, and some species of bat.

Predatory birds, mostly found at high elevations, are of great interest and especially, *Neophron percnopterus, Aguila chrysaetos, Falco peregrinus, Hieraetus pennatus, Circaetus gallicus* and *Falco biamicus*. The presence of *Dryocopus martius* and *Dendrocopos syriacus* is also noticeable. The reptile species in this area are lizards, snakes and turtle species. Amphibian species of particular interest are *Bufo bufo*, *Bufo viridis* etc.

Figure 10: Reptiles observed in project area[7]

[7] Photos taken by GR Albania team during surveys

Figure 11: Habitat dominated by Quercus spp.

5.9 PROTECTED AREAS

5.9.1 Butrinti National Park

In general, Konispol and Finiq municipality areas are diverse and rich in terms of archaeological, nature monuments, cultural and historical objects and national heritage. Based on the Law No. 81/2017 "On protected Areas", as well as the official website of the National Agency of Protected Areas (NAPA) and the relevant maps, nearby the project is Buntrint National Park (the Butrint wetland complex) amended by DCM no.134 dated 20.02.2013 *"For some amendments and additions to Decision No.693 dated 10.11.2005 of the Council of Ministers "On the announcement of the Butrint wetland complex "National Park", category II.* The ancient city of Butrint was recognized and confirmed as such 1992, when it was included in the UNESCO World Heritage List. This was decided by the World Heritage Committee, referring to the 1972 Convention, "On the Protection of the World Cultural and Natural Heritage". The natural values of the Butrint Wetlands were also recognized by the Ramsar Convention in 2002. (Blue line- archeological park boundary, pink line-border of Ramsar area, purple line -butrint park boundary).

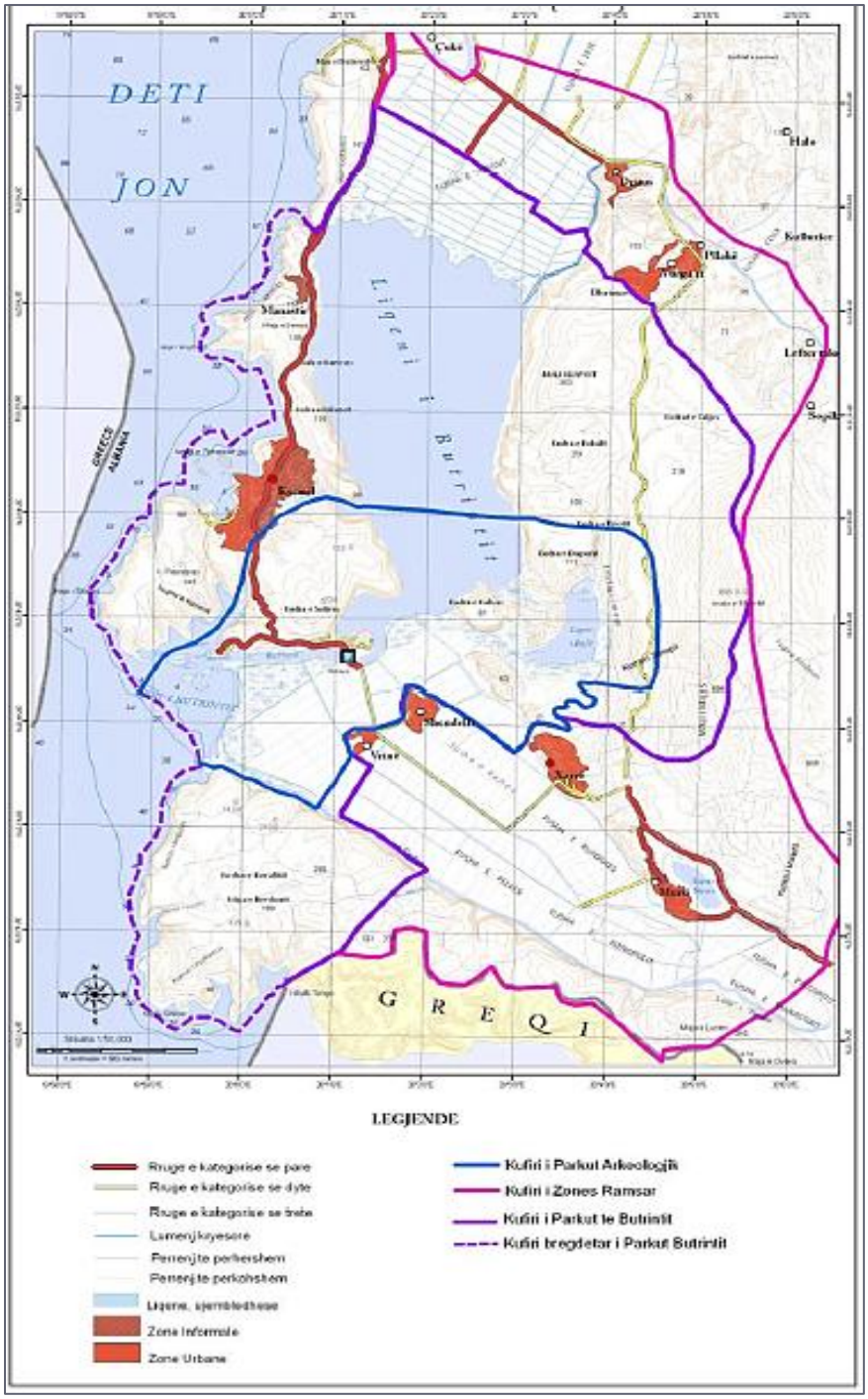

Figure 12: Butrint National Park (2005), Archaeological Park boundaries (1999), Ramsar Area (2002)[8]

Based on the map (and the coordinates in the DCM 693 dated 10.11.2005) the western part of the project is located near the village of Vrina and Shendelli, flowing directly to 'Vivari channel', which is part of protected area (Please refer the map as below). It should be emphasized that the rehabilitation works will be carried out in the previous existing route, except for some additional structures such as pump station, forebay/headtank and access road.

[8] *Management plan (revised) of the Butrint National Park - ASPBM*, September 2010, Map 2 , pg.135

According to the map published in DCM No.693 (amended by DCM 134 dt 20.02.2013) and as well ASIG Geoportal, where are presented detailed zoning and their respective subzones of National Park, a part of the project is located inside the protected area of National Park, more specifically:

- 2 canals to be rehabilitated near the Vrina plain are part of *C2 SubZone (Zone of traditional use C) - Livestock and Traditional Agriculture and A2- Natural Environmental subzones (part of the central area A).*
- 2 canals- Xarra secondary canals (a part of section passes to zone C2, the rest extends to zone A2). (Map as below).

In the national park is applied protection category II, and Article 16 of the Law on Protected Areas (Law 81/2017 cites: *The "National Park" applies the scale of environmental protection of the area with the objective of preserving the territory in a natural state, where biotic communities, genetic resources and species to ensure ecological stability*.

If we will refer to Butrint National Park Management Plan (Final Version Revised, 2010). The description of the areas and sub-zones in which the project effects is as follows:

Subzone A2: Natural Environmental subzones A2: Area with good representation of the natural habitats of the park that should be maintained in a natural state. Activities in accordance with the conservation of the area will be allowed, such as educational guided tours, bird and mammal surveys, underwater surveys. (scuba diving) (2924 ha)

Subzone C2- Livestock and Traditional Agriculture. The traditional way of life and public visits for the benefit of the park are emphasized. Supports the development of ecotourism and environmentally friendly leisure activities.

According to paragraph 4.2.3 of the management plan, table no.5 describing the activities that are allowed and those that are not allowed and activities that require approval, in subzones where the project is part (A2 and C2): The activity is not included in the allowed and those which are not allowed: so it will be part of the activities that require approval (Activities that are neither allowed nor clearly incompatible with the purposes of the area).

Although the project will be implemented in existing route channels, construction/rehabilitation works for channels described above are foreseen to be carried out within the protected area, thus the consultant suggests that a prior notification should be done to the National Agency of Protected Areas.

Rehabilitation Works to be performed include: excavation works, concrete construction works, steel pipeline placement and machineries that will carry out the implementation. The working area is foreseen to be approximately 5 meters from the pipeline axis.

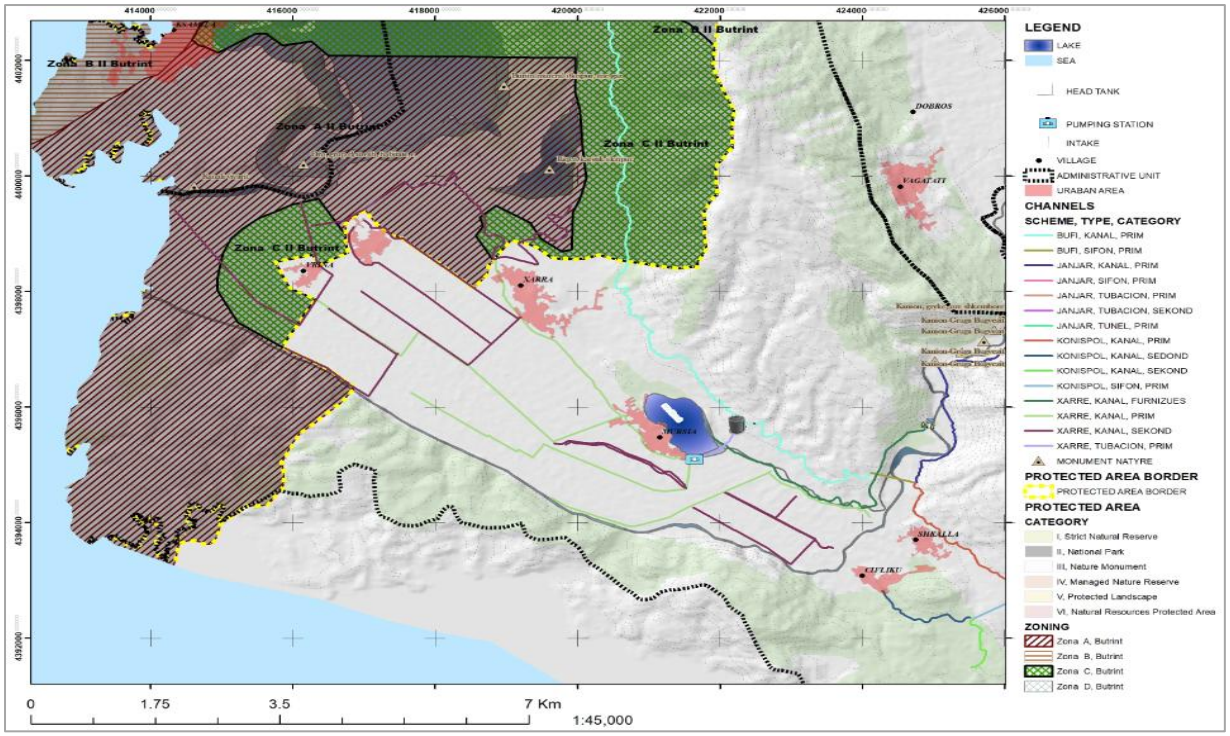

Figure 13: Protected area in Saranda region[9]

It will also be taken into consideration in this study and DCM 531 dated 31.10.2002*'On the proclamation of the wetland complex of Butrint and its surrounding natural area, specially protected and included in the list of internationally important wetlands, particularly as waterfowl habitats',* named as Ramsar area (No. Site 1290, dt.28.3.2003) with the following boundaries:

- North – Cuka Kanal, motorway connecting the village of Cuke with Dritas and Pllaka;
- In the East – Connecting part'Pllakë-Murrsi', which crosses the Mile Mountain
- South – Murrsi – the southern border with Greece;
- West – From Bistrica Estuary (Cuka Canal) up to the state border with Greece, including the islands of Ksamil and Stillo, reaching 1 km deep in the Ionian Sea.

Based on 'Natura 2000' the southeastern catchment basin of Janjar reservoir within Greek territory is highly sensitive because it is a protected area classified as SPA Birds Directive Sites "ORI TSAMANTA, FILIATON, FARMAKOVOUNI, MEGALI RACHI (SiteCode: GR2120009), Area: 19.861.85 ha. The map below shows the location of the project scheme related to the protected area.

[9] Spatial ata are collected by National Geoportal Information (ASIG). These data are generated by the relevant authorities and Ministries. Where possible, data has been improved by considering alternative data sources, such as Orthophoto 2015. Then the data has been processed by GIS expert of GR ALBANIA Company.

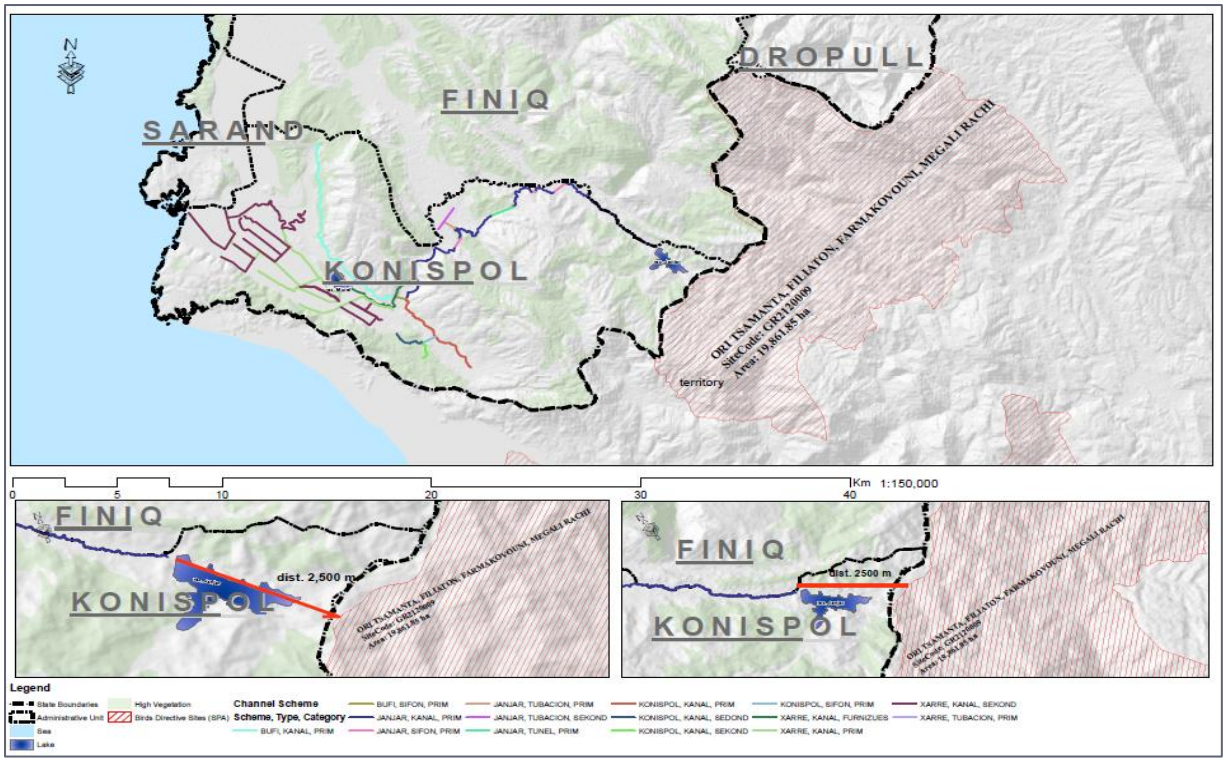

Figure 14: Protected area GR120009 near Janjari reservoir [10]

Protected area GR120009, which is the dividing boundary the reservoir (Albanian part),is a protected habitat for birds. During field visits, birds of different species were identified and their main habitats were the reservoir. This protected area will not be affected by the project, because Janjari dam and the rehabilitation works related to it are 2 km away from the protected area border. (Figure as above).

The data for Nature and cultural monuments, protected areas, were obtained from the official website of the National Agency of Protected Areas and ASIG and were processed by the G.I.S expert of Consultant Company.

5.10 Nature Monuments

Regarding list of natural monuments published by National Agency of Protected Areas (AKZM), in the area near the project area there are these natural monuments. For the presentation of maps related to nature monument the scheme will be divided into 4 parts: a- Janjar b- Bufi c Xarra d- Konispol.

[10] Source : https://natura2000.eea.europa.eu/

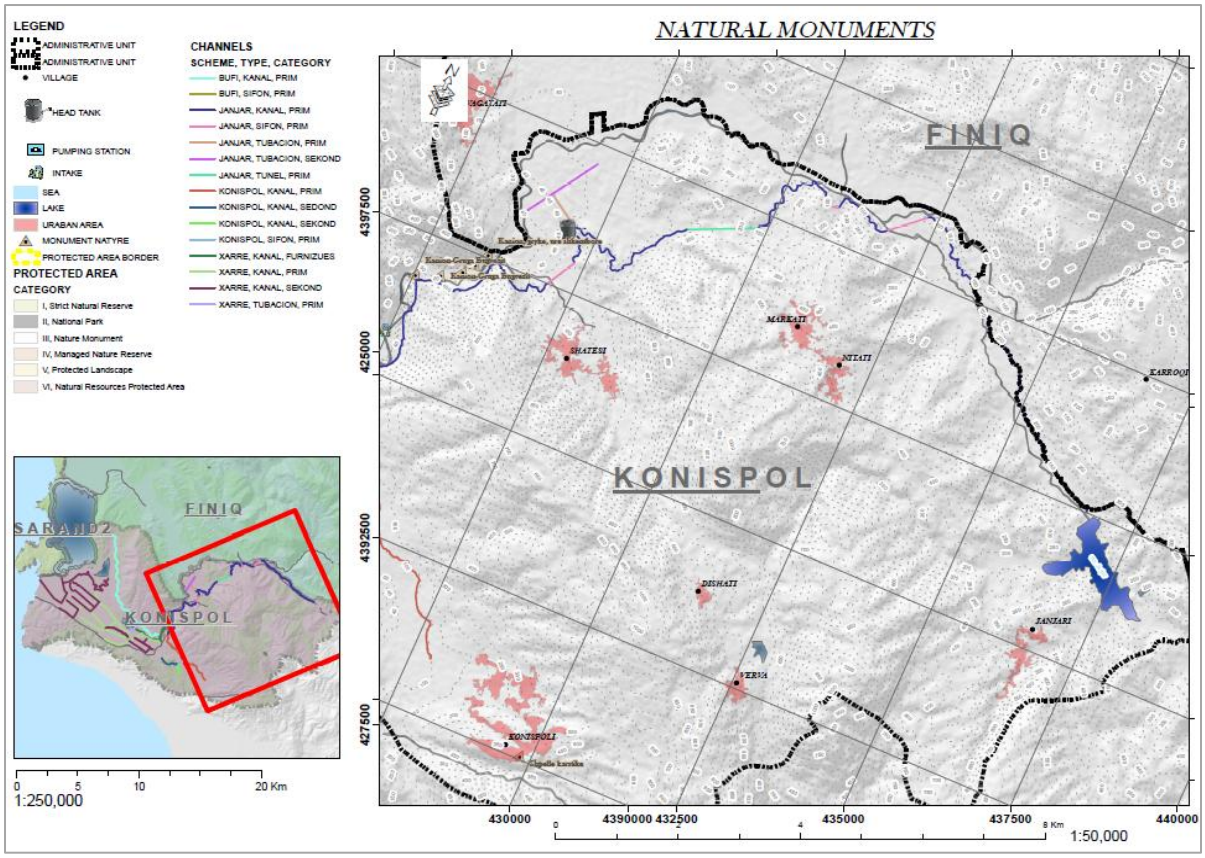

Figure 15: Janjar nature monuments

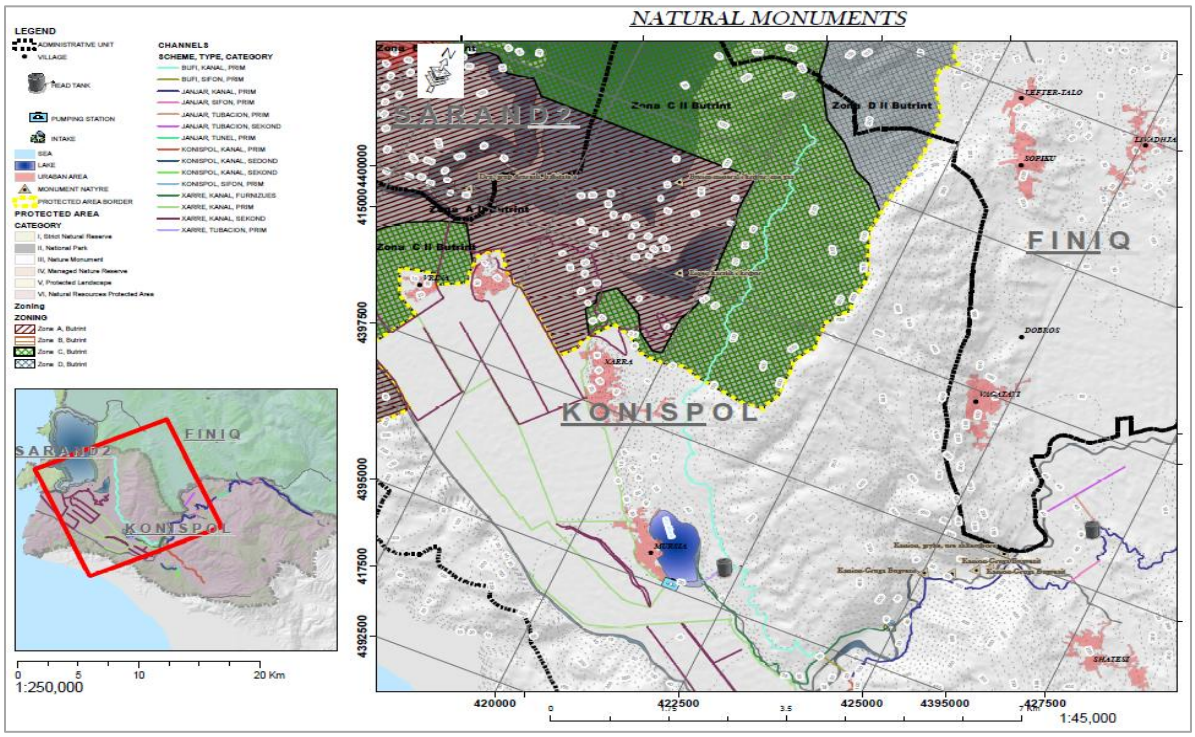

Figure 16: Nature monuments- Bufi

The nearest point of nature monuments and project area is the canyon Gruga-Bugvezit (distance approximately 30 m with project).

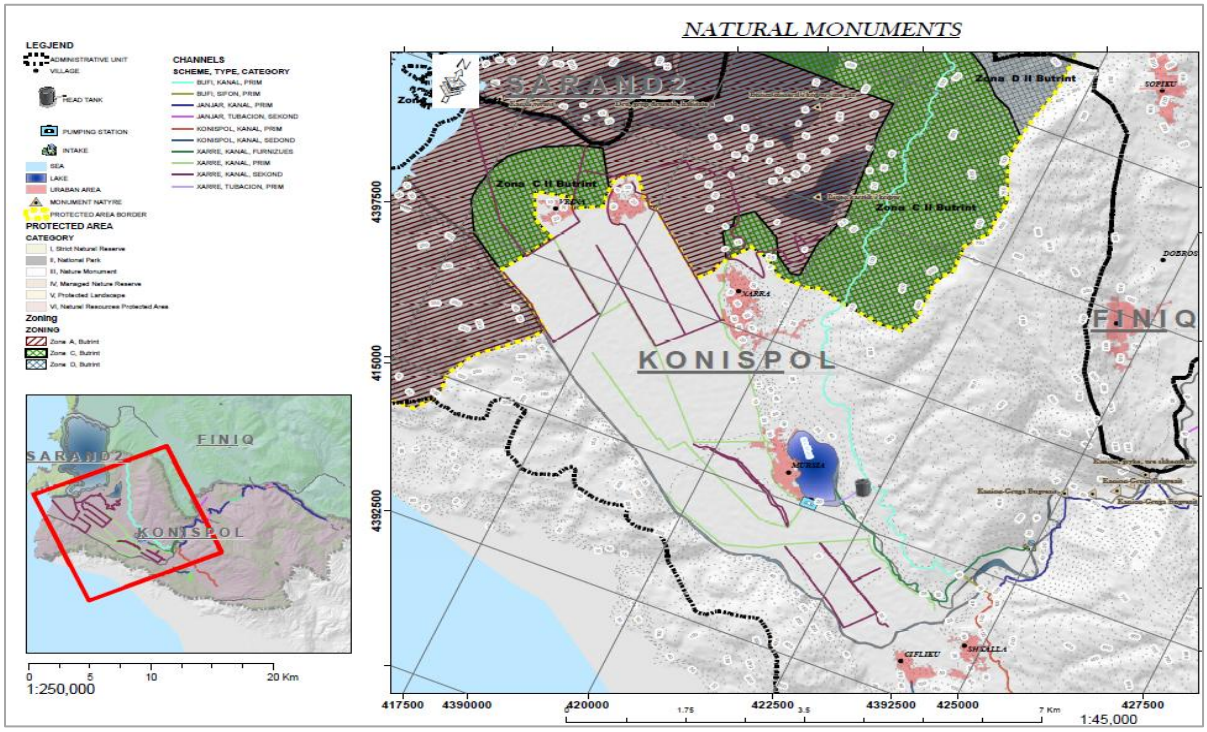

Figure 17: Xarra nature monuments

NATURAL MONUMENTS

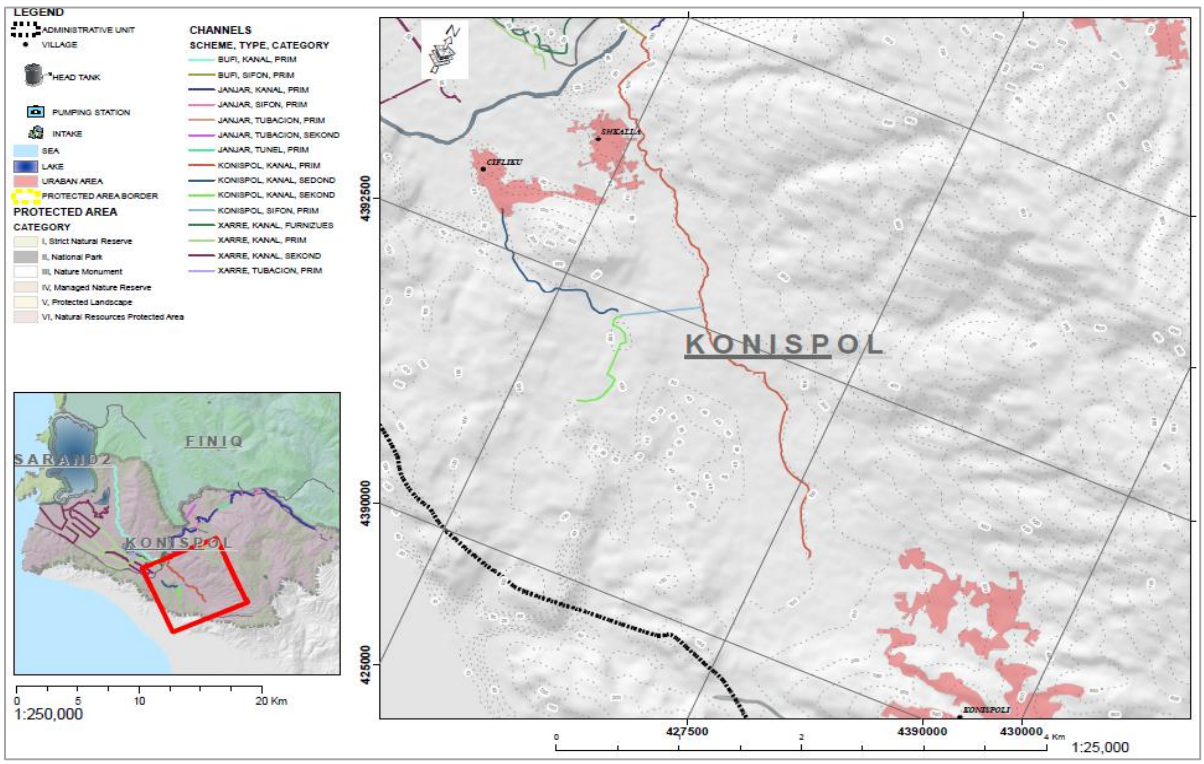

Figure 18: Nature Monuments - Konispol

5.10.1 Culture Monuments

According to the list of Cultural Monuments 2017, published by the Institute of Cultural Monuments (ICM) as below are presented the cultural monuments nearby the project.

As can be seen in these maps, the scheme passes nearby several cultural monuments such as:

• Malathresë Castle (Bufi), the project distance from the buffer zone is 80 m (not affected by the project).

• Cuka Castle (Konispol), although the scheme on the map looks like it's passing by, it does not affect it as there is a significant difference in elevation (elevation difference = 150m).

• Ruins of Ciflik Church, the distance from the buffer zone is 5 m from the secondary channel, and the bottom of the canal affects the buffer side area. (The secondary channel route will be in the existing one).

While the secondary channel of Xarra passes through the area of the culture monument 'Ruins of water supply'.

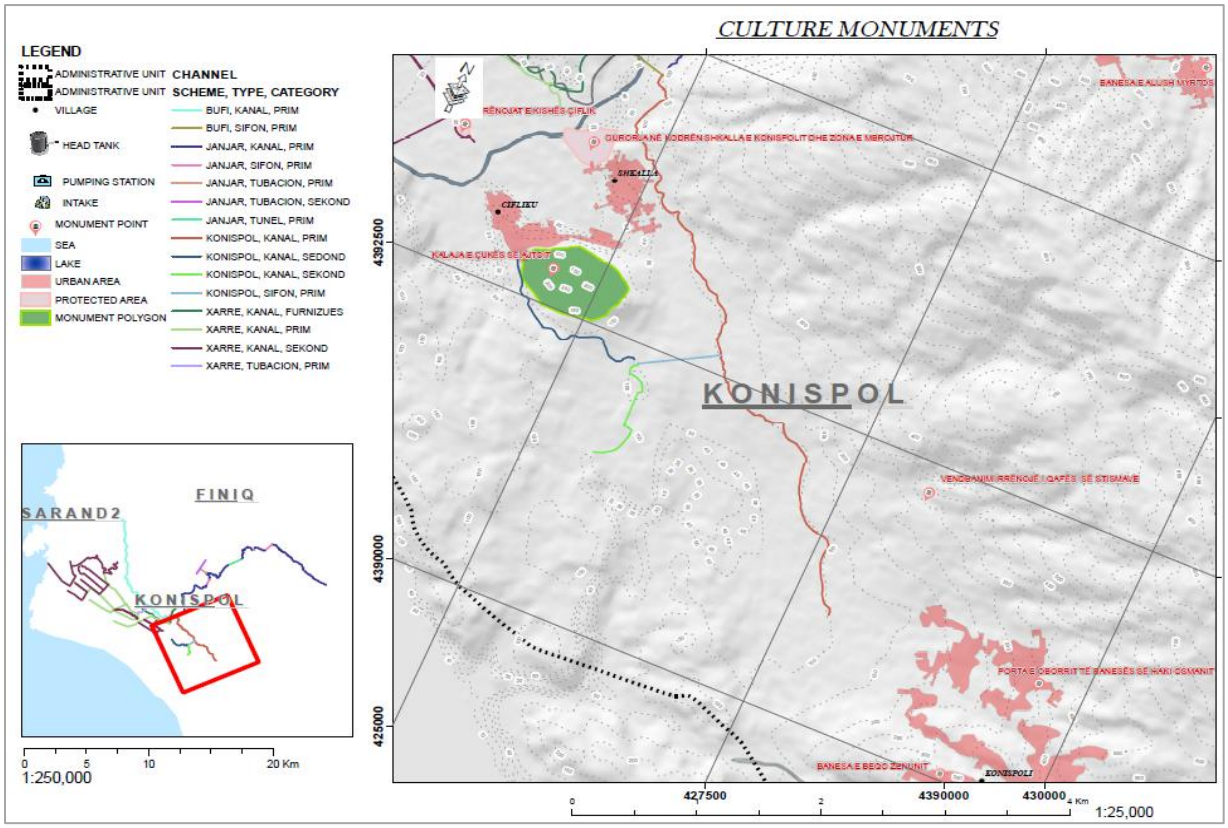

Figure 19: Konispol cultural monuments

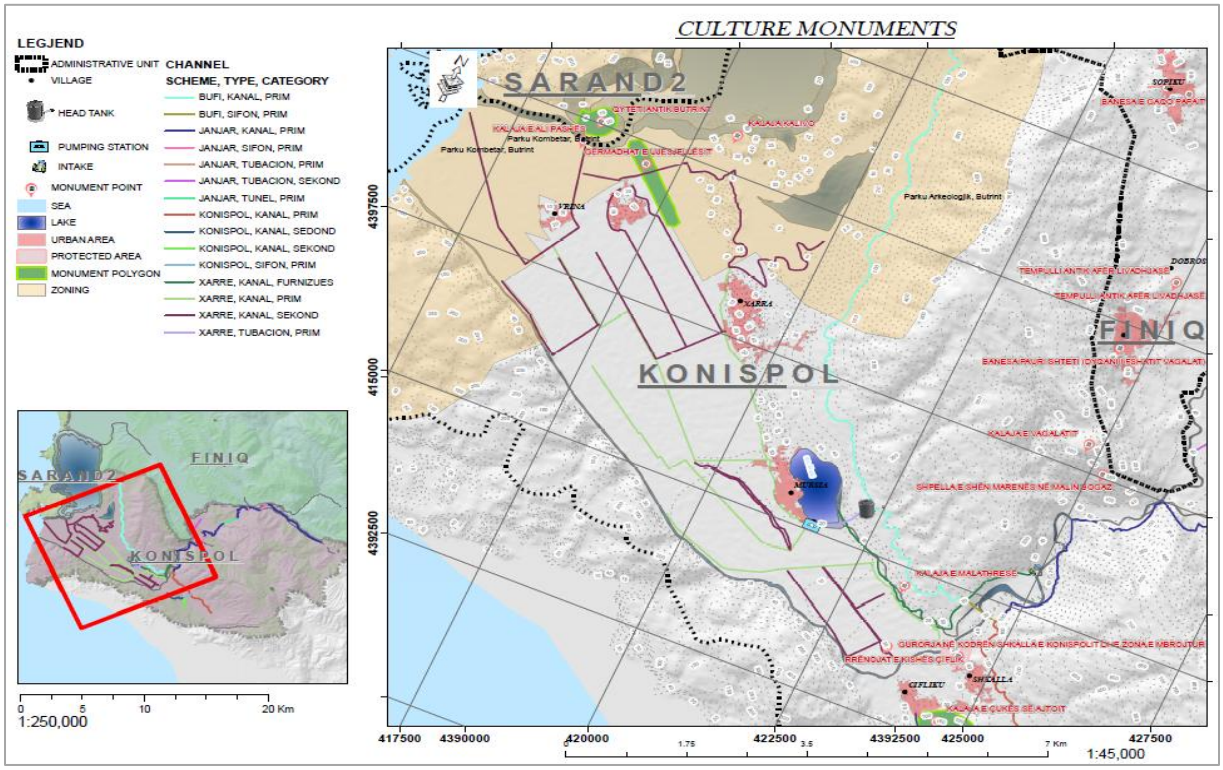

Figure 20: Xarra cultural monuments

- The secondary channel of the project (Option 3) passes through the cultural monument 'The ruins of Water Supply' (typology: Roman water supply), announced by decision No. 06, Date 15.01.1963. Protection status: Category I.
- Xarra's secondary canal is 5 m away from the buffer zone and the bottom part of the canal affects the buffer side area of the 'Ciflik Church Ruins' monument. Status of protection: Category I. Ordinance, Date 08.01.1977. The map below shows the outline position and proximity to the monument.

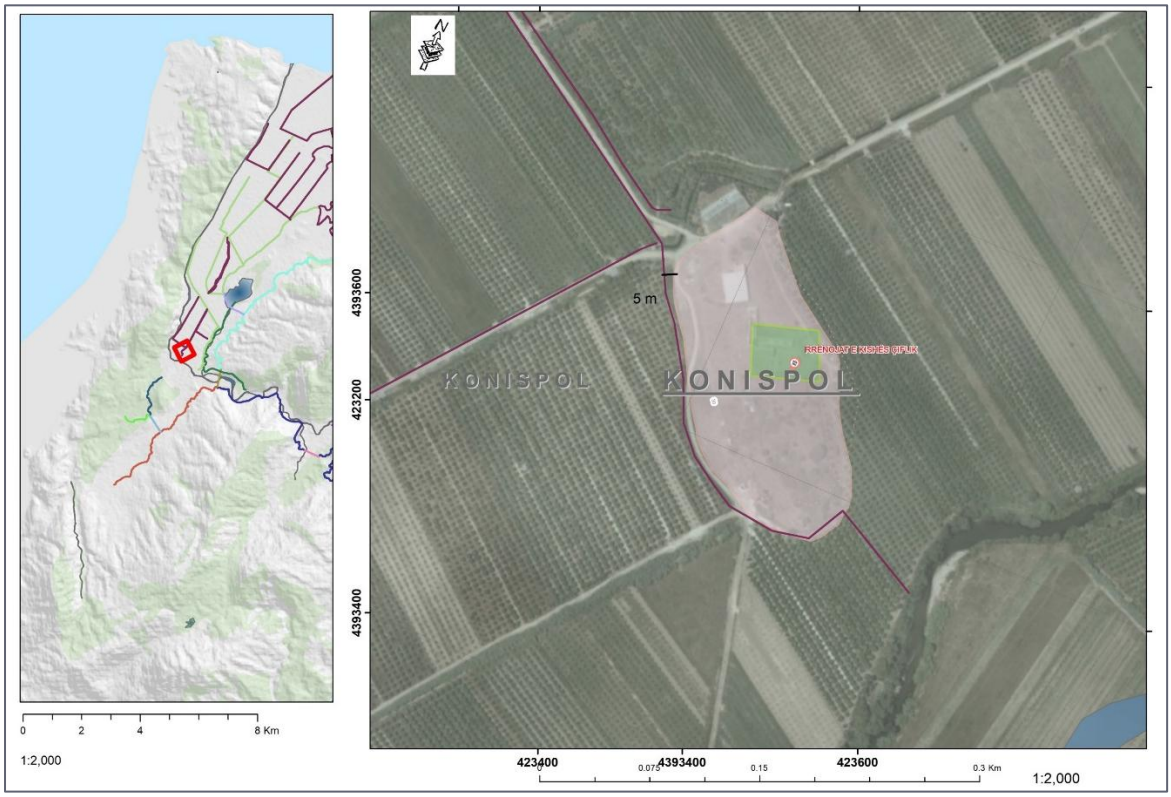

Figure 21: Secondary Channel Distance to Culture Monument: Ruins of Ciflik Church

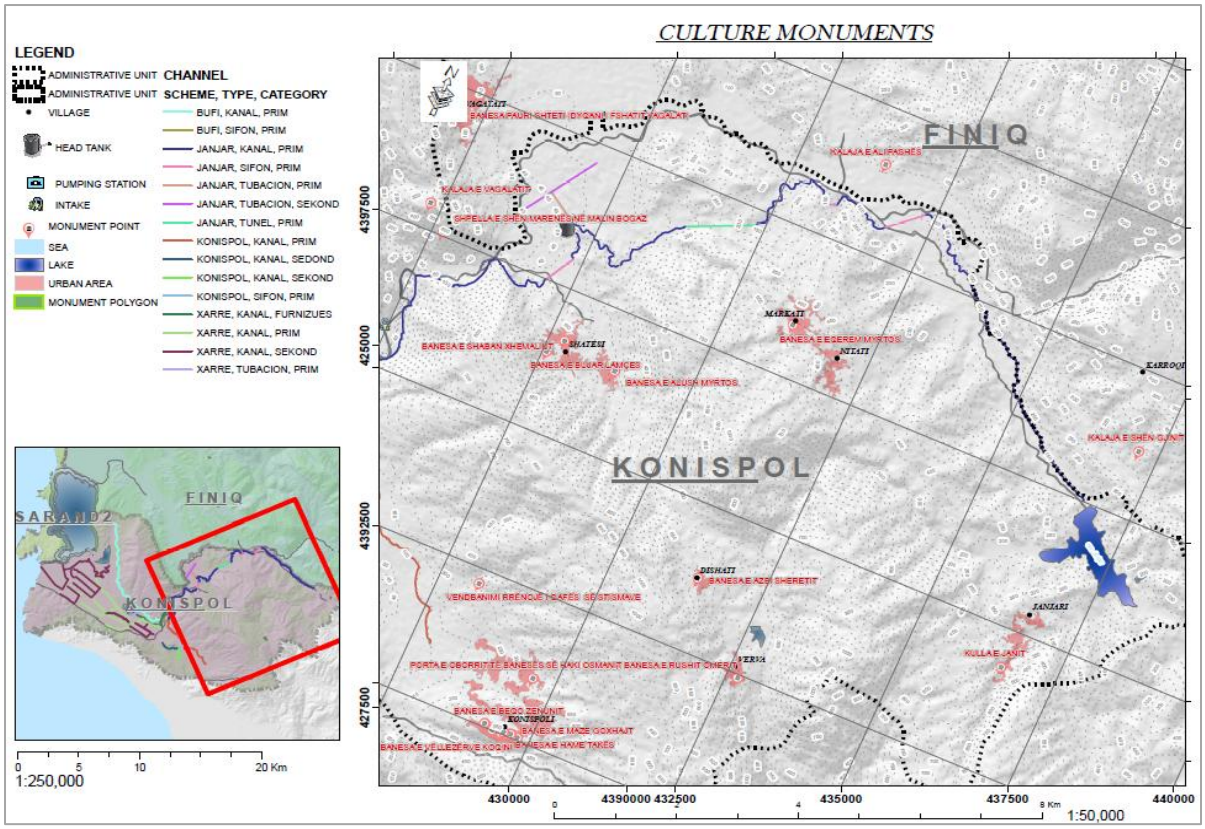

Figure 22: Janjar cultural monuments

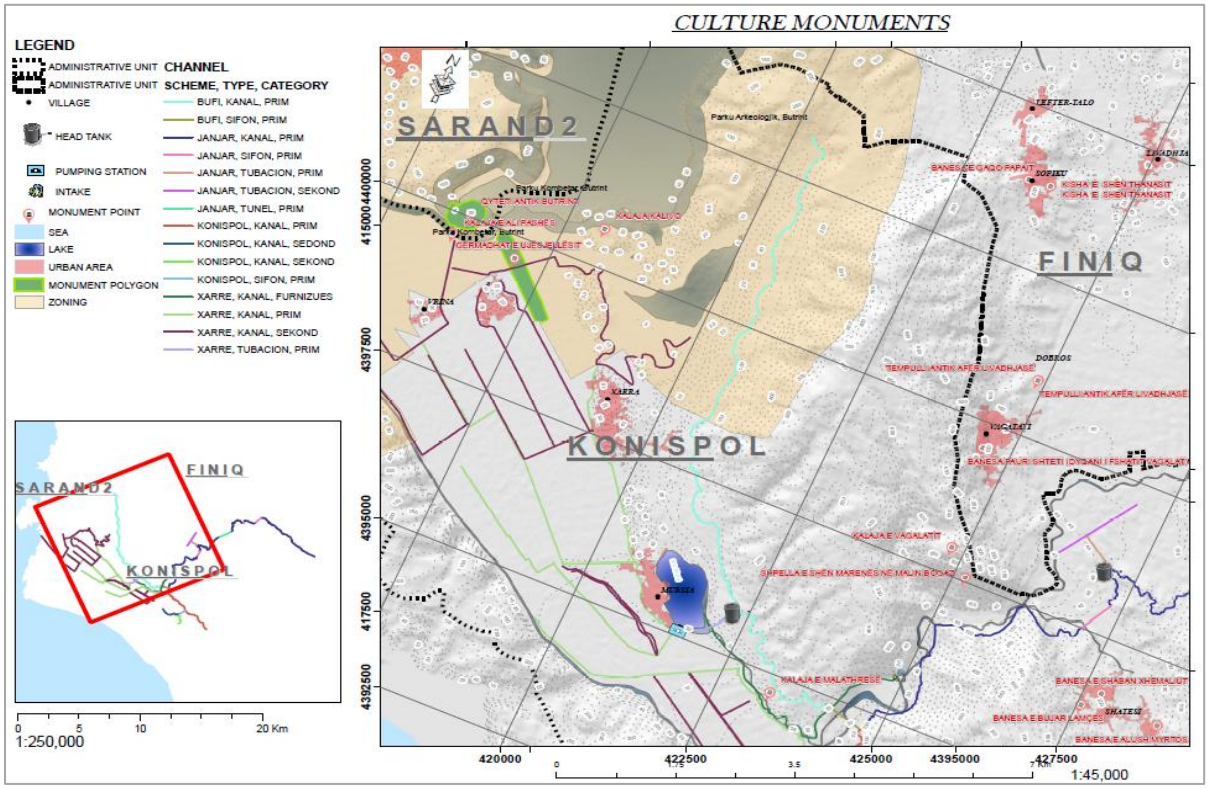

Figure 23: Bufi cultural monument

6 SOCIO-ECONOMIC CHARACTERISTICS

6.1 DEMOGRAPHY

According to the 2023 Population and Housing Census, Albania's total population fell to 2,402,113, a decline of approximately 14% compared to the 2011 census This trend underscores significant demographic pressures due to reduced fertility and continued migration.

- **Konispol Municipality – Census 2023 Results**

Based on the 2023 census, the total population of Konispol Municipality (including Konispol, Markat, and Xarrë administrative units) stands at 4,989 inhabitants, down from 8,245 in 2011 — a sharp decrease of around 40%.

Table 2: Population by Administrative Unit (2023 and 2011)

Administrative Unit	2011 Census	2023 Census
Konispol (town)	2,123	1,758
Markat	1,859	1,489
Xarrë	4,263	1,651
Total Municipality	8,245	4,989

This demographic contraction differs markedly from previous trends and reflects a broader national pattern of depopulation, especially in rural and peripheral municipalities.

Implications for Planning

- Population projections for 2024–2025 must be revised downward to reflect the 2023 census findings. Previous projections likely overestimated future population and should be adjusted or supplemented with sensitivity analysis.
- Infrastructure and service planning (e.g., irrigation, health, education) should consider reduced population size and density, ensuring resource allocation remains appropriate and cost-effective.
- Stakeholder engagement and livelihoods analysis must adapt to a smaller and potentially aging population, placing emphasis on sustainability and resilience.

6.2 LEVEL OF EDUCATION

According to INSTAT 2023, Albania's education system continues to experience a gradual decline in student enrollment, a trend also reflected in smaller municipalities such as Konispol. At the national level, the 2023–2024 academic year recorded 533,711 students enrolled in formal education, a decrease of 3.7% compared to the previous year. The 2023 Census revealed that 317,213 individuals aged 6 and above were attending pre-university education, compared to 349,827 students registered

in official records. This 9.3% gap suggests the presence of dropouts, unreported migration, or discrepancies in administrative data.

For nine-year education (primary and lower secondary combined), INSTAT data indicated 258,000 students, while the census counted 231,000, reinforcing concerns about under-enrollment. Teacher-to-student ratios at the national level are 15.1 in public primary education, 7.9 in nine-year education, and 11.5 in upper secondary schools. In addition, 23.3% of young people aged 15–24 are classified as NEET (Not in Education, Employment, or Training), with the proportion even higher among young women (25.2%).

In Konispol Municipality, while specific disaggregated data are not yet available, it is likely that these national patterns are mirrored or even more pronounced due to the area's rural character, population decline, and migration trends. Konispol town hosts primary and lower secondary education facilities, including bilingual instruction in Albanian and Greek, reflecting the municipality's multicultural composition. Smaller satellite schools may exist in administrative units such as Markat and Xarrë, but upper secondary and tertiary education typically require travel to larger urban centers, creating potential barriers to continued education.

The combination of declining youth population, limited access to higher education locally, and migration-driven demographic shifts poses challenges for sustaining educational participation rates. These factors also have implications for project-related activities, such as training programs and capacity building for local water user associations.

Strengthening the education baseline for Konispol would benefit from direct engagement with the Municipal Education Directorate to obtain updated data on current enrollment by level, teacher numbers, completion rates, and dropout trends. This would allow for more precise socio-economic planning and better alignment of irrigation system improvements with the community's human capital needs.

6.3 EMPLOYMENT SITUATION

In Q4 2023, Albania's employment rate for ages 15–64 was 66.7%, up 0.2 percentage points year-on-year. Youth unemployment (15–24 years) remains high across the country, although there has been gradual improvement in recent years[11]. Labor force participation in rural areas, especially in southern prefectures like Gjirokastër (where Konispol is located), typically trends below urban levels. Employment rates are also generally higher for males compared to females.

Konispol is recognized as an agricultural hub known as Albania's "queen of tangerines" with a significant portion of the workforce engaged in seasonal and cross-border work (especially in Greece) in agriculture, construction, and tourism services. Given its rural setting and proximity to Greece, Konispol likely experiences:

- A labor force participation rate below the national average, influenced by migration and aging demographics.
- A gender employment gap, with women less likely to be formally employed.

[11] uet.edu.al

- High seasonal employment flows especially cross-border labor that may not be fully captured in formal employment statistics.

6.4 ECONOMIC AND SOCIAL SITUATION

Konispol Municipality, located at the southernmost point of Albania, presents a socio-economic profile strongly shaped by its agricultural base, cross-border position, and rural demographic characteristics. According to INSTAT (2023), Albania's national labor force participation rate stands at 64.1%, with a persistent gender gap—70.3% for men compared to 58.1% for women. The economically inactive population, which includes students, retirees, and discouraged job seekers, accounts for 35.9% of the working-age population. While employment levels have shown gradual improvement at the national scale, rural areas such as Konispol typically record lower formal employment, higher reliance on seasonal or informal work, and elevated youth unemployment rates.

The municipality's economy is dominated by high-value agriculture, particularly the cultivation of mandarins and olives, which represent its main sources of income. The agricultural cycle creates strong seasonality in labor demand, with many residents engaging in informal or temporary work both locally and across the nearby border with Greece. Cross-border employment opportunities, while providing additional income, also contribute to fluctuations in local labor availability and the predominance of short-term economic strategies.

Although specific municipal-level poverty statistics are unavailable, regional data and field observations suggest that income levels in Konispol are below the national average, reflecting the challenges faced by rural municipalities in Albania. Limited diversification beyond agriculture, combined with structural issues such as underdeveloped value chains, constrained market access, and aging infrastructure, restrict economic resilience. Youth unemployment remains a concern, with a notable proportion of young people not engaged in education, employment, or training (NEET), mirroring broader rural trends in the country.

Overall, the economic and social conditions in Konispol Municipality indicate a strong dependence on agriculture, vulnerability to seasonal and market fluctuations, and a need for targeted interventions to diversify the local economy, improve infrastructure, and enhance human capital. These factors should be carefully considered in project planning to ensure that development initiatives, including irrigation rehabilitation, align with local livelihood patterns and contribute to long-term socio-economic sustainability.

6.5 AGRICULTURE IN PROJECT AREA

Albania remains a predominantly mountainous country with a total area of 28,750 km², of which approximately 24% is agricultural land, 36% forest, and 15% pasture and meadow. The remaining 25% consists of urban settlements, lakes and waterways (about 135,000 ha), and unused rocky or mountainous terrain. The average per capita agricultural landholding—only 0.2 hectares—is among the smallest in Europe. Agriculture continues to serve as a core livelihood source and an informal safety net for rural households.

The sector is a vital pillar of the national economy, contributing over 17% to GDP and employing an estimated 57–58% of the total workforce (INSTAT, 2023), though much of this is seasonal or informal. While urbanization is gradually reducing the share of rural residents, agriculture remains socially and

economically significant, particularly in southern municipalities like Konispol where farming is the primary income source. With strategic policies, infrastructure upgrades, and modernized practices, the sector holds potential to drive competitiveness and export growth, especially in niche, high-value crops.

However, structural challenges remain persistent:

- Farm Structure – Highly fragmented plots, averaging around 1.3 ha per farm, limit economies of scale and mechanization.
- Infrastructure Gaps – Outdated irrigation networks, rural road limitations, and insufficient storage/processing capacity reduce efficiency and market competitiveness.
- Productivity – Low technological adoption and outdated cultivation methods constrain yields and quality.
- Trade Balance – Albania remains a net importer of agri-food products, with an export-to-import ratio still far from balanced, though gradual improvement is seen in citrus, olives, and vegetable exports.

- **Land Use and Topography**

More than 75% of Albania's landmass is hilly or mountainous, with an average altitude of 708 m—double the European mean. About 44% of arable land lies in the plains, 37% in hilly zones, and 19% in mountainous terrain, the latter often of low fertility. The coastal plains, including the fertile Konispol area, benefit from deep alluvial soils suited for horticulture, particularly citrus.

- **Soil Characteristics**

Nationally, five major soil types are identified: grey-brown lowland soils (up to 600 m), brown mountain soils (600–1000 m), grey forest soils (1000–1800 m), mountain meadow soils (1600–2600 m), and sandy soils with poor water retention. In Konispol's Xarra region, soils vary from skeletal and sandy-clay textures to fertile alluvial deposits. The upper slopes feature brown pasture soils of moderate fertility, while lowland meadows with dark grey-brown soils contain high humus and macro-element content, notably nitrogen and phosphorus. Peripheral areas with skeletal soils have limited agricultural potential without amendment.

Konispol Agricultural Profile

Konispol is one of Albania's most productive citrus-growing zones, with mandarins as its flagship product. Olive cultivation, vegetable farming, and small-scale livestock complement the local economy. The municipality's location near the Greek border facilitates cross-border trade but also exposes farmers to market volatility and labor migration pressures. Soil and climate conditions are generally favorable for diversified, high-value horticulture, but long-term sustainability depends on irrigation modernization, soil conservation, and the adoption of climate-smart practices.

6.5.1 Main Inputs in use (pesticide usage)

For the crop models used in the financial and economic analysis, inputs (such as pesticide and fertilizers, water, labor, tractor services) for each crop have been estimated based on discussion with

farmers and data from the relevant authorities for each scheme. The reader is referred to Appendix E for the crop models which provide the best estimate of inputs for each crop.
Since 1991 there has been limited use of fertilizer, this has resulted in the reduction of organic content, nitrogen, and potassium levels in the soil compared to 20 years ago. Wasteful cultivation practices and poor soil conservation practices have also caused soil degradation. Before 1990, 150-160 kg/ha of active matter (NPK) and 8 tons/ha/year of organic manure was added to fertilize arable lands. After 1990, statistic data shows that 70-80kg/ha/year of NPK chemical fertilizer was used and 1.6 ton/ha/year of organic manure. Principal fertilizers used are DAP, "nitrate" and urea which are mainly sourced locally together with crop protection chemicals. Potassium fertilizer is required as indicated by soil analyses, but is not used. Nitrogen is used on alfalfa but this is not normally required. Nutrient applications are made in the main without any up to date knowledge of individual field fertility status. A considerable range of crop protection chemicals are observed to be available; but the exact nature, target crops and methodology of usage is not known.

6.5.2 Crop pattern and Agriculture practices

In the fertile landscapes of the Xarrë region, including Konispol and parts of the Finiqi Local Units, agriculture remains the backbone of rural livelihoods, but its character is shaped by the land's unique conditions. While in much of Albania smallholder farmers still cultivate the classic staples wheat, maize, forage crops like alfalfa, and a variety of vegetables here, citrus reigns supreme. Vast stretches of orchards are covered in mandarins, lemons, and oranges, varieties carefully selected over the years for both quality and high yields. The reputation of Konispol's citrus now extends beyond Albania's borders, with growing demand in domestic and export markets. Many farmers have adopted advanced cultivation practices, including drip irrigation systems, to cope with the region's hot, dry summers and to sustain the high-water needs of citrus trees.

Alongside citrus, smaller plots are devoted to vegetables tomatoes, cucumbers, peppers, and eggplants in the summer, cabbages, leeks, onions, and potatoes in cooler months. These are grown both in open fields and in greenhouses, where tomatoes dominate. Most of this produce is consumed locally, but some finds its way to hotel kitchens, catering to the area's tourism trade, or to nearby markets.

Pastures remain vital to livestock owners, providing feed for much of the year. Both natural grasslands and cultivated pastures, including rotations with alfalfa, support cattle, sheep, and other animals. Alfalfa, well-suited to the area's soils and climate, is cut several times a year for hay and grazed in winter, although there is still room to improve nutrient management.

Cereal cultivation especially wheat in winter and maize in summer continues in smaller pockets. Wheat is valued for bread and feed, while maize serves as grain for pigs, poultry, and horses, and as green silage for ruminants. Though these grains are less prominent than citrus in Konispol, they remain an important part of the mixed farming systems that sustain households.

By 2024–2025, Konispol's agricultural identity is firmly anchored in citrus production, supported by a mosaic of vegetables, cereals, forage, and pastures. The combination of traditional knowledge, selective adoption of modern irrigation, and the area's climatic advantage for citrus ensures that farming here is not only a means of subsistence, but also a growing source of market-oriented income.

6.5.3 Water demand

Based on the data collected during the field visits, data from different sources, the exchanges with local specialists and our experience, and the parameters of the soil and climate conditions, the water demand have been calculated for each scheme.

Reservoir Capacity (Janjar- 15.2 Mm3), (Mursi 4.5 Mm3)-(design)
Estimated - 19.7 Mm^3 (actual)
Design Irrigation Area 5500 - ha
Of this Gravity fed - 5500 ha
Of this Pumped - 0 ha
Current Irrigated Area Estimated - 1600 ha

Table 3: Crops -Water demand

No	Crops	Actual		Estimated		Water m^3/ha	Water requirements m^3
		Surface in ha	Yield ton/ha	Surface in ha	Yield ton/ha		
5.	Orange/Mandarin Trees	2000	40	2600	55	5500	14300000
6.	Olive trees	560	4,7	640	5,2	3400	2176000
1.	Maize	1350	6	930	8	4200	3906000
2.	Potatoes	50	27	40	32	3600	144000
3.	Vegetable	520	35	520	45	4600	2392000
4.	Forage	820	35	520	41	4200	2184000
7.	Vineyard	200	12,4	250	15,3	3600	900000
	Total	5500	143	5500			26002000

7 IDENTIFICATION OF THE SOCIAL AND ENVIRONMENTAL IMPACTS

7.1 METHODOLOGY FOR IMPACT ASSESSMENT

An impact is any change to a resource or receptor brought about by the presence of a project component or by the execution of a project related activity. The evaluation of baseline data provides crucial information for the process of evaluating and describing how the project could affect the biophysical and socio-economic environment.

Impacts are described according to their nature or type, as summarised in the table below:

Table 4: Impact Definition

Nature or Type	Definition
Positive	An impact that is considered to represent an improvement on the baseline or introduces a positive change.
Negative	An impact that is considered to represent an adverse change from the baseline, or introduces a new undesirable factor.
Direct impact	Impacts that result from a direct interaction between a planned project activity and the receiving environment/receptors (e.g. between occupation of a site and the pre-existing habitats or between an effluent discharge and receiving water quality).
Indirect impact	Impacts that result from other activities that happen as a consequence of the Project (e.g. in-migration for employment placing a demand on resources).
Cumulative impact	Impacts that act together with other impacts (including those from concurrent or planned future third-party activities) to affect the same resources and/or receptors as the Project.

7.2 POTENTIAL IMPACTS DURING CONSTRUCTION PHASE/OPTION 3, LOT 2

Based on the feasibility study detailed design for the Janjari system, including Janjari's canal, Konispol irrigation scheme, and Janjari & Mursi dams, option 3 is the selected option. The rehabilitation works provided for in the selected option are:

- ✓ Rehabilitation of Janjari's main canal, structures and its secondary canals.
- ✓ Rehabilitation of the Konispol Canal.
- ✓ Construction of a pressure tank at the entrance of Shalsi's fields and construction of Shalsi's fields pipeline network to convert the system with pressure.
- ✓ Rehabilitation of Bufi's main canal and construction of the pressure network in secondary canals.
- ✓ Construction of the pressure tank and the primary and secondary pipeline network of Mursi's, Vrina and Xarra fields.
- ✓ Construction of the auxiliary pumping station at the exit of the intake structure of Mursi's reservoir.
- ✓ Construction of the Bay-pass at the pumping station for the construction of an electricity production line.
- ✓ Construction of the new electricity line

Most of the works have been completed in lot 1 and are functional, in this phase in lot 2, it is planned to carry out works for the construction of the main and secondary pipeline network of the Mursi, Vrina and Xarra fields.

The foreseen rehabilitation and construction works can cause negative impacts on the biotic and abiotic environment.

The project area also has a high environmental and social sensitivity. The Delta of the Xarra fields canals is located within the Butrint National Park. The whole project area, based on the cultural monuments and the archaeological findings, presents a high value and sensitivity.

Identifying the sources that can cause possible negative impacts, is one of the main objectives of the Environmental Menagement Plan. Based on these sources, will be realized the identification of the possible negative impacts, which should be also evaluated for their impact and accumulation level. While defining the mitigation measures and their effectiveness for reducing the possible negative impacts is another important objective that should be met in this study.

Above are presented the sections of the irrigation scheme of the project in which rehabilitation and construction works will be carried out for the implementation of the project. In each of the sections, works of different types are foreseen in order to achieve the main purpose of the operation of the Janjar irrigation scheme.

To identify the sources that may cause negative impacts, the type of works that will be implemented in each section will be analyzed.

Based on the technical report of the selected option (option 3), the type of the foreseen works is classified as follows:

• Rehabilitation of the existing Mursi scheme, converting to pressurized irrigation system

The development of the abovementioned works may cause potential impacts on the environment and there are the environmental and social indicators that identify the impact. The following table shows the environmental and social indicators.

1. Environmental indicators	2. Social indicators

Surface water Soil Flora Fauna Air Noise Nature Protected Area	Cultural monuments Access roads Cultivations Community's safety

7.3 DEVELOPMENT OF THE REHABILITATION WORKS OF JANJARI'S IRRIGATION SCHEME

Rehabilitation works will take place in:

- Rehabilitation of the main and secondary pipeline network of the Mursia, Vrina and Xarra fields.

The irrigation canal network of the Mursia reservoir is composed of two main irrigation canals V1, V2 and secondary canals.

Referring to the technical project report and estimates for option 3, the rehabilitation of the Mursi scheme includes the following works:

- Cleaning the canal from existing vegetation.
- Manual excavation.
- Excavation with 0.5 m³ excavator.
- Transport of excavated material up to 5 km.
- Concrete cracking.
- Laying of main and secondary pipelines.

Feasibility Option 3 also foresees the construction of new works of the following types:

- Construction of the Reservoir

A storage tank will be built in the Bufi canal at an altitude of 84m above sea level, which will serve to supply the internal network of Mursia with pressure. The storage tank will have a volume of 1800 m3 (30x30x2) which will serve to charge the scheme for 20 minutes. The storage tank will be connected to the main Bufi canal and will be supplied by it.

- Construction of the main and secondary pipeline network of the Mursia, Vrina and Xarra fields.

7.4 IMPACT ON WATER QUALITY

7.4.1 Impact during the rehabilitation activities

The rehabilitation and modernization work proposed for the Janjar and Mursi Irrigation Schemes have the potential to temporarily affect water quality in the project area during the construction phase. Although the current baseline assessments indicate that both reservoirs provide water of suitable quality for agricultural purposes, construction activities if not properly managed could introduce pollutants, sediments, or other contaminants that degrade water quality and compromise irrigation suitability.

The most significant potential impact arises from increased sediment loads and turbidity. Earthworks, canal desilting, and excavation along canal banks may loosen soils and result in runoff into the reservoirs and canals, especially during rainfall events. Elevated turbidity can reduce water clarity, affect aquatic life, and lead to clogging of pressurized irrigation equipment.

Another concern is the risk of contamination from oil, fuel, and lubricants associated with construction machinery and on-site equipment maintenance. Even small hydrocarbon spills can adversely affect water quality, alter taste and odor, and damage crop health if irrigation water becomes contaminated. Similarly, improper handling or disposal of construction materials such as concrete, cement wash water, and aggregates may alter pH levels and increase suspended solids in the water.

Temporary worker camps and construction sites may also generate domestic wastewater and solid waste. Without adequate sanitation and waste management, this could lead to nutrient enrichment and microbial contamination, posing risks to crops and downstream users. In addition, dredging or excavation in older canals could disturb sediments that may contain historical pollutants, releasing them into active water channels.

To mitigate these risks, the project will adopt best-practice environmental management measures, as outlined in the Environmental and Social Management Plan (ESMP). These include installing sediment control structures such as silt fences and settling ponds, confining refueling and maintenance to designated areas with secondary containment, ensuring proper storage of materials away from watercourses, and providing appropriate sanitation facilities for workers. Regular environmental monitoring will be conducted, measuring parameters such as turbidity, pH, dissolved oxygen, hydrocarbons, and microbial indicators at key points within the irrigation network.

By implementing these measures, the project aims to ensure that any adverse impacts on water quality during construction are minimized, temporary in nature, and fully reversible, safeguarding both the irrigation supply and the long-term productivity of the agricultural lands served by the Janjar and Mursi schemes.

Table 5: Water Quality Impact Assessment – Construction Phase

Criteria	Assessment
Magnitude	Medium – Potential for increased turbidity, sedimentation, and localized chemical contamination; effects likely noticeable without mitigation.
Duration	Short-term – Impacts expected only during active construction works; water quality should return to baseline soon after completion.

Extent	Local – Impacts limited to reservoirs, canals, and immediate downstream areas near work sites.
Reversibility	Reversible – With effective mitigation and post-construction stabilization, no long-term degradation expected.
Sensitivity of Receptor	High – Irrigation water serves high-value crops (mandarins), making quality changes potentially significant to livelihoods.
Likelihood	Possible – Likely to occur without mitigation but preventable with proper environmental management practices.
Overall Significance (Unmitigated)	Moderate – Could temporarily affect crop irrigation water quality and operational efficiency if not managed.
Residual Significance (Mitigated)	Low – With sediment control, spill prevention, sanitation measures, and monitoring, impacts are minimal and manageable.

7.4.2 Impacts during the operation activities

Once the Janjar and Mursi Irrigation Schemes are rehabilitated and brought into full operation, maintaining good water quality will be essential to sustain agricultural productivity, particularly for the high-value mandarin orchards and other crops that depend on these systems. Under normal operating conditions, the reservoirs and distribution networks are not expected to generate significant water quality impacts, as both sources have historically provided water suitable for irrigation. However, operational practices, maintenance regimes, and land-use activities within the command areas can influence water quality over time.

Potential risks during the operation phase primarily relate to the accumulation of sediments or organic matter in canals, nutrient enrichment from fertilizer runoff, pesticide or herbicide contamination from agricultural activities, and the potential for algal growth in stagnant sections of the reservoirs. While these risks are generally low with proper system management, they could become more pronounced if maintenance and monitoring are neglected. The sensitivity of the irrigated crops to changes in water quality makes proactive management crucial.

A structured operational water quality management program integrating routine monitoring, farmer training, and preventive maintenance will help ensure that water remains within acceptable quality standards, safeguarding both crop yields and the long-term sustainability of the irrigation infrastructure.

Table 6: Impact assessment on water quality during operation phase

Criteria	Assessment
Magnitude	Low – Routine irrigation operations are not expected to significantly alter water quality; risk mainly from poor maintenance or improper agrochemical use.
Duration	Long-term (chronic risk) – Impacts could occur gradually over years if management lapses, but not inherent to normal operation with proper practices.

Extent	Local to regional – Limited to irrigation canals, reservoirs, and downstream agricultural fields.
Reversibility	Reversible – With corrective action (e.g., cleaning canals, adjusting chemical use), water quality can be restored.
Sensitivity of Receptor	High – The scheme supports high-value crops (mandarins) sensitive to water contamination.
Likelihood	Unlikely – If maintenance schedules, water quality monitoring, and good agricultural practices are followed.
Overall Significance (Unmitigated)	Low to Moderate – Risk increases if maintenance, monitoring, and farmer training are neglected.
Residual Significance (Mitigated)	Low – With regular maintenance, agrochemical management, and monitoring, impacts are minimal and within acceptable limits.

7.5 IMPACT ON SOIL QUALITY

7.5.1 Impacts on soil quality during the construction activities

The rehabilitation of the Janjar Scheme's canals and associated infrastructure will take place entirely within the existing footprint of the irrigation network, minimizing the need for new land disturbance. The planned activities include clearing soil and vegetation from the canals and reinforcing their structures with concrete.

The expected waste streams include concrete debris (Waste Code 17 01 01), plastic materials (Waste Code 17 02 03), and soil and stones not containing hazardous substances (Waste Code 17 05 04). In accordance with Decision of the Council of Ministers (VKM) No. 402, dated 30.06.2021 "On Approval of the Waste Catalogue", these materials are classified under the national waste catalog, which is harmonized with the European Waste Catalogue (EWC) pursuant to Directive 2008/98/EC. The aforementioned waste codes are designated as non-hazardous inert waste, meaning they pose no significant risk to soil or environmental quality when properly managed.

Furthermore, pursuant to DCM No. 575, dated 24.06.2015 "On approval of inert waste management requirements", all inert waste generated during the works will be collected, transported, and disposed of at locations specifically approved by the Municipality of Konispol. No uncontrolled disposal will be permitted. This approach ensures compliance with national legislation and minimizes the potential for environmental impact, maintaining the integrity of soil quality throughout the construction phase.

Given the nature of the works, the type of waste generated, and the established management and disposal requirements, there is no significant risk of soil contamination. The waste will not contain hazardous substances that could alter soil chemistry or degrade its quality. Furthermore, because works are confined to existing infrastructure corridors, the potential for erosion, compaction, or structural disturbance of agricultural soils outside the canal footprint is minimal.

The rehabilitation works under the Janjar Scheme will generate construction-related waste, primarily from canal cleaning, vegetation removal, and structural reinforcement with concrete.

Table 7: Impacts on soil quality during the construction activities

Criteria	Assessment
Nature of Impact	Generation of inert, non-hazardous construction waste (concrete debris, plastics, soil, and stones) during canal rehabilitation works within the existing infrastructure footprint.
Magnitude	**Low** – Waste is classified as non-hazardous and does not contain substances that could degrade soil quality.
Duration	**Short-term** – Impacts are limited to the active construction period.
Extent	**Local** – Restricted to the Janjar Scheme canal footprint and approved disposal areas.
Reversibility	**Fully reversible** – No long-term soil degradation expected; temporary disturbance can be restored post-construction.
Sensitivity of Receptor	**Low** – Soils in the work area are not ecologically sensitive; works avoid agricultural fields outside the existing canal corridor.
Likelihood	**Unlikely** – With adherence to inert waste management requirements (DCM No. 575/2015) and proper site practices.
Applicable Regulations	Albanian Waste Catalogue (DCM No. 99, dated 18.02.2015); DCM No. 575, dated 24.06.2015 "On approval of inert waste management requirements."
Mitigation Measures	- Segregate and store waste materials properly. - Transport inert waste to approved municipal disposal sites. - Avoid uncontrolled dumping and ensure timely site clean-up.
Overall Significance (Unmitigated)	**Low** – Minimal risk of soil quality deterioration even without mitigation, but minor nuisance possible if waste is mismanaged.
Residual Significance (Mitigated)	**Negligible** – With proper waste handling and disposal, no adverse effect on soil quality is anticipated.

7.6 IMPACT ON AIR QUALITY

7.6.1 Impacts on air quality during the construction activities

The rehabilitation works to be carried out under the updated irrigation scheme covering the Janjar, Konispol, Bufi, and Mursi systems, along with the construction of the power line are not expected to cause significant or long-term deterioration in ambient air quality. The **General Local Plan (GLP)** of the Municipality of Konispol indicates that while no historical air quality monitoring data exists, the area's air quality is generally satisfactory due to the absence of major emission sources and the presence of constant natural ventilation.

Existing local factors that may influence air quality include the presence of unpaved road segments generating dust, the discharge of untreated urban wastewater into water bodies (producing odors), and occasional burning of agricultural residues. These are intermittent and localized, and none are continuous sources of air pollution.

During construction, the main potential air quality impacts will be:

1. **Dust emissions** from excavation activities, removal of vegetation, transportation of materials, disposal of inert waste, and vehicle movement on unpaved access roads to agricultural parcels.
2. **Combustion gas emissions** from construction equipment, transport vehicles, and temporary generators.

These impacts are expected to be short-term, localized to active work areas, and will subside upon completion of works.

During the construction phase, two main potential risks to air quality have been identified. The first is the generation of dust particles, which can occur during earthworks, excavation, vegetation clearance, loading and unloading of materials, transportation of inert waste, and the movement of vehicles along unpaved access roads. These dust emissions are typically temporary and localized, with intensity increasing during dry and windy weather conditions. While generally considered a low-level nuisance, dust can cause minor irritation to the eyes, nose, and throat of workers and nearby residents and may also settle on crops, potentially affecting their appearance and light absorption capacity if unmanaged.

The second risk relates to the release of combustion gases, including carbon dioxide (CO_2), nitrogen oxides (NO_x), sulfur dioxide (SO_2), and particulate matter (PM), from the exhausts of construction machinery, transport vehicles, and temporary power generation units. These emissions can contribute to short-term, localized reductions in air quality and, in certain conditions, cause temporary respiratory discomfort for workers. However, due to the open and well-ventilated environment in the project area, and the limited scale and duration of construction activities, these impacts are expected to be minor and fully reversible once works cease and proper maintenance of machinery is ensured.

Table 8: Impact Significance Table – Air Quality (Construction Phase)

Criteria	Assessment
Magnitude	Low – Dust and combustion gases at low intensity, temporary in nature.
Duration	Short-term – Limited to active construction works.
Extent	Local – Restricted to construction sites and immediate surroundings.
Reversibility	Reversible – Air quality returns to baseline once works are complete.
Sensitivity of Receptor	Medium – Occasional exposure of nearby residents and workers; crops not significantly affected by short-term changes.
Likelihood	Likely – Without mitigation, dust and emissions will occur; preventable/minimizable with controls.
Overall Significance (Unmitigated)	Low – Temporary and localized degradation of air quality.
Residual Significance (Mitigated)	Negligible – With dust suppression and equipment maintenance, impacts are minimal and acceptable.

7.6.2 Impacts on air quality during operation

During the operation phase of the rehabilitated Janjar, Konispol, Bufi, and Mursi irrigation schemes, impacts on air quality are expected to be minimal. Once the construction works are complete, dust

emissions will be negligible, as the reinforced canals, stabilized surfaces, and improved access routes will reduce soil disturbance. Routine operation of the irrigation systems does not involve processes that generate significant particulate matter or gaseous pollutants.

The only potential air quality risks during operation could arise from occasional use of maintenance vehicles and equipment, which may emit small amounts of combustion gases such as carbon dioxide (CO_2), nitrogen oxides (NO_x), sulfur dioxide (SO_2), and particulate matter (PM). These emissions would be infrequent, localized to the immediate maintenance area, and short-lived, posing no significant risk to the surrounding environment or agricultural lands.

Another minor potential source of air quality impact could come indirectly from agricultural practices within the irrigation service area. These include occasional burning of crop residues or the use of agricultural machinery, which can produce smoke and exhaust gases. However, these activities are intermittent and not directly related to the operation of the irrigation schemes themselves.

Overall, the operation of the rehabilitated systems is not anticipated to have any measurable adverse effect on air quality. Any impacts that do occur will be temporary, localized, and fully reversible, and can be further minimized through routine equipment maintenance and the promotion of good agricultural practices among farmers.

Table 9: Air Quality Impact Assessment – Operation Phase

Criteria	Assessment
Magnitude	Low – Minimal emissions from occasional maintenance vehicle and equipment use; no continuous or high-volume pollutant sources.
Duration	Short-term and intermittent – Emissions occur only during periodic maintenance or incidental agricultural activities.
Extent	Local – Limited to immediate areas where maintenance or agricultural burning occurs.
Reversibility	Fully reversible – Air quality returns to baseline immediately after activities cease.
Sensitivity of Receptor	Low – Area is well-ventilated; no sensitive ecological or densely populated zones directly affected.
Likelihood	Unlikely – Only occasional activities may produce localized emissions.
Overall Significance (Unmitigated)	Low – No substantial or prolonged effect expected.
Residual Significance (Mitigated)	Negligible – With routine maintenance of equipment and promotion of good agricultural practices, impacts will be minimal and acceptable.

7.7 IMPACT ON BIODIVERSITY

7.7.1 Impacts on biodiversity during construction activities

- **Flora**

The updated scheme includes rehabilitation works in the Xarra and Mursi fields, as well as the construction of a pressure basin located over the hill near Bufi Reservoir. Most works will occur within

existing agricultural areas, canal alignments, and previously disturbed zones. These areas are dominated by cultivated crops and ruderal vegetation, meaning natural plant habitats have largely been replaced.

The Mursi field works are partly within the boundaries of Butrint National Park, an ecologically important area that includes wetlands, lagoons, and surrounding upland habitats. However, construction will be confined to already modified sections of the irrigation system, minimizing risk to natural plant communities.

At the pressure basin site, the location is on elevated ground outside the immediate shoreline zone of Bufi Reservoir but still within the National Park. Vegetation here consists mainly of secondary growth, shrubs, and scattered agricultural patches. With proper planning, vegetation clearance will be minimal and restricted to the exact footprint needed. All works within the park will follow the Environmental Management Plan (EMP) and be reviewed by the Regional Directorate of Protected Areas to ensure sensitive plant species and habitats are identified and protected.

Table 10: Flora Impact Assessment – Construction Phase

Criteria	Assessment
Magnitude	Low – Works limited to agricultural land, canal alignments, and a small footprint at the pressure basin site; minimal clearance of secondary vegetation.
Duration	Short-term – Vegetation removal occurs only during active construction.
Extent	Local – Confined to work sites in Xarra, Mursi, and the hill site near Bufi Reservoir.
Reversibility	Fully reversible – Natural regrowth expected; agricultural land will remain in use.
Sensitivity of Receptor	Medium – Works partly within Butrint National Park; some secondary habitats may support local biodiversity.
Likelihood	Likely – Vegetation clearance inevitable in project footprint; mitigable through careful site management.
Overall Significance (Unmitigated)	Low – No significant loss of sensitive or rare flora anticipated.
Residual Significance (Mitigated)	Negligible – With EMP compliance, clearance minimization, and Park authority coordination, no adverse long-term impact expected.

- **Fauna**

1. Reptiles

Reptiles such as lizards and non-venomous snakes are likely to inhabit canal embankments, rocky areas, and dry vegetation zones across Xarra, Mursi, and the basin site near Bufi. Risks during construction include:

- Loss of basking and shelter sites from vegetation clearance and soil movement.
- Displacement into less suitable habitats, increasing predation risk.

- Potential injury or mortality if active burrows or nests are disturbed.

Mitigation will include phased vegetation clearance, pre-construction site checks, and careful removal of cover to allow reptiles to disperse naturally.

➢ **Terrestrial Mammals**

Small mammals (hedgehogs, hares, rodents) occur throughout agricultural and semi-natural areas of the scheme. The main risks are:

- Temporary disturbance and displacement due to human presence and noise.
- Increased risk of vehicle collisions from project traffic.
- Minor habitat fragmentation from temporary access tracks.

Due to habitat availability in surrounding areas, impacts are expected to be low and reversible with traffic control measures and worksite access restrictions.

➢ **Amphibians**

While primary wetland habitats are outside the immediate work zones, seasonal depressions and canal sections can serve as breeding sites for amphibians (frogs, toads, newts). Risks include:

- Loss or alteration of temporary pools during excavation or drainage works.
- Sediment runoff affecting downstream aquatic habitats, especially in Mursi where drainage connects toward Butrint Lagoon.

Mitigation will include surveys before works to identify breeding sites, relocation of individuals if necessary, and scheduling works outside peak breeding seasons. Sediment control measures will protect connected water bodies.

Indirect Links to Bufi Reservoir and Butrint Lagoon

Although construction in Xarra, Mursi, and the basin site will not directly disturb these wetlands, they are ecologically connected. Birds and amphibians may move between upland and wetland areas for feeding or breeding. Noise, vibration, and visual disturbance could cause short-term displacement if works coincide with sensitive wildlife periods. Coordination with the Regional Directorate of Protected Areas will ensure timing and methods avoid peak sensitivity.

Table 11: Fauna Impact Assessment – Construction Phase

Criteria	Assessment
Magnitude	Low – Works limited to agricultural land, canal alignments, and a small footprint at the pressure basin site; minimal clearance of secondary vegetation.
Duration	Short-term – Vegetation removal occurs only during active construction.
Extent	Local – Confined to work sites in Xarra, Mursi, and the hill site near Bufi Reservoir.
Reversibility	Fully reversible – Natural regrowth expected; agricultural land will remain in use.

Sensitivity of Receptor	Medium – Works partly within Butrint National Park; some secondary habitats may support local biodiversity.
Likelihood	Likely – Vegetation clearance inevitable in project footprint; mitigable through careful site management.
Overall Significance (Unmitigated)	Low – No significant loss of sensitive or rare flora anticipated.
Residual Significance (Mitigated)	Negligible – With EMP compliance, clearance minimization, and Park authority coordination, no adverse long-term impact expected.

7.7.2 Impacts on biodiversity during operation activities

During the operation phase of the rehabilitated irrigation schemes in Xarra field, Mursi field, and the pressure basin near Bufi Reservoir, no significant direct impacts on biodiversity are expected. All works will have been completed, and natural vegetation within the project footprint will have stabilized. Areas temporarily disturbed during construction are expected to be recolonized by local plant species, especially in agricultural and semi-natural zones.

The flora within and around the scheme, including sections within Butrint National Park, will remain largely unaffected during operation since no further vegetation clearance is required. Routine maintenance activities, such as inspection of canals or basin infrastructure, will occur on existing access routes and will not result in habitat fragmentation or permanent loss of plant cover.

For fauna, including reptiles, small mammals, amphibians, and bird species present in the wider area, operational activities pose only a low risk of disturbance. Occasional presence of maintenance crews and vehicles may temporarily disrupt wildlife movement or feeding patterns, especially near ecologically sensitive areas such as Bufi Reservoir and Butrint Lagoon. However, these effects will be short-term, localized, and fully reversible.

By maintaining a schedule of maintenance that avoids peak breeding and migration periods, and by adhering to low-noise, low-disturbance operational practices, the biodiversity of the area will remain intact. Overall, the operation phase is assessed to have negligible impact on both flora and fauna.

Table 12; Biodiversity Impact Assessment – Operation Phase (Flora & Fauna)

Criteria	Assessment
Magnitude	Flora: Negligible – No clearance during operation; vegetation remains stable. Fauna: Low – Occasional disturbance from maintenance crews and vehicles near sensitive habitats.
Duration	Flora: Long-term – No ongoing disturbance to plant communities. Fauna: Short-term and intermittent – Disturbances limited to periodic maintenance activities.
Extent	Local – Confined to existing scheme footprint in Xarra, Mursi, and hill site near Bufi Reservoir; no expansion into new habitats.
Reversibility	Fully reversible – Both plant and animal communities expected to return to pre-disturbance conditions after temporary operational activities.

Sensitivity of Receptor	Flora: Medium – Partly within Butrint National Park; agricultural and semi-natural habitats. Fauna: Medium to High – Proximity to Bufi Reservoir and Butrint Lagoon supports sensitive species, including migratory birds.
Likelihood	Flora: Unlikely – No operational activities expected to damage vegetation. Fauna: Possible – Minor temporary disturbance during maintenance, especially for birds, reptiles, and amphibians.
Overall Significance (Unmitigated)	Flora: Negligible – No measurable effect on vegetation. Fauna: Low – Minor, temporary disturbance possible if maintenance coincides with sensitive wildlife periods.
Residual Significance (Mitigated)	Negligible – With seasonal timing restrictions, use of existing access roads, and low-disturbance maintenance practices, both flora and fauna will remain unaffected in the long term.

7.8 NOISE IMPACT

7.8.1 Noise impacts during construction activities

Construction activities for the rehabilitation of the Xarra field, Mursi field, and the pressure basin near Bufi Reservoir will inevitably generate noise from heavy machinery, excavation, material transport, and equipment operation. These sources include excavators, concrete mixers, trucks, and auxiliary generators. Noise levels will be highest during active earthworks and concrete works, and will decrease significantly during lighter tasks such as site preparation or clean-up.

The project sites are located in agricultural areas and generally far from dense residential settlements. Sensitive receptors in the area are limited to scattered farmhouses and occasional field workers. Given the distance to the nearest residential clusters, noise levels are not expected to exceed regulatory limits for rural environments. However, temporary nuisance may occur for nearby agricultural workers, especially during peak construction activities.

The noise generated will be short-term and intermittent, occurring only during the designated construction schedule. No night-time works are planned, which eliminates the risk of prolonged disturbance. The effects are fully reversible, with baseline sound conditions restored immediately after work stops.

To minimize noise impacts, construction will follow best practice measures, including proper equipment maintenance, use of mufflers, restricting high-noise operations to daytime hours, and controlling vehicle speeds on access roads. With these measures in place, the residual impact on the surrounding environment and local communities is expected to be negligible.

Table 13: Noise Impact Assessment – Construction Phase

Criteria	Assessment
Magnitude	Low – Noise from machinery, vehicle movement, and material handling will be perceptible but within acceptable limits for rural/agricultural settings.
Duration	Short-term and intermittent – Limited to active daytime working hours during the construction period.

Extent	Local – Impacts will be confined to the immediate surroundings of Xarra field, Mursi field, and the hill site near Bufi Reservoir; possible limited propagation towards Bufi Reservoir and Butrint Lagoon.
Reversibility	Fully reversible – Noise levels will return to baseline immediately after works stop.
Sensitivity of Receptor	Low to Medium – Sparse rural residences and presence of wildlife in nearby sensitive habitats (Bufi Reservoir, Butrint Lagoon).
Likelihood	Likely – Noise generation is inevitable during construction but predictable and controllable.
Overall Significance (Unmitigated)	Low – Temporary disturbance to humans and wildlife possible, but no long-term or severe effects anticipated.
Residual Significance (Mitigated)	Negligible – With daytime scheduling, well-maintained equipment, and avoidance of sensitive wildlife periods, impacts will be minimal and acceptable.

7.8.2 Noise impacts during operation activities

Once the rehabilitation works for the Xarra field, Mursi field, and the pressure basin near Bufi Reservoir are complete, noise generation will be minimal. The irrigation schemes will operate through gravity and pressurized systems, which do not produce continuous or high-intensity noise. The only potential sources of noise will be associated with occasional maintenance activities, such as the movement of small maintenance vehicles, operation of portable pumps, or the use of light equipment for cleaning or minor repairs.

These activities will be infrequent, short in duration, and carried out during daytime hours, meaning that they will not significantly alter the baseline noise environment. Given that the project areas are predominantly rural and agricultural, with scattered settlements and no sensitive receptors in immediate proximity, the likelihood of disturbance to local residents or wildlife is low.

Wildlife in the broader surroundings, including species present in Bufi Reservoir and Butrint Lagoon, will not be affected during normal operation, as no high-decibel or impulsive noises will be generated. Any temporary disturbance from maintenance work will be negligible and fully reversible.

Overall, the operation phase is expected to have a negligible noise impact on both human and ecological receptors.

Table 14: Noise Impact Assessment – Operation Phase

Criteria	Assessment
Magnitude	Negligible – Only minor, temporary noise from occasional maintenance activities.
Duration	Very short-term – Limited to maintenance events, typically a few hours.
Extent	Local – Confined to immediate maintenance sites.
Reversibility	Fully reversible – Noise levels return to baseline immediately after maintenance activities end.

Sensitivity of Receptor	Low – Few sensitive human receptors; wildlife adapted to existing agricultural activity.
Likelihood	Unlikely – Noise disturbance will occur only during occasional maintenance.
Overall Significance (Unmitigated)	Negligible – No measurable effect on residents or wildlife.
Residual Significance (Mitigated)	Negligible – Standard good practice (daytime scheduling, well-maintained equipment) ensures no adverse impact.

7.9 CULTURAL MONUMENTS

7.9.1 Impacts on culture monuments during construction activities

Within the territory of Konispol Municipality there are numerous cultural monuments protected under the Decision of the Council of Ministers (DCM), as well as the Butrint National Park (BNP), which is managed by its dedicated administration and coordination office.

The final segment of the Xarra scheme, located in the eastern part of the village of Shandell, passes near the archaeological protected area containing these ruins. However, as the rehabilitation works will be limited to the existing alignment and will not require new excavations beyond the current canal profile, the physical integrity of the protected area will not be impacted. Works will utilize existing access routes already in use by residents to reach agricultural parcels, avoiding the creation of new tracks.

Given that part of the Xarra scheme lies within the Butrint National Park, the contractor will be required to:

- Conduct all works under continuous archaeological supervision.
- Provide weekly reports to the BNP management office detailing planned works.
- Follow all obligations outlined in the Environmental and Social Management Plan (ESMP).

Under Option 3, rehabilitation within the BNP section will involve replacing the existing infrastructure with an open channel and underground pipeline. The archaeologist will supervise all excavation processes, and the environmental engineer will designate a suitable temporary site for inert waste storage, ensuring that storage duration is minimal before transfer to Konispol Municipality-approved landfills.

An Environmental Management Plan and a Work Plan will be submitted to the Governing Board of the Ancient City of Butrint to ensure direct coordination between the project contractor and heritage authorities.

Table 15: Impact Assessment – Cultural Heritage (Construction Phase)

Criteria	Assessment
Magnitude	Negligible – Works are confined to existing footprints with no planned deep excavations in sensitive heritage zones.
Duration	Short-term – Limited to the construction period of the Xarra scheme section and related works.

Extent	Local – Restricted to immediate project footprint near Shandell and within BNP section.
Reversibility	Fully reversible – No permanent alteration to cultural monuments anticipated.
Sensitivity of Receptor	High – Proximity to protected cultural monument ("Ruins of the Water Supply") and within Butrint National Park, requiring special management and supervision.
Likelihood	Unlikely – Risk minimized through supervision by archaeologist and compliance with ESMP protocols.
Overall Significance (Unmitigated)	Low – Potential risks from accidental disturbance exist but are preventable with proper supervision.
Residual Significance (Mitigated)	Negligible – With archaeological oversight, waste management control, and BNP coordination, no adverse impacts on cultural heritage are expected.

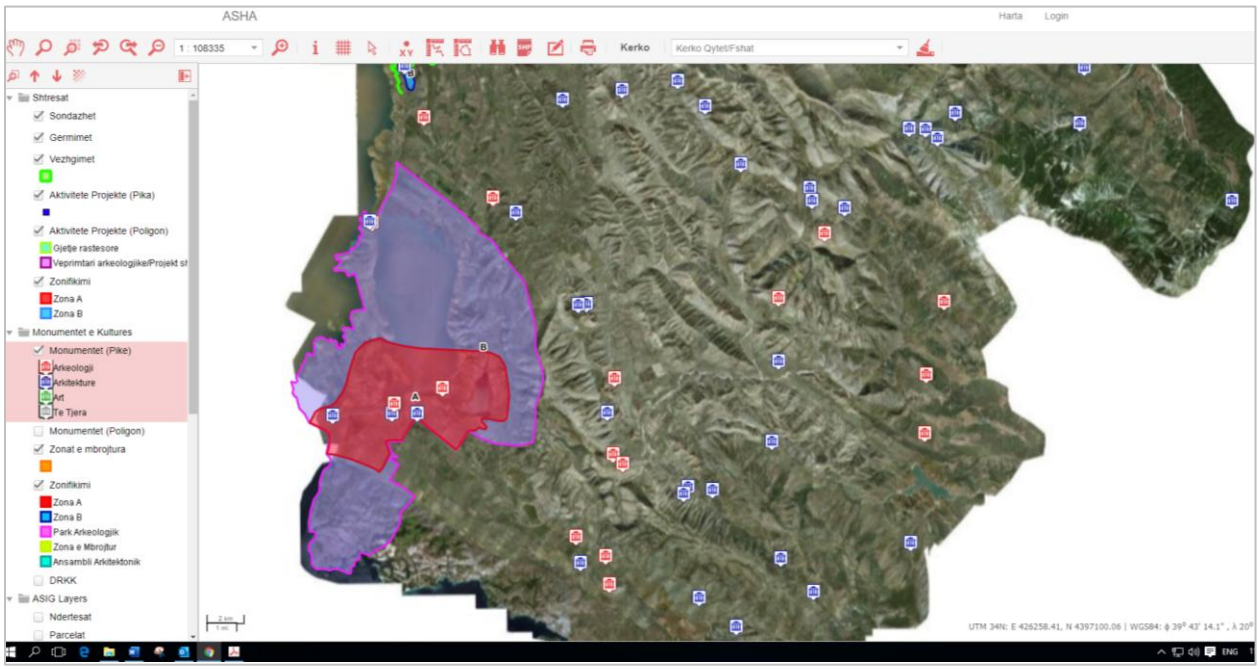

Figure 24: Archeological map of Albania[12]

7.9.2 Impacts on culture monuments during operation activities

During the operation phase of the rehabilitated Xarra and Mursi irrigation schemes, as well as the pressure basin near Bufi Reservoir, no significant impacts on cultural heritage are anticipated. The irrigation infrastructure will function through a combination of gravity-fed and pressurized systems, which require only routine operation and occasional maintenance.

[12] http://webgis.asha.gov.al/ASHA/Pages/Map.aspx

No excavation, heavy construction, or significant ground disturbance will occur during operation. Consequently, there will be no direct risk to the "Ruins of the Water Supply" cultural monument or to any other heritage features within the Butrint

Table 16: Impact Assessment – Cultural Heritage (Operation Phase)

Criteria	Assessment
Magnitude	Negligible – Only minor maintenance works, no excavation or alteration of heritage sites.
Duration	Very short-term – Limited to occasional maintenance activities.
Extent	Local – Restricted to immediate infrastructure footprint.
Reversibility	Fully reversible – Any temporary disturbance during maintenance will cease immediately after works are completed.
Sensitivity of Receptor	High – Presence of protected heritage in proximity, but no direct interaction during operation.
Likelihood	Unlikely – No heritage interference is expected during normal operation.
Overall Significance (Unmitigated)	Negligible – Operational activities do not involve heritage-sensitive work.
Residual Significance (Mitigated)	Negligible – Continued adherence to heritage protection protocols ensures no impacts occur.

Maintenance activities will be limited to inspection, cleaning, and minor repairs of canal sections, pipelines, and the pressure basin. These activities will use existing access routes and will not require new ground disturbance. In the rare case that deeper ground interventions are needed in proximity to heritage zones, the same archaeological supervision procedures established during construction will be applied.

Given these conditions, the operation phase poses negligible risk to cultural heritage, and with continued compliance to environmental and heritage management protocols, no adverse effects are expected over the long term.

7.10 ACCESS ROADS

7.10.1 Impacts on road access during construction activities

The rehabilitation works in Xarra and Mursi schemes will require frequent movement of construction machinery, delivery trucks, and waste transport vehicles through the Shëndelli and Vrinë areas. The existing access network consists of a mix of paved municipal roads, narrow suburban routes, and unpaved agricultural service tracks.

Baseline Condition:

- Poor road surface quality: Many sections are cracked, uneven, or unpaved, making them sensitive to additional loading.
- Limited width: Some stretches are too narrow for two-way traffic, causing potential congestion.

- Shared usage: Roads are used by pedestrians, cyclists, livestock herders, and slow-moving agricultural machinery.
- Dust risk: Unpaved roads generate dust during dry periods, especially when disturbed by heavy traffic.

Table 17: Impact Assessment Table – Access Roads & Traffic (Construction Phase)

Criteria	Assessment
Magnitude	**Medium** – Potential for noticeable road surface degradation, congestion, and safety concerns without mitigation.
Duration	**Short-term** – Limited to the active construction phase, estimated at several months for Xarra and Mursi works.
Extent	**Local** – Confined to Shëndelli and Vrinë road networks and connecting agricultural access tracks.
Reversibility	**Fully reversible** – Road condition can be restored through maintenance and repair post-construction.
Sensitivity of Receptor	**Medium to High** – Roads are in poor baseline condition and serve both agricultural and residential functions; local users depend on them daily.
Likelihood	**Likely** – High probability of impacts due to frequent use by heavy vehicles during construction.
Overall Significance (Unmitigated)	**Medium to High** – Without mitigation, there would be significant inconvenience and road damage, particularly in narrow or unpaved sections.
Residual Significance (Mitigated)	**Low** – With planned traffic management, dust suppression, and post-works repairs, the remaining impacts will be minor and temporary.
Mitigation Measures	Traffic scheduling, dust suppression, road signage, spotters in narrow areas, temporary repairs during works, full restoration post-construction in coordination with municipality.

7.10.2 Impacts on road access during operation activities

Once the rehabilitation works are completed, the operational phase of the Xarra and Mursi irrigation schemes will not require intensive or continuous heavy traffic through Shëndelli and Vrinë. Road use will be limited to:

- Routine maintenance activities (periodic inspections, minor repairs, vegetation clearance along canals).
- Occasional transport of equipment for servicing irrigation infrastructure.
- Seasonal agricultural traffic, which is already part of normal local activity.

Table 18: Impact Assessment Table – Access Roads & Traffic (Operation Phase)

Criteria	Assessment
Magnitude	Very Low – Minimal additional use beyond baseline agricultural and municipal traffic.
Duration	Long-term – Throughout the operational life of the schemes, but with negligible intensity.
Extent	Local – Limited to Shëndelli and Vrinë access roads connected to irrigation scheme facilities.
Reversibility	Fully reversible – No permanent road alterations; any minor wear can be addressed through routine municipal repairs.
Sensitivity of Receptor	Medium – Roads remain important for daily agricultural and residential use, though no significant pressure added.
Likelihood	Unlikely – Routine operations do not require heavy or frequent transport.
Overall Significance (Unmitigated)	Negligible – No notable change in road condition or traffic patterns expected.
Residual Significance (Mitigated)	Negligible – No further mitigation needed beyond standard municipal road upkeep.

7.11 ECONOMIC ACTIVITIES

7.11.1 Impacts on the economic activities during construction activities

The economy of Konispol Municipality is primarily based on agriculture, with high-value crops such as mandarins, olives, and vegetables forming the mainstay of livelihoods. The core of this economic activity is concentrated along the Vrinë–Shëndelli–Xarra–Mursi–Shkallë road axis, which serves as the main agricultural transport corridor.

The planned rehabilitation and construction works will be scheduled outside the main irrigation demand period, ensuring that the operational Xarra scheme continues to serve local farmers without interruption. This scheduling will avoid any negative effects on crop irrigation cycles, harvest schedules, and market supply chains.

Expected Positive Impacts:

- **Temporary employment opportunities** for local residents in construction, transport, and ancillary services.
- **Increased local commerce** from demand for food, accommodation, fuel, and materials by construction crews.

- **Long-term productivity benefits** from improved irrigation infrastructure, which will enhance water distribution efficiency and crop yields.

Potential Negative Impacts:

- **Minor, short-term traffic delays** along agricultural transport routes due to movement of construction machinery and materials.
- **Localized access restrictions** near active work zones, though these will be temporary and managed via traffic coordination.

Given the nature and timing of works, the overall impact on the local economy during construction is expected to be **positive**, with negligible disruption to ongoing agricultural activities.

Table 19: Impact Assessment Table – Economic Activity (Construction Phase)

Criteria	Assessment
Magnitude	Positive – Temporary economic boost from job creation and local service demand.
Duration	Short-term – Limited to the construction phase.
Extent	Local – Focused on communities along the Vrinë–Shëndelli–Xarra–Mursi–Shkallë corridor.
Reversibility	Fully reversible – No long-term disruption to existing economic activities.
Sensitivity of Receptor	Medium – Agriculture is sensitive to irrigation disruptions, but works are planned to avoid these periods.
Likelihood	Certain – Employment and indirect economic benefits are inevitable with construction works.
Overall Significance (Unmitigated)	Positive – No significant negative impact anticipated; benefits outweigh temporary inconveniences.
Residual Significance (Mitigated)	Positive – With scheduling and traffic management, no residual negative impacts on the local economy are expected.
Mitigation Measures	Schedule works outside irrigation season; coordinate with farmers to minimize access disruptions; implement traffic management near construction sites.

7.11.2 Impacts on the economic activities during operation activities

During the operational phase, the rehabilitated and modernized irrigation infrastructure in Xarra and Mursi will directly contribute to the long-term economic sustainability of Konispol Municipality, whose economy is heavily reliant on agriculture.

The improved irrigation network will:

- Enhance water supply reliability, reducing the risk of water shortages during critical crop growth stages.
- Enable the use of modern irrigation methods (e.g., drip and sprinkler systems), improving water-use efficiency and supporting high-value crop production.
- Increase agricultural productivity and quality, allowing farmers to expand cultivated areas and diversify crops.
- Reduce reliance on costly pumping systems, lowering operational costs for farmers.

Indirect economic benefits will also arise from:

- Higher and more consistent yields leading to increased market competitiveness.
- Growth of associated sectors such as transport, processing, packaging, and marketing of agricultural products.
- Potential attraction of new agribusiness investments into the region.

Given that no significant operational disturbances are expected, the overall economic impact during the operational phase is highly positive, with benefits distributed across the entire agricultural supply chain in the municipality.

Table 20: Impact Assessment Table – Economic Activity (Operation Phase)

Criteria	Assessment
Magnitude	High Positive – Significant improvement in irrigation reliability, efficiency, and agricultural productivity.
Duration	Long-term – Benefits will persist over the operational life of the irrigation system.
Extent	Regional – Benefits extend to the entire Konispol Municipality and may influence neighboring agricultural markets.
Reversibility	Irreversible (positive) – Infrastructure improvements will have lasting economic benefits as long as the system is maintained.
Sensitivity of Receptor	High – Local economy is highly dependent on agriculture and directly benefits from irrigation improvements.
Likelihood	Certain – Given the infrastructure improvements, benefits are inevitable with regular maintenance and proper management.
Overall Significance (Unmitigated)	High Positive – No negative economic impacts expected during operation.

Residual Significance (Mitigated)	High Positive – Continued maintenance and management will ensure long-term economic benefits without operational disruptions.
Mitigation/Enhancement Measures	Maintain the irrigation system regularly; provide training to farmers on efficient irrigation practices; promote market linkages for high-value crops.

7.12 COMMUNITY'S SECURITY/SAFETY

7.12.1 Impacts on community's security during construction activities

To minimise potential impacts on both workers and residents living near the irrigation canals, all construction activities will be carried out in accordance with an approved Health, Safety, and Environment Plan (HSEP). This plan will address not only on-site worker safety but also public safety in the areas where the rehabilitation and construction works will take place.

The works will be implemented entirely within the existing footprint of the irrigation scheme, most of which passes through agricultural parcels. Given that activities will be located along established trails, the risk to residents is minimal. The sites will be properly marked with warning signs to alert the public to ongoing works.

Potential risk factors include:

- Movement of construction vehicles in and out of work areas, which could pose a hazard to residents, particularly along narrow or unpaved access roads.
- Temporary obstructions along farm access paths used by both workers and residents.

However, these risks will be mitigated through:

- Implementation of the HSEP's traffic management and vehicle operation guidelines.
- Placement of visible safety signs and barriers around work areas.
- Restricting heavy vehicle operations to designated hours to avoid peak agricultural or residential traffic.

No hazardous raw materials will be used during the works, and no hazardous waste will be generated. Only inert waste (e.g., concrete debris, plastic scraps, soil, and stones) will be produced, and all such waste will be collected and disposed of in the designated Konispol Municipality disposal site, in compliance with local waste management regulations.

Table 21: Impact Assessment on Community Health and Safety During Construction

Criteria	Assessment
Impact Source	Construction activities along existing irrigation scheme footprint; vehicle movement; temporary obstruction of agricultural access paths.

Magnitude	Low – Limited risk due to works being within existing footprint and agricultural areas.
Duration	Short-term – Only during active construction works.
Extent	Localized – Limited to immediate work areas and access routes in Xarra, Mursi, Vrina, and Shëndelli.
Reversibility	Fully reversible – Impacts end once construction is completed and normal access is restored.
Sensitivity of Receptor	Medium – Local residents and farm workers present in vicinity of works.
Likelihood	Possible – Primarily related to vehicle movements and site access.
Overall Significance (Unmitigated)	Low – Minimal risk to residents and workers if no safety controls are applied.
Residual Significance (Mitigated)	Very Low – With implementation of Health, Safety and Environment Plan, risks are minimal.
Mitigation / Enhancement Measures	Implement HSEP including traffic management; use visible safety signs/barriers; schedule vehicle movement to avoid peak local activity; dispose inert waste in designated site.

7.12.2 Impacts on community's security during operation activities

During the operation phase of the Xarra and Mursi irrigation schemes, the risk to community health and safety will be minimal. The irrigation networks will function within their rehabilitated footprint, and the surrounding areas will return to normal agricultural activities.

Potential safety considerations include:

- Occasional movement of maintenance vehicles along access roads or canal banks.
- Presence of open canals and pressurised systems, which may pose a drowning or injury hazard if safety precautions are not maintained.

These risks will be addressed through:

- Regular inspection and maintenance of canal structures and equipment.
- Installation of warning signs and, where necessary, physical barriers at high-risk points (e.g., steep embankments, intake structures).
- Application of the operational safety protocols developed as part of the scheme's management plan.

No hazardous chemicals or substances will be used during normal operations, and no hazardous waste will be generated. Any maintenance waste (e.g., small amounts of debris or sediment) will be disposed of in compliance with municipal waste management requirements.

Table 22: Impact Assessment on Community Health and Safety During Operation

Criteria	Assessment
Impact Source	Movement of maintenance vehicles; presence of open canals and pressurised irrigation equipment.

Magnitude	Very Low – Limited to infrequent maintenance activities and inherent irrigation infrastructure risks.
Duration	Long-term – As long as the irrigation schemes remain operational.
Extent	Localized – Within operational areas of Xarra, Mursi, Vrina, and Shëndelli.
Reversibility	Fully reversible – Risks end when scheme is not in use or after maintenance activity is completed.
Sensitivity of Receptor	Medium – Farmers, residents, and maintenance workers in the vicinity.
Likelihood	Unlikely – Due to low frequency of maintenance activities and application of safety protocols.
Overall Significance (Unmitigated)	Low – Risks are minor but present if no operational safety measures are in place.
Residual Significance (Mitigated)	Very Low – With implementation of operational safety protocols and signage.
Mitigation / Enhancement Measures	Maintain safety signage and barriers; schedule maintenance outside peak farm activity; train operators and maintenance crews on safety protocols.

7.13 ADVERSE IMPACT ON COMMUNITY FROM TEMPORARY PROJECT INDUCED LABOR INFLUX

7.13.1 Impact Assessment – Labor Influx (Construction Phase)

The implementation of the rehabilitation works in the Xarra, Mursi, Vrina, and Shëndelli schemes will require a skilled and semi-skilled workforce. Given the limited availability of local personnel with the necessary technical expertise and capacity, a portion of the labor force will be sourced from outside the Konispol municipality. This temporary migration of workers is defined as labor influx.

While the workforce will not be large enough to cause extensive demographic changes, even a modest labor influx into small or rural communities can generate short-term social and environmental pressures. Potential adverse impacts include:

- Increased demand for local goods, services, and housing, which may cause price fluctuations.
- Strain on public services such as health care and sanitation.
- Greater traffic and accident risk due to increased vehicle movement.
- Pressure on natural resources (water, land, fuelwood).
- Social tensions within and between communities due to cultural differences or competition for jobs.
- Public health concerns, including possible spread of communicable diseases.

- Potential for anti-social behavior if codes of conduct are not enforced.

The scale of these impacts will depend on the number of incoming workers, their duration of stay, and the preparedness of local infrastructure and governance systems to accommodate the influx. While the project's ESMP will include preventive and mitigation measures, certain risks may only emerge during project execution.

Mitigation measures will therefore include:

- Preparing and implementing a Labor Influx Management Plan in line with World Bank/IFC guidelines.
- Adopting a Workers' Code of Conduct addressing community relations, safety, and anti-harassment provisions.
- Prioritizing local hiring where possible to reduce the need for external labor.
- Coordinating with the Municipality of Konispol to monitor and respond to emerging social and environmental issues.

Impact Conclusion: Without mitigation, labor influx could cause moderate, localized, and temporary social and environmental impacts. With the implementation of specific management measures, the residual impact is expected to be low.

Table 23: Impact Assessment of Labor Influx (Construction Phase)

Criteria	Assessment
Impact Source	Temporary migration of workers from outside the project area due to lack of local capacity and skills.
Magnitude	Moderate – Potential for localized social, economic, and environmental pressures.
Duration	Temporary – Limited to the construction period.
Extent	Localized – Project-affected communities in Xarra, Mursi, Vrina, and Shëndelli.
Reversibility	Fully reversible – Impacts subside after construction and demobilization of external workers.
Sensitivity of Receptor	Medium – Rural and small communities with limited public services and infrastructure.
Likelihood	Possible – Depending on number of incoming workers and local conditions.
Overall Significance (Unmitigated)	Medium – Could disrupt community stability and services if unmanaged.
Residual Significance (Mitigated)	Low – With strict labor influx management measures and local hiring policies in place.
Mitigation / Enhancement Measures	Implement Labor Influx Management Plan; adopt Workers' Code of Conduct; prioritize local hiring; coordinate with local authorities; enforce HSE standards.

7.13.2 Impact Assessment – Labor Influx (Operation Phase)

During the operation phase of the Xarra, Mursi, Vrina, and Shëndelli irrigation schemes, the required workforce will be minimal and mostly consist of local technical staff for routine operation, monitoring, and maintenance activities.

As the operational activities will be limited in scope and seasonal in nature, there will be no significant need to bring in external labor from outside the project area.

Any specialized technical interventions (e.g., equipment servicing, automation calibration) will be occasional and short-term, carried out by specialized teams. The size and duration of such external presence will be too small to cause social or environmental pressures on local communities.

Therefore, the risk of labor influx during the operation phase is considered negligible. No impacts are anticipated on local infrastructure, public services, or community cohesion.

Mitigation measures will focus on:

- Maintaining local hiring for regular operations.
- Planning scheduled maintenance to avoid long-term presence of non-local workers.
- Ensuring compliance with the Workers' Code of Conduct during any short-term external assignments.

Table 24: Impact Assessment of Labor Influx (Operation Phase)

Criteria	Assessment
Impact Source	Occasional presence of specialized technical teams for maintenance.
Magnitude	Negligible – No long-term or large-scale labor movement.
Duration	Very short-term – Only during occasional maintenance.
Extent	Localized – Limited to specific maintenance sites.
Reversibility	Fully reversible – No lasting changes to community structure or services.
Sensitivity of Receptor	Low – Communities accustomed to agricultural seasonal labor patterns.
Likelihood	Rare – Only during specialized intervention periods.
Overall Significance (Unmitigated)	Negligible – No measurable social or environmental effect expected.
Residual Significance (Mitigated)	Negligible – No additional mitigation required beyond standard operational procedures.

Mitigation / Enhancement Measures	Continue prioritizing local hiring; enforce Workers' Code of Conduct for external teams; coordinate maintenance scheduling with local authorities.

8 MITIGATION MEASURES FOR ENVIRONMENTAL AND SOCIAL IMPACT

The scope of the ESMP is to identify measures and actions in accordance with the mitigation hierarchy that reduce potentially adverse environmental and social impacts to acceptable levels. The plan will include compensatory measures, if applicable. Specifically, the ESMP:

1. Identifies and summarizes all anticipated adverse environmental and social impacts (including those involvingnvoluntary resettlement);
2. Describes with technical details each mitigation measure, including the type of the impact to which it relates and the conditions under which it is required, together with designs, equipment descriptions, and operating procedures, as appropriate.
3. Estimates any potential environmental and social impacts of these measures.
4. Takes into account, and is consistent with, other mitigation plans required for the project.[13]

The ESMP indetifies monitoring objectives and specifies the type of monitoring, with linkages to the impacts assessed in the environmental and social assessment and the mitigation measures described in the ESMP[14]. Specifically, the monitoring section of the ESMP provides a) a specific description, and technical details, of monitoring measures, including the parameters to be measured methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and b) monitoring and reporting procedures to, i) ensure early detection of conditions that necessitate particular mitigation measures, and ii) furnish information on the progress and results of mitigation[15].

8.1 MITIGATION MEASURES DURING REHABILITATION /CONSTRUCTION PHASE

The implementation of mitigation measures avoids or reduces the negative impacts should be concrete and understandable by the contractor for the implementation of the rehabilitation / construction activities. The irrigation scheme of the project has a large extent therefore for this reason it is divided into two segments: the Janjar-Konispol scheme and Bufi-Xarra scheme. The following tables show the mitigation measures for each schem during rehabilitation/construction phase.

Table 25: Mitigation Measures Pre-Construction Phase

Ref #	Topic / Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
1	**Water Quality Monitoring**	Risk of pollution in sensitive water bodies	• Negotiate and sign a written agreement on monitoring in	MOARD	Agreement signed prior to commencement of	Costs to be covered from contractor budgets.

[13] World Bank, Environmental and Social Framework
[14] World Bank, Environmental and Social Framework, monitoring during project implementation provides information about key environmental and social ascpects of the project, particularly the environmental and social impacts of the project and the effectiveness of mitigation measures. Such information enables the Barrower and the Bank to evaluate the success of mitigation measures as part of project supervision, and allows corrective action to be taken when needed.
[15] World Bank, Environmental and Social Framework

		from human activities.	the Butrint Lagoon, Bufi Lagoon, Vivari Channel, and Pavlla River. • Define monitoring parameters, responsibilities, and reporting protocols.		construction activities.	
2	**Human Health**	Potential health and safety hazards to workers and local residents.	• Engage with local communities on project scope and safety. • Conduct public awareness campaigns on health and safety risks. • Ensure designs comply with safety standards. • Implement correct waste disposal practices.	MOARD, CRAD Contractor	Prior to construction start.	Included in contractor's tender; additional support from municipality and local communities.
3	**Cultural Heritage**	Risk of damage to archaeological heritage, particularly near protected areas.	• Include "Chance Find Procedure" in tender documents. • Require contractor to prepare archaeological report by licensed expert.	MOARD,CRADMinistry of Culture, Turism and Sports. Contractor	During tendering and prior to works in sensitive areas.	Included in contractor's tender.

			• Ensure archaeologist is present during excavation and rehabilitation works in sensitive zones.			
4	**Labour Influx**	• Increased risk of illicit behavior and crime. • Temporary population increase ("followers"). • Gender-based violence, harassment, child abuse, and exploitation. • Child labor and school dropouts. • Local price inflation.	• Provide Worker Code of Conduct in Albanian. • Mandatory and regular training for workers on lawful conduct and penalties for violations. • Commitment to cooperate with law enforcement agencies on GBV cases. • Partner with local NGOs to monitor and report worker misconduct via GRM. • Prohibit employment of minors in any project activities.	Contractor, Supervision Company, MOARD	Before construction mobilization.	Included in works contract.

Table 26: Mitigation Measures – Rehabilitation & Construction Phase (Social Aspects)

Ref #	Topic / Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost

1	Contractor's Camps	Temporary loss of land; poor physical and social management of camps/workforce.	• Use marginal state land where possible. • Appoint part-time Community Relations Officer. • Establish formal Social Responsibility system. • Require full site restoration after works. • Consider future community use of facilities.	MOARD, CRAD Supervision Company, Contractor	Before camp construction.	Included in works contract .
2	Road Access & Traffic	Unsafe access routes; construction traffic hazards; poor road quality.	• Repair/upgrade existing access roads. • Develop procedures for temporary access (RAP). • Implement Traffic Management & Safe Driving Plan. • Coordinate with road rehabilitation to Janjari, Mursi, and Bufi dam. • Prepare emergency and pedestrian safety plans.	MOARD CRAD Supervision Company, Contractor	During construction & rehabilitation .	Included in works contract .

3	Toxic / Hazardous Materials	Accidental spills affecting workers, community, and environment.	• Store hazardous substances in safe, labeled, leak-proof containers. • Transport by licensed carriers to approved facilities. • Avoid paints with toxic/lead-based content.	MOARD, Supervision Company, Contractor	Construction phase	Included in works contract .
4	Spoil Disposal	Improper landfill disposal.	• Method Statement for spoil disposal (authorization, location, closure). • Coordinate with municipality. • Formal agreement with Konispol Municipality for landfill.	MOARD, Konispol Municipality, Supervision Company, Contractor	Construction phase	Included in works contract .
5	Waste Management & Pollution	Improper disposal of waste; spills.	• Contractor to prepare Waste Management Plan. • SOPs for washing, refueling, and water works. • Emergency Response Plan for spills.	MOARD, Contractor, Supervision Company	Construction phase	Included in works contract .
6	Human Health & Safety	Health and safety hazards.	• Enforce Albanian law & WB H&S Guidelines.	MOARD, Supervision Company, Contractor	Construction phase	Included in works contract .

			• Weekly team training. • Safety signage. • Job Safety Analyses (JSAs) for tasks. • PPE enforcement. • Fence work zones. • First-aid kits on site. • Safe wastewater & solid waste disposal.			
7	Road Safety	Road accidents from construction traffic.	• Speed control measures. • Driver induction/training . • IVMS installation. • Daily vehicle checklists. • Provide and update driving JSAs.	Contractor, MOARD, Supervision Company	Construction phase	Included in works contract .
8	Irrigation Season	Disruption to agricultural activity and water supply.	• No rehabilitation works during irrigation season.	MOARD, CRAD Contractor, Supervision Company	Construction phase	Included in works contract .
9	Noise (Community)	Noise disturbance to residents.	• Community awareness campaigns.	MOARD, CRADSupervision Company, Contractor	Construction phase	Included in works contract .

			• Safe work design. • Schedule noisy works outside public rest periods.			
10	Land Use	Disturbance of land use/economic activities.	• Abbreviated RAP. • Use public/state land where possible. • Provide alternative irrigation supply if needed.	MOARD, CRAD Supervision Company, Contractor	Pre – construction	TBD.
11	Noise / Vibration (Workers)	Noise and vibration exposure.	• Limit to daylight hours. • Fit covers to noisy equipment. • Public notifications. • Provide ear protection.	Contractor, Supervision Company	Construction phase	Included in works contract.
12	Dust	Dust from excavation/traffic.	• Dust suppression (road watering). • Prohibit burning of waste.	Contractor, Supervision Company	Construction phase	Included in works contract.
13	Infrastructure	Abandoned structures causing hazards.	• Demolish unsafe structures per law. • Recycle materials where possible.	MOARD, Konispol Municipality, Contractor, Supervision Company	Construction phase	Included in works contract.
14	Public Relations	Community mistrust.	• Transparency in all activities.	MOARD, Konispol Municipality, Contractor,	Construction phase	Included in works

			• Train PR Officers. • Keep Community Liaison Officers (CLOs) on site. • Maintain grievance log.	Supervision Company		contract .
15	Resettlement / Land Acquisition	Poor communication; weak institutional capacity.	• Prepare & implement RAP. • Inform and involve affected communities. • Strengthen institutional capacity.	MOARD, Contractor, Supervision Company	Construction phase	Included in works contract .
16	Employment	High unemployment in project area.	• Prioritize local employment.	Contractor	Construction phase	Included in works contract .
17	Agricultural Disruption	Loss of crops/livestock production.	• Early warnings to farmers. • Compensation to affected farmers.	MOARD, Contractor	Construction phase	Included in works contract .
19	Labour Influx	Social conflict; GBV; child labor; crime; inflation.	• Code of Conduct in Albanian. • Cultural sensitivity training. • Cashless salary payments. • Regular lawful conduct training.	Contractor, Supervision Company, MOARD	Before & during works.	Included in works contract .

			• GBV reporting mechanisms with NGOs. • Ensure no employment of minors. • Recreation opportunities away from rural communities. • Allow workers regular leave to visit families.			

Table 27: Mitigation measures for environmental aspects

Ref #	Topic / Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
1	Fauna	• Risk to reptiles from channel rehabilitation and vegetation clearance. • Disturbance to bird habitat (Natura 2000 site – Janjari reservoir). • Fish entrainment in canal system. • Ecological flow impacts in Pavlla River during intake structure works.	• Conduct canal rehabilitation during winter to avoid reptile mortality. • Schedule works in irrigation channels from late Nov–end of Mar to avoid stork migration period. • Maintain river flows and clear irrigation channels. • Design structures to meet fish pass criteria. • Maintain ecological flow in Pavlla River	Contractor, Supervision Company	Throughout construction	Included in works contract

			during construction. • Divert river in small segments during intake works.			
2	Flora	• Loss of native vegetation. • Introduction of invasive species.	• Develop nursery for native plants. • Replant native species in collaboration with RDPA. • Clean equipment before entering site to prevent seed dispersal.	Contractor, Supervision Company	Throughout construction	Included in works contract
3	Soil Quality	• Soil structure damage from traffic/storage. • Loss of topsoil. • Erosion from runoff/wastewater. • Risk of contamination.	• Protect non-construction areas. • Strip and store topsoil separately (max height 2 m, stable location). • Seed stockpiles for protection. • Design drainage to ensure stability. • Avoid wastewater discharge on soil. • Store excavated material safely for reuse. • Install berms, channels, and rip-rap. • Train workers on spill prevention and provide spill kits.	Contractor, Supervision Company	Throughout construction	Included in works contract

4	Land	• Land damage and instability. • Landslide risk. • Impacts from excavation disposal.	• Protect non-construction areas. • Minimize land take. • Stabilize slopes and install drainage. • Apply erosion control measures. • Prepare Land Rehabilitation Plan.	Contractor, Konispol Municipality, Supervision Company	Throughout construction	Included in works contract
5	Water Resources & Quality	• Interruption of drainage patterns. • Contamination from waste, fuel/oil, chemicals.	• Maintain natural drainage. • Dispose of hazardous waste safely. • Wash vehicles only in designated areas with sediment control. • Prohibit refueling on slopes/near water.	Contractor, Konispol Municipality, Supervision Company, REA	Throughout construction	Included in works contract
6	Wastewater	• Contamination from untreated wastewater impacting soil/groundwater.	• Provide chemical toilets via licensed supplier. • Dispose to wastewater treatment plants or septic tanks with disinfection. • Prohibit discharge to soil or water bodies. • Maintain sanitation facilities.	Contractor, Supervision Company, REA	Throughout construction	Included in works contract

7	Erosion & Landslides	• Erosion from clearing/excavation. • Sedimentation of canals.	• Vegetate exposed soil promptly. • Restore degraded areas with suitable material. • Install slope protection, berms, sandbags. • Use sediment traps to capture runoff material.	Contractor, Konispol Municipality, Supervision Company, REA	Throughout construction	Included in works contract
8	Air Quality	• Dust emissions from works and traffic. • Fuel combustion emissions.	• Water unpaved roads as needed. • Schedule works at socially acceptable times. • Cover material transport loads. • Control vehicle speed. • Clean vehicles before site entry. • Prohibit burning waste. • Use low-sulphur diesel. • Provide PPE/masks to workers.	Contractor, Konispol Municipality, Supervision Company	Throughout construction	Included in works contract
9	Acoustic Environment	• Noise disturbance from works and traffic. • Disturbance to fauna.	• Restrict works to 08:00–17:00. • Fit covers to generators. • Restrict traffic in residential areas. • Install noise barriers and silent zone signs. • Use silencers on equipment.	Contractor, Konispol Municipality, Supervision Company	Throughout construction	Included in works contract

10	Historical / Cultural Sites	• Damage to known cultural heritage.	• Align works to avoid sites. • Apply protective measures for known resources. • Follow chance find procedures.	Contractor, Supervision Company, Regional Directorate of Culture	Throughout construction	Included in works contract
11	Waste Management	• Improper waste disposal affecting environment and health.	• Prepare Waste Management Plan. • Train workers on waste handling. • Manage domestic waste away from water bodies. • Promote recycling. • Provide bins. • Use licensed waste management company. • Keep waste records per Albanian law.	Contractor, Supervision Company, REA, Konispol Municipality	Throughout construction	Included in works contract
12	Labour Influx (Environmental Pressures)	• Inadequate waste disposal. • Freshwater demand. • Deforestation/ecosystem degradation. • Natural resource pressure.	• Immediate response to environmental issues by supervision. • Worker environmental training. • Use GRM effectively. • Monitor ESMP implementation. • Conserve/reuse water. • Avoid freshwater contamination.	Contractor, Supervision Company, MOARD	Before & during construction	Included in works contract

			• Reduce energy/noise/light pollution. • Avoid deforestation where possible.			

8.2 MITIGATION MEASURES DURING REHABILITATION DURING OPERATION PHASE

This section presents the mitigation measures for both schemes presented above for the operational phase.

Table 28: Mitigation measures of Xarra-Bufi Scheme during operational phase

Ref. #	Topic / Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
Social Aspects						
1	Economy	• Economic benefits from improved irrigation, flood control, and water supply. • Increased agricultural land use. • Introduction of new crops. • Greater community engagement in agriculture. • Potential for improved groundwater and surface water management.	• Enhance irrigation potential and infrastructure. • Facilitate access to new crop varieties. • Support training for sustainable agricultural practices.	Municipality, MOARD, MOE	At the start of operation	To be determined

2	Infrastructure	• Possible degradation of existing infrastructure.	• Upgrade ancillary infrastructure to maximize benefits (roads, eco-tourism facilities, irrigation). • Align WSS services with existing GoA policy.	Municipality, MOARD, MOE	At the start of operation	To be determined
—	Benefits & Equity	• Risk of inequitable distribution of benefits.	• Ensure women's full participation. • Provide operational capacity-building and targeted training.	Municipality, MOARD, WUAs	Throughout operation	To be determined
3	Water Use Conflicts	• Competition between Pavlla River and reservoir users (irrigation, hydropower, fisheries).	• Apply Decision No. 111/2012 on Integrated Water Resource Management. • Coordinate with National Water Council and other bodies.	MOARD, Regional Drainage Boards, RBC, Municipality, MOE	Before start of operation	No direct additional cost
4	Social / Recreational Safety	• Risk of sudden inundation downstream due to floods.	• Implement flood warning systems downstream of Janjari reservoir.	Municipality, MOARD, MOE	At the start of operation	Depends on downstream habitation
5	Agricultural Product Safety	• Soil degradation or contamination from polluted water.	• Stop irrigation if contamination is detected. • Control pollution sources. • Monitor water quality in Janjar, Bufi, and Mursi.	MOARD, Municipality	At the start of operation and during dry season	To be determined by technical team
6	Human Health	• Farmers exposed to pesticide/ferti	• Provide IPM-based training on safe	MOARD, Regional Directorate	Throughout	To be determined

		lizer risks. • Children swimming in primary channels.	pesticide use. • Install safety grates at siphons.	of Public Health	operatio n	
Environme ntal Aspects						
1	Biodiversit y (Flora & Fauna)	• Loss of spawning grounds and aquatic habitats. • Fish entrainment in canals. • Pollution impacts on fish.	• Control illegal gravel extraction. • Maintain environmental flows. • Manage agrochemical application/disp osal.	Drainage Boards, Irrigation Operator, Environme ntal Inspecto		

9 MONITORING PLAN

The Monitoring Plan forms an integral part of the Environmental and Social Management Plan (ESMP) for the Janjari System Rehabilitation Project, which covers the Janjari Canal, Konispol Irrigation Scheme, and the Janjari & Murrsi dams.
Its purpose is to ensure that environmental and social performance commitments are effectively implemented and that the impacts of construction, rehabilitation, and operation activities are continuously evaluated and addressed.
Monitoring provides the link between impact assessment predictions and actual field performance, enabling adaptive management throughout the project lifecycle.

The Monitoring Plan applies to all phases of the project:

- Pre-construction – Baseline monitoring to establish reference environmental and social conditions.
- Construction and Rehabilitation – Regular monitoring of potential impacts and compliance with mitigation measures for works on canals, dams, and irrigation infrastructure.
- Operation and Maintenance – Long-term monitoring to ensure sustained environmental performance, community safety, and infrastructure integrity.

The scope covers both environmental and socioeconomic parameters, including but not limited to:

- Water quality and quantity
- Air quality (dust and emissions)
- Noise and vibration levels
- Biodiversity (fauna and flora)
- Soil stability and erosion control
- Waste management practices
- Community health and safety
- Labour influx impacts
- Cultural heritage protection

The primary objectives of the Monitoring Plan are to:

1. Verify Compliance – Ensure that the project meets Albanian environmental and social regulations, World Bank Environmental and Social Standards (ESS), and commitments made in the ESMP.
2. Assess Effectiveness – Measure the performance of mitigation measures to determine if they are achieving the intended outcomes.
3. Enable Early Action – Identify any deviations or emerging issues early so that corrective measures can be implemented promptly.

4. Maintain Transparency – Provide accurate, timely, and accessible monitoring results to stakeholders, including affected communities.
5. Support Continuous Improvement – Use monitoring data to adapt and refine management measures, improving environmental and social performance over time.

Table 29: Monitoring Plan – Construction, Rehabilitation, and Operation Phases

Monitoring Indicator	Parameters	Monitoring Activity / Details	Frequency	Reporting	Legal / International Best Practice Requirements	Monitoring Supervision	Cost
Noise	LAeq, LAmax, LAF	Ensure that maximum and equivalent noise levels on-site comply with Albanian legislation and IFC standards. Verify no community complaints regarding noise.	Monthly by accredited laboratory; Daily by contractor	Monthly submission by contractor	**Albania:** Law No. 9774 (12 July 2007) "On the Assessment and Management of Environmental Noise" (as amended) **IFC EHS Guidelines:** Section 1.7 – Noise **Limits:** Daytime (07:00–22:00) – Residential: 55 dB(A), Industrial: 70 dB(A) Nighttime (22:00–07:00) – Residential: 45 dB(A), Industrial: 70 dB(A)	Project Supervisor, MOARD,	Included in project budget

					Max. increase over background: +3 dB(A)		
Air Quality	SOx, NOx, NO_2, CO, TVOC, O_3, H_2S, heavy metals, PM_{10}, $PM_{2.5}$, TSP	Ensure air quality complies with Albanian standards. Record and respond to complaints.	Monthly by accredited laboratory	Monthly submission by contractor	**IFC Guidelines:** EHS Guidelines – Paragraph 1.1 **Albania:** Law No. 162/2014 "On Protection of Ambient Air Quality"; DCM No. 594/2014; DCM No. 412/2019 (National Air Quality Management Plan)	Project Supervisor	Included in project budget
Water Quality	pH, EC, BOD, DO, COD, TSS, TDS, SO_4^{2-}, PO_4-P, Cl^-, NO_3^-, Nitrogen, Phosphorus, Ca, Mg, Na, K, Heavy metals, PAH, PCBs, TPH, BTEX, Priority substances (e.g., Chlorinated aliphatics,	Verify compliance with Albanian and EU water quality standards; prevent contamination.	Monthly by accredited laboratory	Monthly submission by contractor	**EU:** Water Framework Directive (2000/60/EC); Directive 78/659/EEC (Fish Life Support); Directive 2008/105/EC **IFC EHS Guidelines:** Wastewater & Ambient Water	Contractor	Included in project budget

	DDD, DDT, Chlorinated phenols, Chlorobenzenes, Alachlor, Atrazine, Brominated diphenylether)				Quality (2007)		
Soil Quality	Heavy metals, PAH, PCBs, TPH, BTEX	Ensure soil quality remains within permissible limits; prevent contamination.	Monthly by accredited laboratory	Monthly monitoring report	**USDA Guidelines** – Soil Quality Assessment in Conservation Planning (2001)	Contractor	Included in project budget
Waste Management Practices	Presence of Waste Management Plan (WMP), Waste segregation, Licensed waste contractor, Waste disposal records	Ensure waste is stored, transported, and disposed of according to Albanian law and ESMP.	Monthly	Waste register submission	**Albanian Waste Management Legislation**; IFC EHS Guidelines – Waste Management	Contractor	Included in project budget

Table 30: Monitoring Plan – Operation Phase (Water Assessment)

Monitoring Indicator	Parameters	Monitoring Activity / Details	Frequency	Reporting	Legal / International Best Practice Requirements	Monitoring Supervision	Cost

Water Quality & Discharge	pH, Temp, EC, BOD, DO, COD, TSS, TDS, SO_4^{2-}, PO_4-P, Cl^-, NO_3^-, Nitrogen, Phosphorus, Ca, Mg, Na, K, Heavy metals, PAH, PCBs, TPH, BTEX, Priority substances (as listed above)	Measure discharge volumes and compare with historical baseline data; monitor compliance with surface water quality standards.	During operation phase	MOARD periodic reports	**EU:** Water Framework Directive (2000/60/EC); Directive 78/659/EEC; Directive 2008/105/EC **IFC EHS Guidelines:** Wastewater & Ambient Water Quality (2007)	MOARD	MOARD budget

Table 31: Social Monitoring Plan (Selected Indicators)

Ref #	Aspect / Indicator	Monitoring Objective	Parameters to be Measured	Frequency	Location	Responsibility	Reporting
1	Community Health & Safety	Minimize health and safety risks to local population from project activities	• Number and type of accidents involving the community • Traffic control measures implemented • Condition of pedestrian access near work sites • Public awareness campaign records	Monthly during construction; Quarterly during operation	Villages along access roads (Xarra, Mursi) and near canals	Contractor, Supervision Company, MOARD	Monthly report during construction; quarterly in operation

2	Labour Influx Impacts	Prevent social conflict, GBV, and illegal activities linked to worker presence	• Number of workers from outside the community • Code of Conduct signed by all workers • GBV/harassment complaints recorded in GRM • Community grievances related to workforce	Monthly	Worker camps, nearby communities	Contractor, Supervision Company, MOARD	Monthly monitoring report; GRM log
3	Cultural Heritage Protection	Avoid disturbance or damage to known or chance-find heritage resources	• Chance find records • Archaeologist presence during excavation • Condition of known cultural heritage sites • Evidence of compliance with Ministry of Culture requirements	Continuous during excavation	Project excavation zones, identified heritage sites	Contractor, Supervision Company, Regional Directorate of Culture	Incident report immediately; monthly compliance summary

Table 32: Biodiveristy monitoring during construction

Category	Indicator	Purpose	Method	Frequency	Responsibilities
Terrestrial fauna – reptiles & amphibians	Number of reptile/amphibian sightings or mortality events along canals and work sites	Detect construction-related mortality or displacement	Transect surveys, visual encounter surveys	Monthly during earthworks	Contractor/ Crad etc

Bird species (waterbirds, storks)	Species richness, abundance, nesting activity in Janjari reservoir, Mursi wetland	Assess disturbance to feeding/nesting birds	Point counts, camera traps, observation logs	Monthly in migration/breeding season	
Fish populations	Presence and abundance downstream of intake/outlet	Detect entrainment or migration barriers	Netting, electrofishing, visual surveys	Quarterly	
Vegetation cover	% native vegetation cover in disturbed areas	Assess habitat loss and recovery	Quadrat sampling, photo points	Pre-construction baseline, then quarterly	
Invasive species presence	Number and extent of invasive plant patches	Early detection to prevent spread	Visual inspection	Quarterly	
Water quality in canals & Pavlla River	Turbidity, DO, temperature, nutrients	Detect sedimentation and contamination	Field probes, lab tests	Monthly	
Noise levels	dB levels near sensitive habitats (bird areas, nesting sites)	Ensure compliance with disturbance limits	Portable noise meters	Weekly during peak works	

Table 33: Biodiversity monitoring during operation

Category	Indicator	Purpose	Method	Frequency	Responsibilities
Bird population trends	Number of key species (e.g., storks, herons) at Janjari reservoir & Mursi wetlands	Long-term habitat value assessment	Standard bird monitoring routes, seasonal counts	Twice annually (migration + breeding season)	Contractor/ Crad etc
Fish migration and health	Presence of target migratory species	Assess fish pass effectiveness & ecological flow	Sampling upstream/downstream	Annually	
Riparian vegetation health	Native cover, invasive control success	Track restoration success	Vegetation surveys	Annually	

Water quality for aquatic biodiversity	DO, turbidity, temperature, nutrients	Ensure suitable aquatic habitat	Sampling	Quarterly	
Habitat connectivity	Status of wildlife crossings, fish passes	Maintain ecological linkages	Visual inspection, camera traps	Annually	
Protected species sightings	Occurrence of Natura 2000 / Red List species	Detect biodiversity recovery or decline	Field logs, GPS records	Continuous opportunistic + annual summary	

10 INSTITUTIONAL AGREEMENT FOR MP

This chapter outlines the institutions and companies responsible for implementing mitigation measures and carrying out monitoring procedures during all project phases. Responsibilities cover construction, supervision, enforcement, monitoring of implementation, remedial actions, financing, reporting, and staff training.

Proposed Institutional Responsibilities

1. Supervision Company (Consultant)

    - Ensure that rehabilitation and civil works are carried out in full compliance with the Environmental and Social Management Plan (ESMP), including all mitigation measures.
    - Verify adherence to World Bank Environmental and Social Standards (ESS) and relevant Albanian legislation.
    - Monitor environmental, health, safety, and social (EHSS) performance of the Contractor through regular inspections.
    - Prepare and submit monthly environmental and social compliance reports to the Ministry of Agriculture and Rural Development (MOARD) and the World Bank.

2. Ministry of Agriculture and Rural Development (MOARD) and Ministry Environment

    - Assign qualified environmental and social staff to oversee ESMP implementation from the start of construction.
    - Ensure that Konispol Municipality appoints a Local Engineer/Specialist to monitor on-site compliance, liaise with communities, and facilitate the Grievance Redress Mechanism (GRM).
    - Approve the contractor's method statements and ensure that mitigation measures are embedded in daily operations.
    - Provide oversight on corrective actions for any non-compliance.

3. Konispol Municipality

    - Support on-site monitoring and community liaison during construction.
    - Participate in awareness campaigns and local grievance handling.
    - Coordinate with MOARD to address environmental or social incidents at the local level.

4. Operation and Maintenance (O&M) Phase

    - Fier Drainage Board – Responsible for managing the main channels, ensuring maintenance, environmental compliance, and implementation of mitigation measures.

- Konispol Municipality – Responsible for maintenance and compliance for secondary channels, including waste management and community health and safety measures.

5. Quality Supervision during Construction

    - During the construction phase, MOARD will appoint a Quality Supervisor to ensure that construction quality, environmental safeguards, social requirements and Ocupational health and Safety are met, and that works are executed according to approved designs and ESMP provisions.

10.1 CAPACITY DEVELOPMENT AND TRAINING

Successful implementation of the Janjari Project is directly linked to the capacity building of the Ministry of Agriculture and Rural Development (MoARD) and the training of all relevant stakeholders. Training programs will be designed according to the specific roles and responsibilities of staff (specialists, engineers, supervisors, etc.) involved in managing, implementing, and operating the Environmental and Social Management Plan (ESMP).

All training activities should be documented, with proper record-keeping of attendance lists, training materials, and evaluation results. This ensures traceability and compliance with both Albanian legislation and World Bank Environmental and Social Standards (ESS).

10.2 MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT (MOARD)

MoARD will designate a qualified representative to oversee the preparation, implementation, and supervision of the ESMP and associated sub-plans. In line with the project methodology, MoARD must contract an accredited environmental laboratory prior to the commencement of works and throughout the construction phase.

The appointed specialist or environmental engineer must receive targeted training and resources to effectively carry out their role. Recommended training topics include:

- Albanian environmental legislative framework and relevant regulations.
- World Bank Environmental and Social Standards (ESS) and applicable safeguard requirements.
- Compliance assessment, monitoring, and reporting methodologies.
- Environmental audits and site inspection procedures.

10.3 CONSTRUCTION COMPANY FOR REHABILITATION WORKS

The awarded contractor for the rehabilitation works must ensure that all employees, including those of subcontractors, operate in full compliance with the Janjari ESMP requirements.

The construction company must maintain complete documentation and records related to:

- Periodic training sessions.
- Attendance sheets.
- Waste generation logs.
- Incident reports.
- Inspection records.
- Material Safety Data Sheets (MSDS), where applicable.

Key training topics for the contractor and workers should include (but are not limited to):

-
- HSE Training
- Compliance assessment, monitoring, and reporting procedures.
- Awareness of potential environmental impacts from civil works: erosion control, working near water bodies, sediment control, spill prevention and response, and waste management (including soil disposal areas).
- Flora and fauna protection measures from vegetation clearance through to rehabilitation completion.
- Cultural heritage and protected areas management, especially regarding monuments of nature and cultural heritage near the project area.
- Public consultation and Grievance Redress Mechanism (GRM) procedures.
- Monitoring and sampling protocols (if applicable).

10.4 ENVIRONMENTAL MONITORING CONSULTANT

The Environmental Monitoring Consultant, to be contracted for the Janjari and Mursi Project, must be trained in advance on all relevant project policies, including environmental sampling procedures, reporting formats, timelines, and submission deadlines.

A key focus of the consultant's work will be to monitor water quality impacts in the Butrinti Lagoon, one of the most ecologically significant water bodies in the project area. Monitoring activities must be aligned with the Environmental and Social Management Plan (ESMP) and relevant World Bank Environmental and Social Standards (ESS).

The consultant's auditing and monitoring plan will specifically inform actions to address potential impacts (if any) on water quality, based on systematic water monitoring. Following consultations during site meetings with the local community and the agronomist, it has been determined that the irrigation period runs from 15 May to 15 September.

Water monitoring will be conducted during the following periods:

Period of Monitoring	Parameters of Monitoring
Before construction phase (baseline)	Physical and chemical parameters
Before the irrigation season (baseline)	Physical and chemical parameters
After construction phase	Physical and chemical parameters
After the irrigation season	Physical and chemical parameters

Note: Periods, parameters, and sampling points must be approved in advance by MoARD.

The third phase of the consultant's work will involve interpretation of data and results. These results will serve as a baseline reference for the Client and will be compared with ongoing monitoring data. Based on the findings, the consultant will provide recommendations for corrective actions, if required. The final monitoring report will be submitted to the Client in accordance with agreed reporting timelines.

10.5 TECHNICAL ASSISTANCE

In addition to formal staff training, technical assistance will be included within the project's training budget. This support may be provided by freelance consultants or specialist firms with relevant expertise.

Technical assistance may involve:

- Full-time onsite deployment within MoARD during critical project phases.
- Short-term visits by subject matter experts to deliver targeted training modules.
- Specialized workshops or on-the-job training for MoARD staff, the supervision company, and contractor personnel.

The technical assistance component will ensure that specialized knowledge gaps are addressed promptly and that project stakeholders are fully capable of implementing, monitoring, and reporting on all ESMP requirements.

11 COST ESTIMATION FOR ESMP IMPLEMENTATION

The Environmental and Social Management Plan (ESMP) will include an **approximate estimate of the costs** for implementing the recommended mitigation and monitoring measures, as well as capacity-building activities.

These cost estimates have been developed in consultation with all affected groups to ensure that their concerns and viewpoints are reflected in the ESMP design. The budget will cover implementation during the **construction, rehabilitation, and operation phases** of the Janjari System.

Table 34. Estimated Costs for ESMP Implementation

ESMP Element	Estimated Cost	Notes
1. Mitigation Measures (implemented by the contractor)	1–3% of the total construction cost for the Janjari System rehabilitation	Included in contractor's contract value
2. Environmental and Social Monitoring (accredited laboratory – baseline, during construction, and post-construction)	To be determined based on approved sampling plan	Cost depends on number of parameters, locations, and frequency
3. Capacity Development	—	—
3.1 Staff Training	Included in project budget	Training for MoARD, supervision consultants, contractors
3.2 Procurement of equipment and supplies	Based on needs assessment	Sampling kits, PPE, monitoring tools
3.3 Technical Assistance (TA)	Included in TA budget	• Assist in updating management plans • Support MoARD in assigning an environmental engineer/specialist • Contractor liaison

Note: In accordance with the contract agreement, the **Supervision Consultant** will seek **MoARD approval** for all program activities and associated costs before implementation.

12 12. Public Consultations and Disclosure of Information

Public consultations were a key element of the ESMP preparation process for the project "Feasibility Study, Detailed Design & PMMS for Janjari System". Two public hearings were conducted at different stages to engage stakeholders and the local community.

- First Hearing – *14–15 May 2019*: Early-stage consultation to introduce the project, gather opinions, and identify community concerns regarding the Janjari irrigation scheme. The feedback was valuable for integrating local priorities into the design process.
- Second Hearing – *7–8 October 2019*: Consultation after the draft design and ESMP were prepared, to present the chosen project alternative and gather final comments from residents, municipal specialists, and Butrint National Park representatives.

Table 34: Summary of Public Consultation Meetings (Preliminary ESMP Phase)

No.	Date	Location	Purpose	Institutional Representatives	Consultant Participants
1	15–16 Apr 2019	Entire Project Route	Site visit	Saranda Drainage Board, Finiq Municipality, Konispol Municipality	Sonila Gogu, Erald Hasanaj, Marjola Pepaj
2	1 May 2019	Mursi, Markate, Livadhja, Konispol	Poster placement	—	Erald Hasanaj
3	2 May 2019	Finiq, Konispol	Site visit with agronomist	Eng. Duro Alushi, Mayor of Konispol	Erald Hasanaj, Aulona Shalla, Sonila Gogu, Zef Gjeta
4	14–15 May 2019	Mursi, Markate, Livadhja, Konispol	First public consultation	Butrint Admin Office, Vlora RAP, Ministry of Culture, Drainage Board, Mayor of Konispol, Agriculture Directorate specialists	Enerjan Gremi, Erald Hasanaj, Marjola Pepaj, Sonila Gogu, Borana Mile
5	7–8 Oct 2019	Shals, Mursi, Butrint National Park	Second public consultation	Cultural Monuments Sector, Butrint NAO, RDCH specialists, WRIP/MOARD, Konispol Administrative Unit representatives	Erald Hasanaj, Sonila Gogu, Enerjan Gremi, Neritan Shtino, Anida Zeqirllari

12.1 STAKEHOLDER ENGAGEMENT

The stakeholder engagement process aimed to promote informed decision-making and build trust with communities and institutions affected by the project. It ensured that local stakeholders had the opportunity to express opinions and influence project design.

Key stakeholder groups:

- Public Sector: Ministry of Tourism and Environment, National Agency of Protected Areas, Ministry of Culture, Butrint National Park Administration, Drainage Boards of Fier and Saranda, Konispol Municipality, Finiq Municipality, Markat and Mursi Administrative Units.

- Affected Persons: Farmers, residents, water users.
- Private Sector: Local businesses.

Engagement activities were carried out in line with World Bank ESS10: Stakeholder Engagement and Information Disclosure and Albanian legislation, particularly DCM No. 994, dated 02.07.2008 on public participation in environmental decision-making.

12.2 STAKEHOLDER ENGAGEMENT PLAN (SEP)

The SEP serves as a guiding document to ensure consistent, transparent, and inclusive engagement throughout the project lifecycle.

Main objectives:

- Identify and engage all affected stakeholders (Drainage Boards, Local Government, Water User Organizations, communities, NGOs).
- Maintain a work plan for regular information sharing.
- Conduct consultations, public meetings, and targeted interviews.
- Develop stakeholder analysis and management strategies.

12.3 EARLY-STAGE PUBLIC CONSULTATIONS

Prior to the first public consultations, official invitations were sent to all relevant institutions, and information was disseminated via:

- Posters in Konispol, Mursi, Livadhja, and Markat.
- Announcements on local Saranda TV (8–13 May 2019).

First Consultation (14–15 May 2019):

- Held in Mursi, Markat, and Livadhja Administrative Units.
- Attended by local residents, municipal leaders, and representatives from Butrint National Park, Ministry of Culture, Saranda Protected Areas Administration, and Saranda Drainage Board.
- Feedback gathered on project design, environmental concerns, and community needs.

Attendance list in the organized consultations:

Morën pjesë në Dëgjesën me Publikun si më poshtë, shoqëruar dhe me foto:

Nr	Emër, mbiemër, nënshkrimi	Institucioni, statusi	Nr. i kartës së identitetit	Largësia e banesës nga objekti (deklaruar nga banori)
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Morën pjesë në Dëgjesën me Publikun si më poshtë, shoqëruar dhe me foto:

Nr	Emër, mbiemër, nënshkrimi	Institucioni, statusi	Nr. i kartës së identitetit	Largësia e banesës nga objekti (deklaruar nga banori)
1	Pauli Thoma [illegible]	ZAK, Butrint	Drejtor	0695270066
2	Nexhama [illegible]	Ministria e Kulturës	Specialist	0699772323
3	Neusi Mitre [illegible]	MBZHR / WRIP	Konsulente	0694008874
4	Valentina Fejzo [illegible]	AdZM Vlorë	Sp. Menaxhim	0695770700
5	[illegible]	[illegible]	[illegible]	069[illegible]630[illegible]
6	Lorena Zote	Bashkia Konispol	- Specialist Bujqësie	0699802133
7	Morena Sejko	Bashkia Konispol	- Drejtor Bujqësie	0697063018
8	Athina [illegible]	[illegible]	0682068813	[illegible]
9	Entela Hysi	Bordi Kullimit Sr	Inxhiniere	0695193124
10	Serret Ysufi	B. Konispol	0697063038	
11	HRISTO MALLAKEZO	Krye/-P.S.B. Konisp	F90510443R	0697202421
12	[illegible]	Fermer Mursi		
13	Foto Kote	Bashk. Konisp.	Agronom	0686853047
14	Spiro Kozi	Bashkia Konispol		0695230986
15	Vasil Xhai	Fermer	—	—
16	Sokrat Kaloçi	Fermer	—	0653601784
17	[illegible]	Fermer	—	0682028901
18	[illegible]	Fermer	—	069[illegible]
19	[illegible]	Fermer	—	
20	[illegible]	Fermer		0684132647
21	Spiro Danja	Fermer		—
22	Pavllo Daja	[illegible]	0685903119	
23	Niko Duro			
24	HARalliam B kote			
25	Artur Rulja			
26	[illegible]	AMI		
27	[illegible]	Fermer	0682843787	
28	Tefik Xhufkai	Bashkia Konispol	Specialist IT	0695238203
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Materials of presentation (project summary A4 format and maps in A3 format) were available to the participants during the consultations in order to give each of them the opportunity to be informed about the project. Below are the presentations prepared by the consultant, which were presented to the consultation.

12.4 PUBLIC CONSULTATION AFTER THE ESMP DRAFT PHASE

Post-ESMp hearings took place on 7-8 / 10/2019. For the organization of public consultations, official letters were sent to all the institutions listed below with information on the purpose of the consultation, the date and location of its development:

1. Official letter to Konispol Municipality

2. Letter to the Directorate of Irrigation and Drainage, Fier

3. Official letter to the Ministry of Culture

4. Letter to the Ministry of Tourism and the Environment

5. Letter to the Saranda Irrigation and Drainage Board

6. Papers for the Management Board of Butrint National Park

7. Email correspondence with the MOARD representative

Before the public consultation, the consulting company GR ALBANIA ltd, published posters in the municipalities of Konispol, Mursi, Livadhja and Markata to inform the community about the public consultation process. The poster clearly identified the project title, date, time and location of the public consultation.

The first consultation was held on 7 October, at the Mursi Administrative Unit, near the Cultural Center. In addition to the residents of Mursia and Konispol present were also the Mayor of Konispol. The follow-up consultation also took place on 7 October at the Shals Administrative Unit where all representatives of the above mentioned institutions and local residents participated

On October 8, 2019, a meeting was held with the managers of the Butrint National Park Management Board at the board offices inside the park. The following are the attendance lists and the presentation prepared for the consultant's open hearing.
Attendance list in the organized consultations:

Datë 7.10.2019 Qëndra Kulturore Mursi

Morën pjesë në Dëgjesën me Publikun si më poshtë, shoqëruar dhe me foto: Ora 11:30

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8			Ing. Erald Hasanaj	
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Prezantim "Shals" Shkoller "

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1	Kamber Muztaj	Nj. A. Markat	6011?28028W	
2	Nurene Shehu	Nj. MARKAT		
3	Gjergji Musa	Shals		
4	ESAT Selmani			
5	Tomorr Avdule			
6	Eqerem Murat			
7	LAZE ABDULI			
8	Adriatik Domi			
9	Mustafa Mehmeti			
10	Hekim Ademi			
11	Bardhyl Zule			
12	Bashmir Musaj			
13	Kleo [illegible]			
14	[illegible]			
15	[illegible]			
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17	Behar Ciare			
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1	ALTIN AHMETI	PERFAQ. I SEKTORIT KULTURA K. SARANDE		
2	Evarest Elmaj	Përgjegjës Sektori	ZAK. Butrint	
3	ALI RUSTEMI	SPECIALIST	DRTK	
4	GENCI KACI	SPECIALIST	DRTK	
5	Dorina Shima	SPECIALISTE	ZAK Butr.	
6	Jorni Pecali	MPZHR		
7	Nensi Mitre	WRIP/HBZHR		
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12.5 SUMMARY OF COMMENTS, DISCUSSIONS AND QUESTIONS

Public Consultation, 14/05/2019 - Mursia Cultural Center

The first question:

Director of NAO Butrint/ Ministry of Culture concerned whether new tracks will be opened or if works will be carried out to rehabilitate the existing trail?

The archaeological aspect was also required to be considered before works could begin.

The answer was that, if there were additional channels or additional interference with the existing canals, a detailed archaeological report would be made and all procedures for obtaining the relevant permission at the "Ministry of Culture" and the "Archaeological Service Agency" would be followed. A licensed archaeologist will also be present during the construction work.

The environmental monitoring plan was also discussed. Farmers have been informed that water quality will be monitored in relation to pesticides used and potential water pollution that could have a direct impact on Butrint Lake. For this, there will be an ongoing monitoring program, according to the environmental plan, attached to the implementation project.

The second question:

Was asked about the final project scheme and about the project fund determination.

The answer was that the funding would be determined depending on the study of the Agricultural Plan and the needs that would arise for the project. And after the study scheme, the final scheme will be selected and presented to the next public hearing.

The third question:

It was asked if the canals were sufficient for all the parcels of residents of the area.

The answer was that the hydro module would be increased compared to the existing one so that the total area that would be part of the irrigation system would be 2500 ha at a time..

The fourth question:

It was asked if the existing channel would change or be the same.

The answer was that the capacity would increase based on the module but the channel footprint would be the same.

The fifth question:

It is required that the outlet of Janjari canal be made by pipeline rather than open channel due to possible blockage by sediments and possible rocks if the channel is projected to be open.

The answer was that this will be discussed during the works but there is no difference between the open channel and the Janjari pipeline.

The sixth question:

It was asked about the start of work and the deadline for completion of the project, where residents were told that work would not begin for this irrigation season.

It has also been asked which of the schemes will first start to be rehabilitated but residents have been informed that the entire canal distance will be rehabilitated at the same time and works will begin and end at the same time everywhere as a separate project.

<u>Public Consultation, 14/05/2019 - Markat Administrative Unit</u>

The first question:

Was asked if there will be a rehabilitation works only for existing canals or if the secondary ones are included in the project scheme.

The answer was that the existing and the secondary channel until all the parcels were included in the Project works. The municipality will take care of the tertiary canals and are not part of the project. Residents were also informed that the object of this project is to improve the system in order to be functional and easily manageable.

The second question:

Bridges to be built for animal overpasses present in areas around the canal were discussed.

It was promised by Municipality that they would provide the exact locations where bridges are needed to include them in the final scheme.

The third question:

It was asked if siphons would be built and it was explained that all siphons would be built so that the channel would be functional.

The fourth question:

Road construction for access to the dam is required.

The answer was that the existing roads would be reconstructed.

The fifth question

Residents have also expressed concern about alluvial overpasses that could block the canal. They were envisioned in the original project but were never built after the fall of the old regime.

They were informed that this matter would be considered in the final scheme.

The sixth question

There were questions about the start of the works and the deadline of the implemented project where residents were told that the works would not affect this irrigation season..

The seventh question

Residents have expressed concerns about the amount of water the canal will use to irrigate the entire area.

Residents were informed that the agronomist will calculate the water balance in relation to the water resources. The agronomist will also prepare the water balance of the water in relation to the river Pavlla.

Eighth question

The Mayor has requested the topographic map of the scheme in order to complete all the necessary installations for animal overpasses, alluvial contamination, and the parcels issues.

Residents were told that all the maps needed for Konispol Municipality would be provided.

The ninth question

In the field is a Parcel with secondary channels to be checked at the exit of the tunnel. In the existing projects, the secondary canals of the Markat lands were designed but never built due to changes in the political system of that period and the project was not implemented. In this meeting with residents of the area, residents have requested that these canals be constructed because all Markat parcels receive water only from these canals and cannot be irrigated in another form.

The consulting company explained that any canal that was included in the existing scheme would be reconstructed, and any canal that was not built by the '90s scheme would be built with this project covering all agricultural areas of the area.

Tenth question

All environmental issues, environmental monitoring, and monitoring plan are discussed as well:

- Air monitoring,
- Monitoring of water in irrigation canals,
- Monitoring of water in the water resources to be used.

At the end of the meeting, the consulting company requested an official letter on all residents' requests.

Public Hearing on 14/05/2019 Livadhja Administrative Unit

The first question:

Farmers demanded the construction of the "Thoma-Filipeu", Canal, which covers the fields with an area of about 700 hectares. This channel was requested several times during the public hearing by farmers' representatives and the drainage board, who also frequently prepared and sent official letters for the introduction of this channel into the scheme, as the Livadhja fields have a considerable area of fields planted with crops, unlike the Sorone fields with an area of about 660 ha but currently no crops.

We have suggested to farmers that together with the Municipality of Finiq, the Livadja Administrative Unit and the Drainage Board send an official letter to "IBRD", "Ministry of Agriculture", and the Company to consider the possibility of including this channel in the irrigation scheme which is addressed in this contract.

The second question:

Vangjel Jani (Municipality of Finiq) expressed the existence of a social issue between the Konispol Unit and Livadhja regarding the amount of water to be used by the watercourse. They were looking for a management of the case.

It was discussed to prepare a water balance study related to this scheme and all technical solutions to solve this problem.

The third question:

Residents have requested that water be discontinued in the future and that there is a continuous flow during the operation of the scheme..

The consulting company has stated that in the hydraulic calculation of the scheme, the entire agricultural area to be irrigated will be considered at the same time, and there will be no disruptions or problems due to the lack of necessary water for that area. It was also stressed that in the future all canal structures should be maintained so that no problems of this kind occur.

The fourth question:

Rehabilitation of existing animal crossings was also required.

The reconstruction of old bridges and the construction of new ones where necessary will be considered.

The fifth question:

All environmental issues are discussed, as well as environmental monitoring and monitoring plan, as well:

- Air monitoring,
- Monitoring of water and drainage channels,
- Monitoring of water in the water resources to be used.

Public Consultation, 7/08/2019 at Mursi Cultural Center

Question-1:
A resident of Xarra was interested in whether irrigation would be gravity or pressure for the village of Xare.
It was explained to the farmers that all areas of Xarrwa will be pressurized, giving farmers the opportunity to irrigate in drip or in the form of rain. It has also been explained that the Bufi fields as having a high elevation cannot all be irrigated by pressure but only those areas that extend from 30 m above quota to 0 m.

Question 2:
How will local systems connect to the network?
It is explained that the project has set up automatic hydrants equipped with saracineska which have 4 outlets each where local farmer systems can be connected. The positions of these hydrants which are located at the entrance of each node separating plots are shown.

Question 3:
Will the canals that extend to the bottom of Mursi, which have been unused for years, be put to use?
It is explained that all the channels of the existing scheme will be rebuilt by returning to the pressure system, including those channels which were in the original design but were not built after the 1990s.

Question 4:
Will the Konispol scheme and secondary channel exits be reconstructed?

It was explained that the Konispol Canal would be reconstructed up to the entrance of the Konispol city and would all be made of steel pipes. In addition to the 2 existing exits in the reconstruction, there will be 5 more exits that serve to pressure all areas under the Mursis scheme.

Public Consultation, 7/08/2019 at the Shals Administrative Unit

Question 1:

How will the fields of Shalsi be supplied?

It was explained that the Shalsi fields in the new scheme would be irrigated with pressure. This will be accomplished by extending a new pipeline from the Janjar Canal to the Shalwas Plains and subsequently building its secondary network.

Question 2:

How is the irrigation scheme designed for the fields above the Janjar tunnel?

No specific pump station is provided for these areas. It is foreseen that the quantities of water they will need but not of any particular project for them being extended over the Janjar canal. During the discussions the mayor of Konispol assumed responsibility for the construction of the station as they were also constructing a new power line going to the village of Markat.

Question 3:

What will happen to the secondary channel of the market which has not been completed since the first project?

It is explained that this canal will be built from the beginning by pipeline linking to the existing project through a new siphon constructed at the exit of the Janjari water reservoir. The canal will have a length of about 5 km and will cover all the areas of Ninat and Markat that have never been irrigated by the existing scheme.

Question 4:

How will the channels be maintained because of the lack of existing infrastructure?

It was explained that the project envisaged that along the length of the canal from the exit of the Janjari Dam to the entrance of the tunnel which was the most difficult part of the route a new road would be opened which would serve the canal maintenance. Later along its various segments there will be access roads and access ramps to the canal to clean it. There will also be some artworks that are needed to cross the river and other natural obstacles.

Question 5:

Will bridges be built over the canal because they are necessary for the passage of livestock?

The expert replied that for every 500 m, it is foreseen to build pedestrian lanes for livestock and to build bridges for medium and heavy vehicles as needed and for crop cultivation and transport.

Public Consultation, 08/08/2019 in Butrint National Park

The meeting took place in the premises of the Butrint National Park Board where the participants were specialists from the Butrint National Park Administration and Coordination Office, specialist from the Saranda Regional Technical and Cultural Directorate. The consultant appreciated the realization of this meeting with the above-mentioned specialists because part of the project lies within Butrint National Park which is managed by ZAKPB.

The consultant presented the Environmental and Social Management Plan, which will be implemented by the project implementation contractor. In the management plan presented, the specialists were introduced with the location of the works, their types and duration. Mitigation measures to be implemented were also introduced for any identified impact that might be caused during the works. This presentation was aimed not only at presenting the management plan but also getting the opinions, concerns and recommendations of the specialists.

The ZAKPB chief presented some concerns about the:

- Whether the work within the NPB will be followed by the archaeologist;
- For the types of rehabilitation works for the canal segment located within the protected area of the "Water Supply" cultural monument;
- On how to manage the waste that will be generated by remediation work within the GDP;
- If the water quality of Butrint Lagoon is endangered;
- The manner of environmental and social supervision and the persons responsible for ensuring the implementation of the management plan;

Specialists from the Regional Technical Directorate of Culture were interested in whether the project footprint passes within the protected areas of cultural monuments within Konispol municipality.

Another concern was whether an archaeological report for the project area would be developed prior to the commencement of works. Also the manner of supervising the works and ensuring that no monuments of culture will be affected.

During the meeting, the group of experts of the consultant explained the issues raised. Special attention was paid to the suggestions of ZAKPB and DRK specialists. Their suggestions were measures to be taken into consideration during the works and were reflected in the environmental and social management plan.

12.6 PUBLIC CONSULTATION AFTER THE REVISED ESMP DURING DESIGN REVIEW PHASE 2025

With recomandation of World Bank experts, a public consultation was organized and held during the design review phase of project.

Public hearings took place on 29/08/2025. For the organization of public consultations, official letters were sent to all the institutions listed below with information on the purpose of the consultation, the date and location of its development:

1. Official letter to Konispol Municipality

2. Letter to the Directorate of Irrigation and Drainage, Fier

3. Letter to the Ministry of Tourism and the Environment

4. Email correspondence with the MOARD representative

Before the public consultation, the consulting company GR ALBANIA ltd, published posters in the municipality of Konispol to inform the community about the public consultation process. The poster clearly identified the project title, date, time and location of the public consultation.

Attendance list in the organized consultations:

GAUFF GmbH &
Co.Engineering KG
Passauer Str. 7
90480 Nuremberg, Germany

Climate Resilience and Agriculture Development Project

Design review; engineering, construction supervision and quality control for Divjaka and Mursi irrigation schemes (two sites)

GR ALBANIA

GR Albania shpk
Rruga Sami Frasheri, Ndërtesa nr. 19, Hyrja nr. 8,1019, Tirana, Albania

Vendndodhja: Bashkia Konispol

Data: 23/08/2025

LISTA E PJESEMARRESVE

Emer Mbiemer	Institucioni/ Kompania	Numer Kontakti/ Adres e-mail	Nenshkrimi
Miko Lici	OUK Fier	0679134215	
Gezim Zenel	DUKFier	069346805	
Fiqiri Elmazi	Bashkia Kon	0698264955	
Ornela Emini	B.konispol	069 70 63055	
Adrijano Angoi	B. Konispol D. Planifikimit	069 245 0017	
Lorena Muco	B. Konispol	069 99 02 133	
Jorida Marko	B. konispol	0688435498	
Feim	Ldrym	0698776677	
Marinela Hoxha	B. konispol	069557 7658	
Klajdi Ligazi	B. konispol	069706 3017	
Ermiela Kripoli	Fermere	067 200 2582	
Anila Hodaj	B. konispol	068431 5576	
Emiljano Hazbi	Fermer	069 22 31624	
Servet Isufi	Fermer	069 70 63038	
Aurela Isufi	F. Bujqesi	068 26 95 160	

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GAUFF GmbH &
Co.Engineering KG
Passauer Str. 7
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GR Albania shpk
Rruga Sami Frasheri, Ndërtesa nr. 19, Hyrja nr. 8,1019, Tirana, Albania

Alekoçoçi	B.konispol	0696920693	
Gentil Beiko	B.Konispol	0699118013	
Armand Korzo	Fermer	0695712918	
Arjan Gjonsuli	B. konispol	0695700495	
Sokol Cene	Fermer	0683157190	
Brisilda Cene	B.konispol	0682891740	
Entela Hyqi	Bordi kulturor	0685542926	
Roseta Bollano	CRDO	0693046700	
PERPARIM METO	FERMER	0698510493	
ARJAN . METO	FERMER	0692814705	
Spiro koti	fermer	0685334433	
Lefter Billahmi	Fermer	0697063048	
Beuta Gomeci	B. Konispol	0697063016	

12.7 SUMMARY OF COMMENTS, DISCUSSIONS AND QUESTIONS

The public hearing was held by the representatives of the "CRAD" project and the consulting company "GR Albania" which is licensed (LN-4923-04-2012) for expertise activities related to environmental impact, whose representative for the presentation of the project was: Erald Hasanaj – Hydrotechnical Engineer, Orjada Ngjeliu – Environmental Engineer, Erjon Lufo – Geodetic Engineer while the representatives of the CRAD project were: Arben Molla - Project Manager and Rezar Balla, Social Issues Expert for the CRAD project.

The meeting was held at the offices of the Konispol municipality and was attended by farmers in the area, representatives of the Konispol municipality, the Fier Irrigation and Drainage Board and representatives of the Butrint Park.

The public hearing was well attended by stakeholders. The presentation material and non-technical summary were distributed to the participants in this hearing in order to provide each of them with the opportunity to be informed about the project.

Coments from participants

As previously announced, the public hearing was held at the Konispol municipality offices, inviting residents and farmers in the project area. The first part of the presentation included the presentation of the parties participating in this hearing by the project manager. The second part of the presentation included the presentation of the project also by the project manager and with the participation of the hydrotechnical engineer who explained the technical specifications of the project and the impacts of the project which are mostly positive. The third part, to which special attention is paid, are the questions and claims of the participants, and after the closing of the presentation, the completion of the attendance form follows.

After the presentation of the project there were no questions regarding the impacts on the environment.

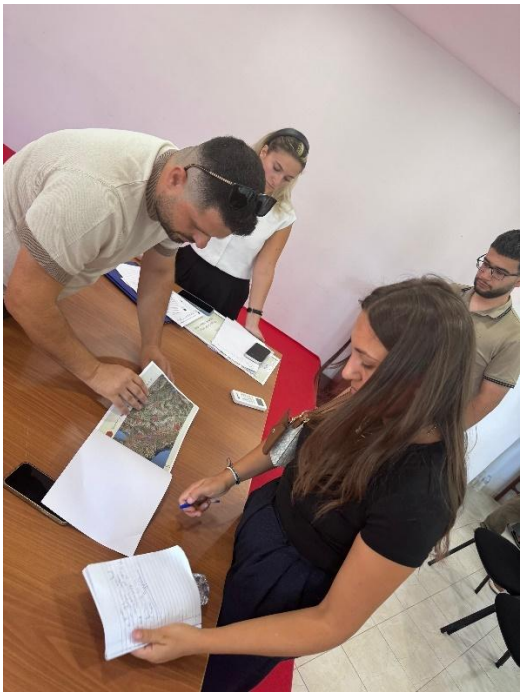
Since the project is part of the second phase of the Janjar project, the residents and farmers of the area were well aware of the function and positive impacts that the project has. They expressed that such a large project is an added value for their city and they have been very satisfied with the work up to this stage.

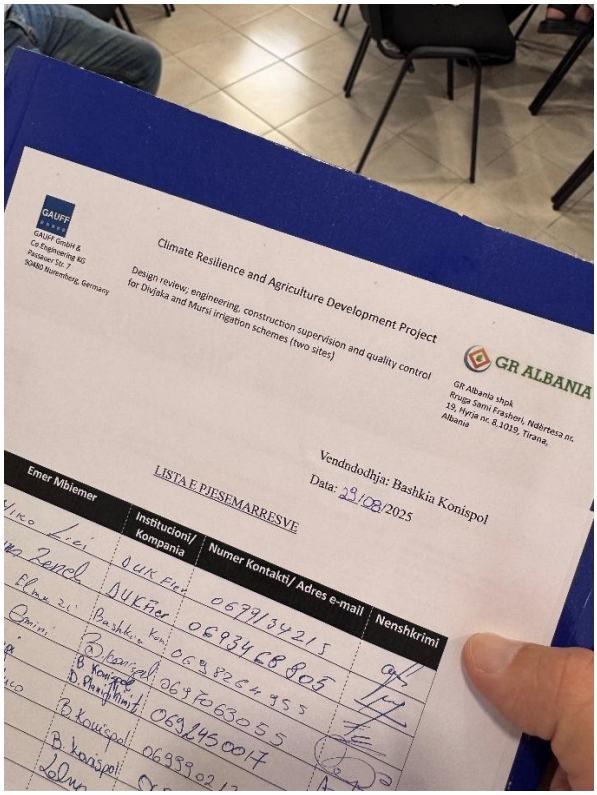
However, one of the farmers expressed that their biggest problem was that some of the farmers wasted the water coming from Janjar and consequently for the lands located at a greater distance they had very little water, which caused a problem for the farmers because they had a shortage of water for their land. They also requested a working group in order to check the irrigation schedule of the farmers from time to time.

Answer from client

The project manager's response was clear and precise, explaining that this is a management problem that comes from the farmers themselves and not from the project, but regardless, the project staff will take into account both the farmers' requests for water management and for the control working group.

Photos taken during the public hearing




GAUFF
GAUFF GmbH & Co Engineering KG
Paulsäker Str. 7
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Climate Resilience and Agriculture Development Project
Design review, engineering, construction supervision and quality control for Dhjoka and Mursi irrigation schemes (two sites)
GR ALBANIA
GR Albania shpk
Rruga Sami Frashëri, Ndërtesa nr. 19, Hyrja nr. 8,1019, Tirana, Albania
Vendndodhja: Bashkia Konispol
Data: 29/08/2025
LISTA E PJESEMARRESVE
Emer Mbiemer
Institucioni/ Kompania
Numer Kontakti/ Adres e-mail
Nenshkrimi


Ju ftojmë të merrni pjesë:

12.8 ESTABLISHMENT OF GRIEVANCE MECHANISM

The purpose of grievance mechanism is to formalize the management of grievances from stakeholders in order to minimize the environmental and social risks from the project. The grievance process, provides a way for stakeholders to raise their concerns and gives transparency on how grievances will be managed internally, to reduce conflict and strengthen relationships between external stakeholders. The grievance mechanism process is a key factor that will be taken in consideration as well. It is important to mention that communication within the community will be continuous throughout the project phases, in order to ensure that all complaints are perceived and reviewed in due time. For example: Once per month will be set a date for a meeting with community.

Grievance mechanism will include the way that stakeholder has to follow to address the issue (phone, web, e-mail, meeting with consultant/contractor). Also, will be presented the way that will be followed for the problem solution through the communication with Community Laision officer (CLO). It has not been decided yet the name of CLO position, once that will be appointed, the client will be notified.

It has not been decided yet the name of CLO position, once that will be appointed, the client will be notified. Below is presented schematically the grievance process and the solution.

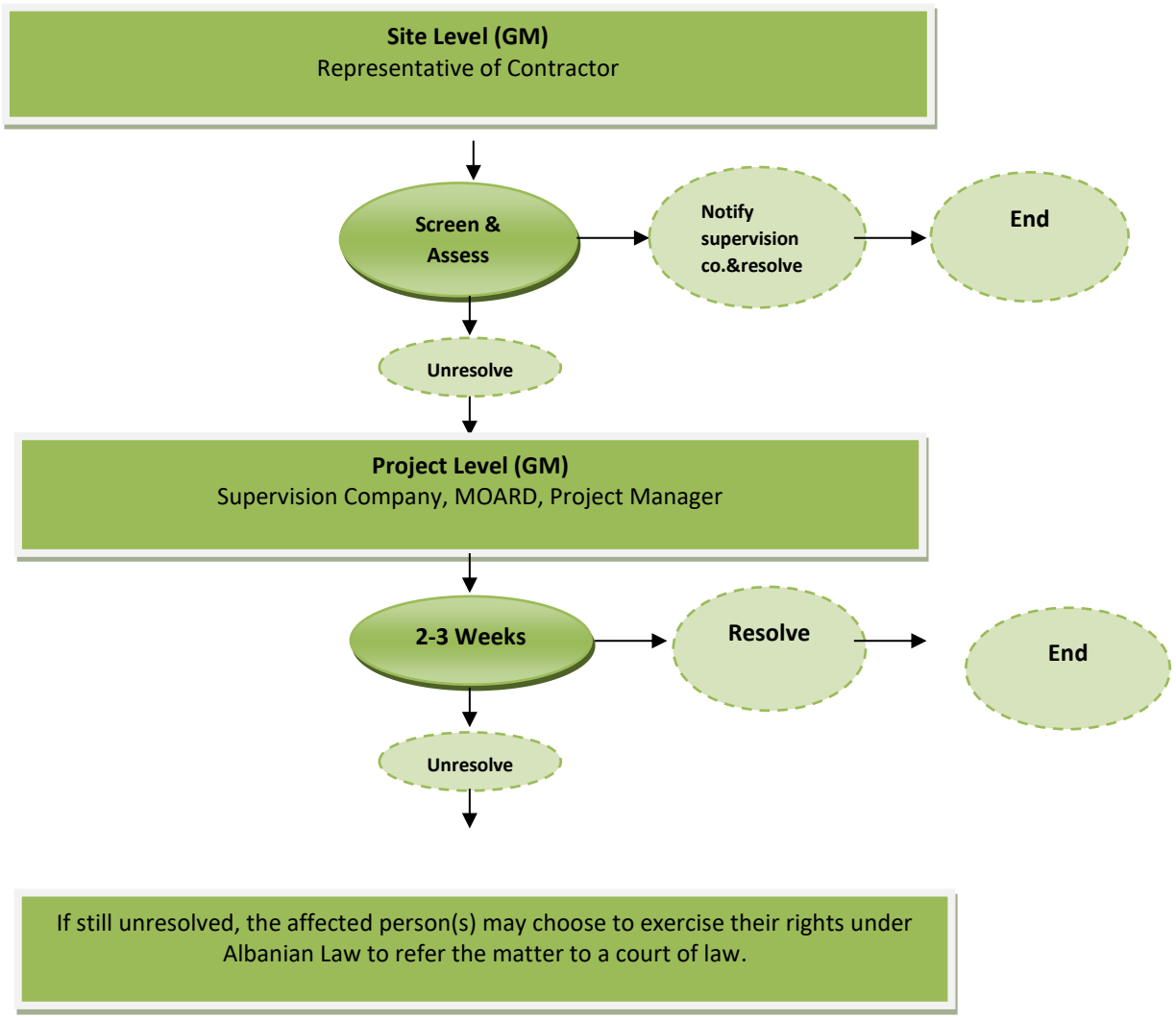

Figure 25: Grievance mechanism flow-chart

ANNEX 1- LAND USE MAPS (BUFI, JANJAR, KONISPOL XARRA)

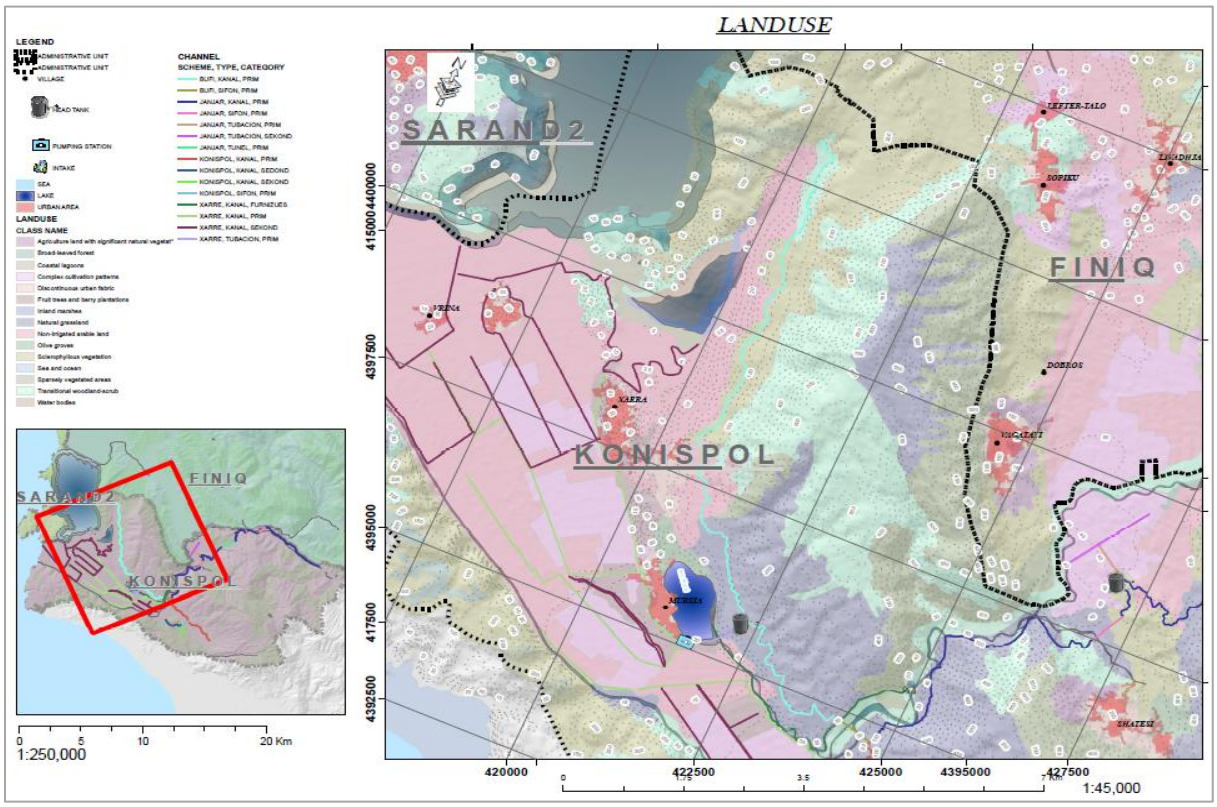

Figure 26 : Bufi- Landuse

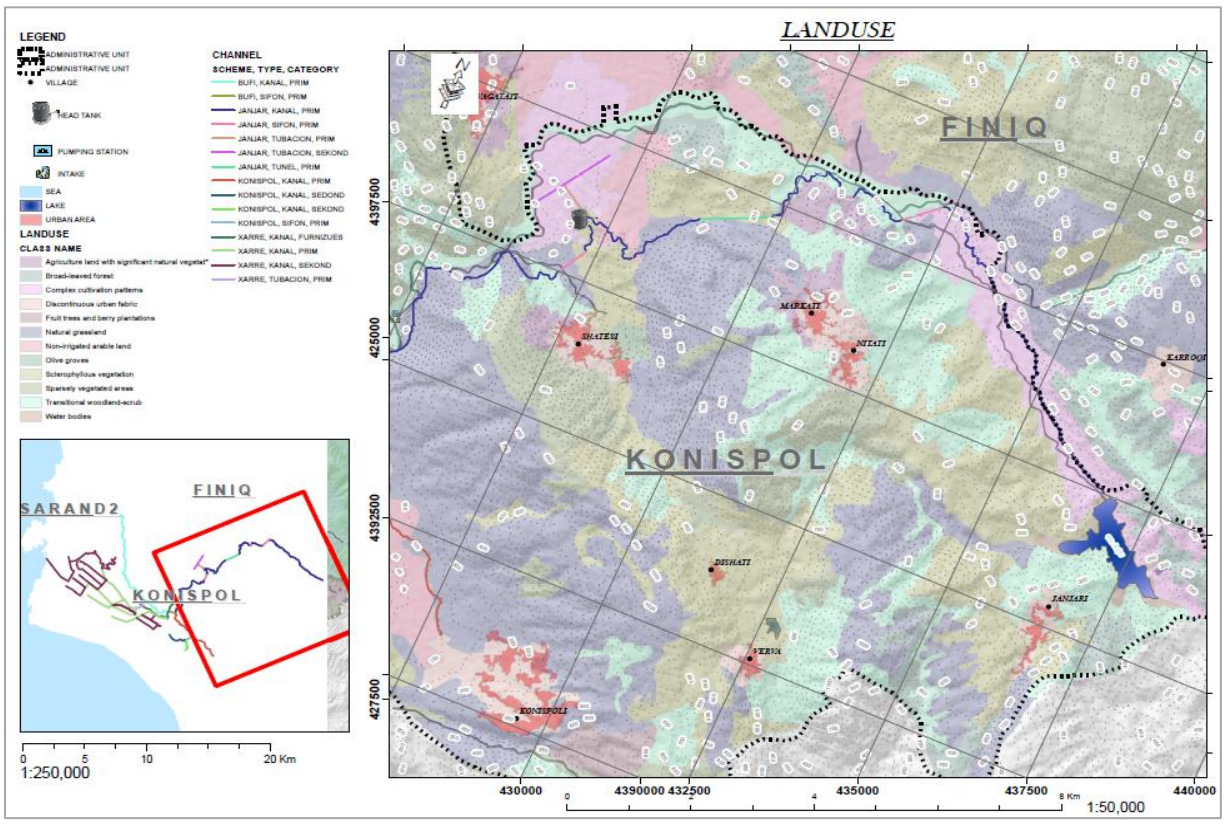

Figure 27: Janjar - Landuse

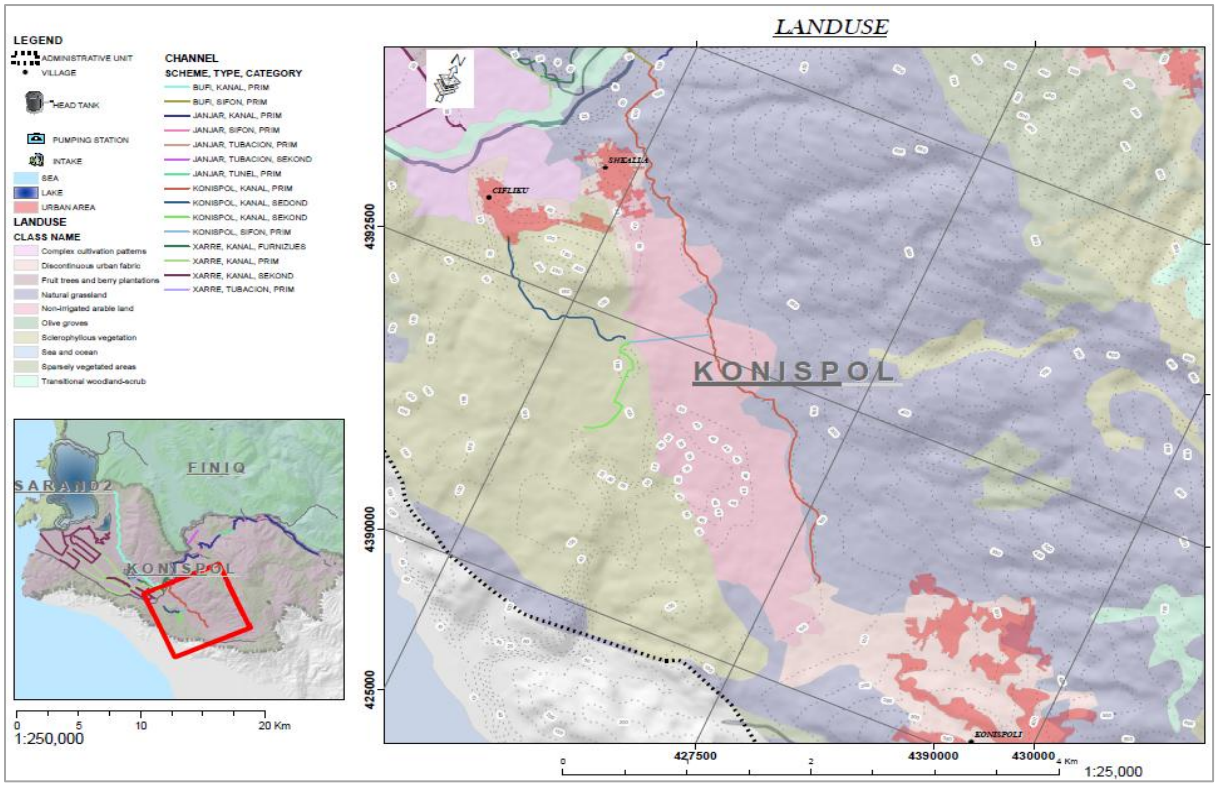

Figure 28: Konispol - Landuse

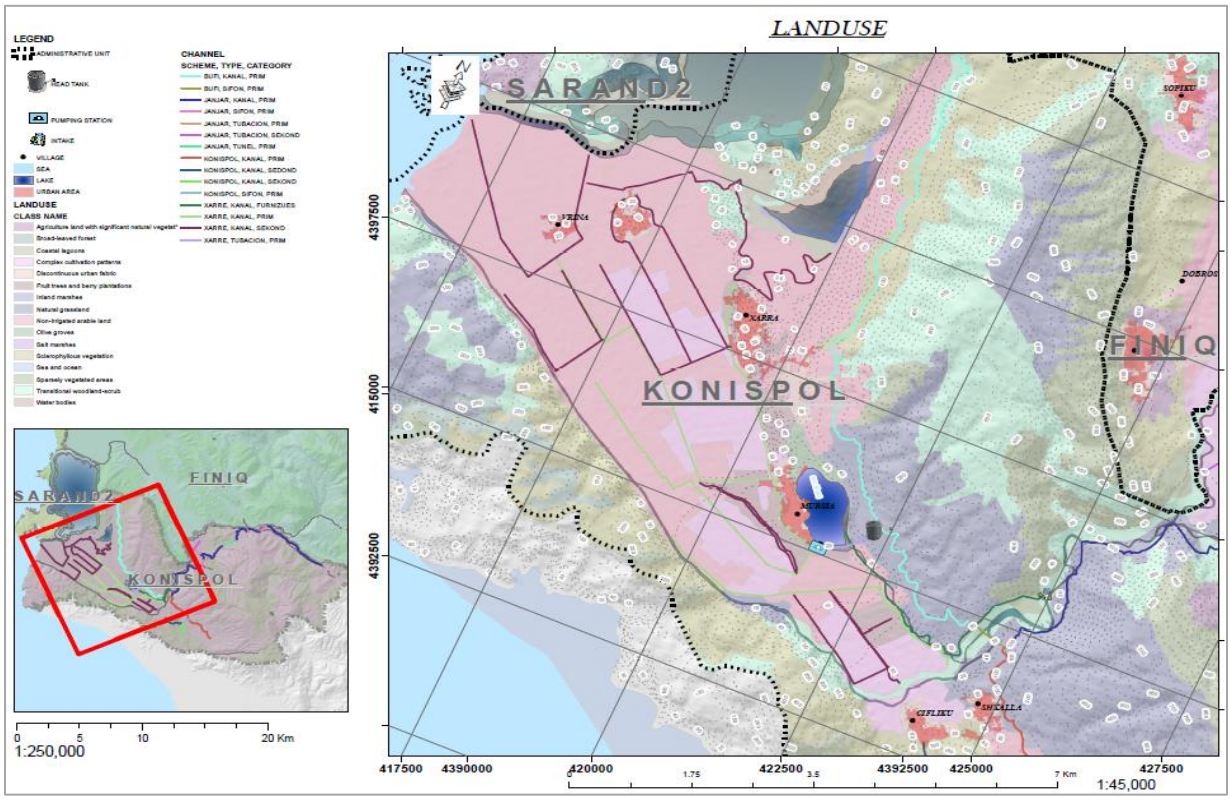

Figure 29: Xarra - Landuse