MINISTRY OF ENVIRONMENTAL PROTECTION
AND AGRICULTURE OF GEORGIA

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GEORGIA RESILIENT AGRICULTURE, IRRIGATION AND LAND PROJECT

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

FOR

ZEDA ARKHI IRRIGATION SCHEME

July 2026

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ABBREVAITIONS

ERP	Emergency Response Plan
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standard
GDP	Gross Domestic Product
GA	Georgian Amelioration
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
HSE	Health and Safety, Environment
IPM	Integrated Pest Management
LLC	Limited Liability Company
LMP	Labor Management Procedure
MEPA	Ministry of Environmental Protection and Agriculture of Georgia
MSDS	Material Safety Data Sheet
NACHP	National Agency of Cultural Heritage Preservation
NEA	National Environmental Agency
PAP	Project-Affected Person
PIU	Project Implementation Unit
POM	Points of Measurement
PPE	Personal Protective Equipment
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
ROW	Right of Way
SSC	Social Safeguard Consultant
ToR	Terms of Reference
TBD	To be Determined
WUO	Water User Organization
ZAIS	Zeda Arkhi Irrigation Scheme

EXECUTIVE SUMMARY

Ministry of Environmental Protection and Agriculture of Georgia (MEPA) is implementing the Georgia Resilient Agriculture, Irrigation, and Land (GRAIL) Project, co-financed by the World Bank and the Government of Georgia. A Project Implementation Unit (PIU) under MEPA undertakes day-to-day management of the Project, including, among other functions, procurement, contract management, and environmental and social risk management. The rehabilitation and modernization of Zeda- Arkhi Irrigation Scheme (ZAIS), Bolnisi Municipality within the Kvemo Kartli Region, is included in the Project's scope as one of several subprojects. Rehabilitation works will be carried out by a construction company ("Contractor") hired by PIU ("Employer"). PIU will undertake technical supervision of works, including environmental and social oversight, through a hired firm ("Engineer").

Planned rehabilitation and modernization works include rehabilitation of the existing headwork's, replacement of damaged sluice and flushing gates, raising of the headwork's platform to reduce flood overtopping risk, construction of a desilting basin downstream of the headwork's, rehabilitation of damaged sections of the main canal, installation of trash racks at siphon inlets, replacement of damaged siphon steel pipelines, improvement of pipe outlets and gate valves, blocking of unused outlets, and arrangement of animal drinking structures and canal crossing footbridges. The project also includes development of secondary and tertiary delivery systems as closed pipe pressurized systems and introduction of SCADA-based monitoring and control for pipeline systems.

The project will develop full distribution of water to an average outlet command area of 5.0 ha with a discharge of 20 l/s. Areas larger than 7.0 ha will receive a double outlet with 2 by 20 l/s valves. A pipe distribution network will cover all available land within the canal command area. The project will introduce full SCADA control of all 23 pipelines systems. Apart from the major upgrade of the distribution system, other enhancements are needed to secure the long-term sustainability of the project. These include sediment exclusion at the headworks, Debris management with trash racks at each siphon and escape spillways for emergency, replacement of all siphon steel pipelines with a flushing washout provision in the low points. on as en accepted.

According to the World Bank's Environmental and Social Standard (ESS)1 - Assessment and Management of Environmental and Social Risks and Impacts, the subproject is classified as a moderate risk operation based on its type, location, sensitivity, and scale.

Based on the Environmental and Social Management Framework (ESMF) of the GRAIL Project, which guides site-specific environmental and social due diligence, subproject preparation included completing of an Environmental and Social Screening Checklist (see annex 1) and preparing of an Environmental and Social Management Plan (ESMP).

Present ESMP, produced for ZAIS, details potential environmental and social impacts of rehabilitation and reconstruction of this existing irrigation scheme, provides mitigation measures, and carries a monitoring tool – all to minimize potential negative impacts during construction and operation phases of the sub-project.

The anticipated environmental and social impacts of the subproject are temporary, site-specific, and primarily associated with construction activities. Key risks include dust and noise

generation, temporary traffic and access disruptions, occupational and community health and safety risks, construction waste generation, potential impacts on surface water quality, and disturbance to nearby land users. These impacts will be mitigated through the implementation of the ESMP, including dust suppression measures, proper waste management, traffic and safety controls, pollution prevention measures, worker training, and regular environmental and social monitoring throughout the construction period.

In accordance with the requirements of the World Bank's Environmental and Social Framework and the GRAIL Project ESMF, the draft ESMP will be disclosed and consulted with relevant stakeholders, including representatives of local communities and local authorities. Stakeholder feedback received during the consultation process will be considered and incorporated into the final ESMP, as appropriate. The finalized ESMP will be publicly disclosed and remain available throughout project implementation.

The ESMP will be implemented by the Contractor and supervised by the Engineer, who will monitor compliance with the environmental, social, health, and safety requirements set out in the ESMP, contractual documents, and applicable legislation. The PIU under MEPA will provide overall oversight of ESMP implementation, review monitoring reports, conduct periodic site inspections, and ensure that any non-compliances identified during construction are promptly addressed through corrective actions.

1. PREFACE

The agricultural sector is a very important component for Georgia's economy with great potential for competing on the internal and external markets. While the agricultural sector accounts for only 6 percent of GDP, it provides income and employment for about 50 percent of the country's workforce. In addition, the sector has a priority by the Government of Georgia in the context of food security. Waterlogging and flooding agricultural land are important challenges, especially for the western part of the country. Therefore, smooth operation of irrigation systems is essential for high productivity and good yields. Ministry of Environmental Protection and Agriculture of Georgia (MEPA) has included the rehabilitation and modernization of the Zeda Arkhi Irrigation Scheme under the Georgia Resilient Agriculture, Irrigation, and Land (GRAIL) Project, co-financed by the World Bank and the Government of Georgia.

Under the GRAIL Project, rehabilitation efforts are aimed at upgrading and modernizing selected irrigation and drainage schemes through replacement of outdated and non-functional infrastructure and improvement of overall system performance. The Zeda-Arkhi Irrigation Scheme (ZAIS), located in Bolnisi Municipality within the Kvemo Kartli Region, is one of the irrigation subprojects financed under the Project.

A Project Implementation Unit (PIU), operating under MEPA, is mandated to undertake day-to-day management of GRAIL Project that includes, among other functions, procurement, contract management, and environmental and social risk management. ZAIS rehabilitation will be undertaken by a civil works contractor ("Contractor") hired by PIU ("Employer"). PIU will undertake technical supervision of works, including environmental and social monitoring, with the involvement of a hired consultant company ("Engineer").

2. LEGAL FRAMEWORK

2.1. ENVIRONMENTAL AND SOCIAL STANDARDS OF THE WORLD BANK RELEVANT FOR GRAIL PROJECT

As the GRAIL Project is implemented with financial support from the World Bank. Hence, in parallel with the national environmental and social legislative requirements, it shall meet the requirements of the World Bank's Environmental and Social Framework (ESF). ESF comprises 10 Environmental and Social Standards (ESSs). ESSs relevant to the GRAIL Project are the following:

ESS1: Assessment and Management of Environmental and Social Risks and Impacts: identification, control, and monitoring of risks and impacts, including identification of applicable requirements and monitoring outcomes.

ESS2: Labor and Working Conditions: labor relations, rules of employment, occupational health and safety, workforce protection, worker grievance mechanism, with specific requirements for contractor and subcontractor employees.

ESS3: Resource Efficiency and Pollution Prevention and Management: conservation of resources and control/prevention of wastes and pollution.

ESS4: Community Health and Safety: avoidance and control of risks and impacts on communities from project activities and workers, emergencies, security, and other factors.

ESS5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement: identification, planning, avoidance/response to the need for physical and/or economic displacement due to project activities, including information disclosure and consultation.

ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources: protection and conservation of biodiversity and habitats, support livelihood of local communities.

ESS8: Cultural Heritage: protection of tangible and intangible cultural heritage.

ESS10: Stakeholder Engagement and Information Disclosure: identification and engagement of local and other stakeholders throughout the project life cycle, disclosure of project information, grievance redress mechanism for external stakeholders

In addition to the applicable ESSs, the Project will also adhere to the World Bank Group's Environmental, Health, and Safety (EHS) General Guidelines and will comply to the ational legislation of Georgia.

ESS 1: Assessment and Management of Environmental and Social Risks and Impacts

Environmental and Social Standard 1 establishes an overarching framework for the identification, assessment, and management of environmental and social (E&S) risks and impacts associated with project activities. It requires a systematic process to ensure that projects are environmentally and socially sound and sustainable, and implemented in accordance with the mitigation hierarchy, including avoidance, minimization, mitigation, and, where necessary, corrective measures.

The subproject will be implemented in accordance with the requirements of ESS1 and will follow the ESMF of the GRAIL Project, which defines the procedures for environmental and

social screening, assessment, mitigation planning, monitoring, stakeholder engagement, and grievance management at the subproject level.

As the ZAIS subproject involves rehabilitation of the existing irrigation infrastructure, its environmental and social impacts are expected to be site-specific, temporary, low to moderate in scale, and manageable through implementation of the mitigation measures defined in this ESMP. These measures include, inter alia, management of waste and excavated material, control of dust, noise, and traffic-related disturbance, protection of nearby land and assets, occupational and community health and safety measures, and restoration of temporarily affected areas following completion of works.

ESS 2: Labor and Working Conditions

ESS2 covers labor and working conditions for both direct and contracted workers. To identify and address key labor requirements and associated risks for the GRAIL Project, the Labor Management Procedures (LMP) were developed. LMP outlines Project's approach to comply with national requirements while aligning with the objectives of the World Bank's ESF. Specifically, it adheres to ESS2 – Labor and Working Conditions and ESS4 – Community Health and Safety.

Application of LMP to the ZAIS subproject will:

- Ensure safety and health in the workplace,
- Promote fair treatment, non-discrimination, and equal opportunities for project workers,
- Protect vulnerable groups among project workers, including women, persons with disabilities, children (of working age, in accordance with this ESS) migrant workers, contracted workers, community workers, and primary supply workers,
- Exclude all forms of forced labor and child labor,
- Uphold the principles of freedom of association and collective bargaining for project workers in accordance with national law,
- Provide accessible and effective channels for workers to raise workplace concerns.

Furthermore, the Contractor and any subcontractors that may be brought on board, will be required to establish, maintain, and effectively operate grievance mechanism for accepting and handling complaints from their personnel. Such mechanism will be equipped for adjusted treatment of complaints pertaining sexual exploitation and abuse / sexual harassment.

ESS 3: Resource Efficiency and Pollution Prevention

ESS3 promotes efficient resource use, conservation, and pollution control. In line with ESS3, rehabilitation of ZAIS will be organized in a way that minimizes water consumption, energy use, and waste generation, while preventing pollution and environmental degradation.

By integrating ESS3 principles, the ZAIS subproject will enhance resource efficiency, reduce environmental impact, and promote sustainability in irrigation system rehabilitation. These measures will ensure long-term benefits in terms of water conservation, energy savings, and pollution prevention, while maintaining compliance with national and international environmental standards.

Project beneficiary farmers will be trained to practice Integrated Pest Management (IPM) for optimized use of pesticides that allows to control spread of crop pests and diseases with minimal harm to agrobiodiversity, soil, and surface and ground water.

ESS 4: Community Health and Safety

ESS4 is designed to ensure wellbeing of local communities in the Project's impact area. The primary objective of this standard is to minimize any adverse effects and maximize the positive outcomes that can arise from project activities. The key elements of ESS4 applicable to ZAIS rehabilitation are:[1]

Risk Management:

Identify and manage risks to community health and safety, including those of environmental nature (e.g., poor air/water quality, hazardous materials) and social disruptions (e.g., displacement, loss of livelihoods).

Particular attention shall be given to risks associated with the quality of irrigation water supplied from the Mashavera River. Since irrigation water is used for agricultural production, deterioration of water quality may present potential risks to crops and, consequently, community health. During operation of the rehabilitated scheme, irrigation water quality shall therefore be periodically monitored by Georgian Amelioration in accordance with applicable national requirements and the operational monitoring provisions of this ESMP.

Infrastructure Safety:

Ensure that the Project infrastructure meets high safety standards to protect local communities, including secure construction sites and hazard-resistant facilities. incorporate safe road crossings into subproject design; establish workers' camps separated from local communities with strict protocols for interaction with local communities in order to avoid impacts from labor influx; implement sensitization and specific mitigation measures for social impacts from labor influx during construction;

Health Services:

Provide accessible healthcare to affected communities, particularly where Project activities pose health risks, such as pollution or disease.

Emergency Preparedness and Response

As part of the E&S assessment undertaken pursuant an Emergency Response Plan (ERP) prepared in coordination with the relevant local authorities and where appropriate, the affected communities. The ERP shall take into account the emergency prevention, preparedness, and response arrangements established for subproject workers under ESS2 and shall define procedures for incident notification, emergency communication, evacuation, and coordination with emergency response services.

Resilient Infrastructure and Accessibility:

Ensure that Project infrastructure meets high safety standards and is adapted to climate change and natural hazards. Provide universal access to infrastructure.

Traffic Management:

Identify, evaluate, and monitor the potential traffic and road safety risks to workers, affected communities, and road users and, where appropriate, develop and apply measures for preventing community nuisance, health and property damage from project-related traffic by limiting speed, establishing schedules of movement, installing relevant signage, providing

[1] https://documents1.worldbank.org/curated/en/290471530216994899/ESF-Guidance-Note-4-Community-Health-and-Safety-English.pdf

bypasses and worksite access roads to avoid congestion, and deploying flagmen as required. Undertake a road safety assessment for each phase of the subproject, and monitor incidents and accidents, and prepare regular reports of such monitoring. Use these reports to identify negative safety issues and establish and implement measures to resolve them.

Security and Human Rights:

Design and implement security arrangements that are proportional to the nature and significance of identified security risks and the subproject's operating environment and to align with ESS4 and comply with national law.

Community Engagement:

Community Engagement Plan was prepared for GRAIL Project to ensure meaningful participation of local communities at all stages of the Project implementation. Communities within the impact area of the ZAIS subproject will be contacted and communication channels will be established for their recurrent participation in subproject-level decisions at the early stage of subproject implementation. Also, A Project-level grievance redress mechanism (GRM) will be made available to subproject workers, local communities, and other stakeholders allowing them to provide feedback, ask questions, voice concerns, and seek their resolution.

ESS 5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement

Based on the current design, the subproject is expected to require limited land-related impacts within the approved construction buffer and permanent Right of Way (ROW). These impacts include restrictions on private agricultural land through servitude/easement arrangements and impacts on annual crops and perennial trees, while no physical relocation of households and no impacts on residential buildings, commercial structures, businesses, or workers are expected. Land-related impacts on private and state land plots are addressed through the site-specific Resettlement Action Plan (RAP) prepared for the ZAIS in accordance with the GRAIL Project Resettlement Policy Framework (RPF), ESS5, and the national legislation of Georgia.

RAP has been developed in a participatory manner, disclosed, and discussed with project-affected persons (PAPs). The RAP shall be agreed with the World Bank and implemented before mobilization of the Contractor to any worksite where land acquisition, servitude/easement, restrictions on land use, or asset impacts are identified. A RAP implementation/completion report shall be prepared and accepted by the World Bank before civil works are authorized on affected sections. Compensation shall be provided at full replacement cost for the permanent restriction of use, affected annual crops, affected perennial trees, and any verified construction- or maintenance-related damages. If any conversion from servitude/easement to full acquisition is required, valuation, disclosure, consultation, compensation, and World Bank clearance shall be completed before works proceed on the affected section. If PAP's property is not formally registered, MEPA will support legalization of property, where required, to enable compensation in accordance with national legislation and ESS5. Any additional economic displacement or livelihood impacts identified during implementation shall be assessed, disclosed, compensated, and, where needed, addressed through livelihood restoration measures so that PAPs are not worse off as a result of Project implementation.

In the event of accidental damage to private property such as fences, gates, trees, or similar items that may occur during works near the settlements, the affected assets will either be replaced or compensated.

ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

ESS 6 intends to protect and conserve biodiversity, promote sustainable management of living natural resources, and enhance ecosystem services. Environmental and social screening of the ZAIS subproject was undertaken using Checklist included in the GRAIL Project ESMF to identify potential biodiversity impacts, such as effects on critical and natural habitats, protected areas, and endangered species. Identified risks are specified and mitigation and monitoring measures prescribed in the site-specific ESMP to ensure:

- Avoiding critical habitats or areas of high conservation interest.
- Minimizing disturbance of wildlife and the provision of ecosystem services.
- Engaging local communities reliant on natural resources.
- Monitoring biodiversity impacts during construction and operation.

ESS 8: Cultural Heritage

There is not known movable/immovable cultural/historical and archaeological assets in the ZAIS area; however, Chance Find Procedure is included in this ESMP and will be applied in case of unexpected archeological discovery in line with ESS8.

ESS 10: Stakeholder Engagement and Information Disclosure

Timely and permanent communication with the local population, small and medium agribusiness enterprises and farms as well as all other interested parties will be essential to ensure smooth collaboration between subproject staff and local communities, minimize and mitigate environmental and social risks related to the subproject, and expand project benefits to all targeted beneficiaries including ones that may be traditionally vulnerable, disadvantaged, disproportionately affected by the project activities.

Stakeholder engagement for the ZAIS will include the establishment, maintenance, and operation of a Grievance Redress Mechanism (GRM). The GRM will constitute a formal process for the receipt, registration, review, and resolution of complaints and grievances in a timely, effective, and efficient manner. It will apply to grievances arising in connection with the activities of MEPA/PIU, the Contractor, and/or subcontractor(s), and will be accessible to project-affected communities and other external stakeholders.

2.2. Environmental and Social Laws and Regulation of Georgia and International Agreements relevant to the Subproject

All activities supported by GRAIL Project must be compliant with the national legislation of Georgia, international agreements that Georgia is a party to, and ESSs of the World Bank relevant for the Project.

The following laws and international conventions are relevant to the rehabilitation and operation of ZAIS.

2.2.1. National Legislation

Law on Licenses and Permits (reg. #300.310.000.05.001.001.914; 24.06.2005, last amended 01.04.2026)

This law defines activities which may result in an increased hazard to human life or health, involve interests of importance to the State or public, or imply consumption of State resources. The Law sets forth a full list of such activities and subjects them to obtaining licenses and permits, and sets out the rules for granting, amending, and abolishing licenses and permits.

Based on national legislation, rehabilitation, reconstruction, and demolition works related to the existing irrigation system do not require an Environmental Decision. Since the planned works on ZAIS envisage rehabilitation and reconstruction of the existing irrigation infrastructure and associated hydraulic structures, no environmental permit is required for the subproject itself.

Works on ZAIS are unlikely to require installation of a cement or crushing plant, as the subproject activities mainly involve rehabilitation of the existing headwork's, main canal, and hydraulic structures, including removal of sediment and vegetation, canal repair, and replacement or reconstruction of damaged structures. Concrete and/or other construction materials will be supplied from local producers, and the Contractor will not be required to obtain license for material extraction. However, the Contractor is obliged to purchase natural construction material exclusively from suppliers holding valid extraction licenses If the Contractor needs to use municipal water networks, consent and agreement has to be obtained from the local subdivision of the Georgian Amelioration LLC (GA) or a local municipality. The decision on selecting the water supply sources shall be made by the Contractor before selecting the camp location (if necessary). If drilling of the new borehole is required, the Contractor shall obtain a license from the National Agency of Mineral Resources under the MEPA.

Law of Georgia on Environmental Protection (reg. #360.000.000.05.001.000.184; 10.12.1996, last amended 28.04.2026)

The law establishes the main principles of environmental protection. It aims to ensure natural environment in the condition that is safe for human health; protect environment from harmful impacts; retain qualitative parameters of environment; harmonize ecologic, economic, and social interests of public; sustainably manage the use of natural resources; and ensure effective operation of integrated system for regulating genetically modified organisms.

Since the ZAIS rehabilitation involves the installation of a pipeline along the existing canal route for irrigation purposes, they are not expected to result in significant environmental risks or impacts. The environmental risks associated with the construction of the water intake structure are classified as moderate, taking into account the type, location, sensitivity, and scale of the project. Any potential environmental risks or impacts would be limited to the project area and would not affect surrounding areas, nor would they be irreversible.

Furthermore, ZAIS rehabilitation works will be implemented in the general frames of sustainability, risk reduction, environmental impact assessment, mitigation hierarchy, availability of information, and public participation in decision-making.

Law on Environmental Assessment Code of Georgia (Reg. #360160000.05.001.018492; 01/06/2017, last amended 28.04.2026)

This code is the fundamental environmental law that regulates procedures for conducting environmental impact assessment (EIA) and issuing environmental decisions (permits) for the activities defined by this law. The code rules in procedures of environmental screening, scoping, impact assessment, stakeholder consultation, and permitting; identifies parties

involved in the EIA procedure and defines their roles. The code carries two annexes with lists of specific activities. Activities included in Annex I are subject to EIA and environmental permitting without consideration. Activities appearing in Annex II shall undergo screening to inform the decision on need for EIA. Activities not included in any of the annexes do not require environmental due diligence. Project proponent produces a screening report for Annex II activities, as well as scoping report and EIA report for activities that require EIA. The designated national authority discloses these reports, solicits stakeholder 11 feedback, and takes decisions on the report approval. EIA report approval translates into a positive decision, which represents an environmental permit to undertake the project under consideration. The decision carries conditions to be met by the project proponent and enforced by the national authority. Law on Environmental Assessment Code covers environmental instruments other than EIA, such as environmental audit, transboundary environmental assessment, and strategic environmental assessment. It does not provide for the development and use of environmental and social framework documents, environmental and social reviews, or self-standing environmental and social management plans.

The rehabilitation of ZAIS is not subject to EIA. However, suppliers of natural construction materials need to hold environmental decisions issued against EIA and they need to be checked for compliance. It is also possible that subproject activities other than rehabilitation works such as the installation of campsite, may fall under Annex II of the Code. In this case, a screening procedure and agreement with MEPA will be required.

Law on the Waste Management Code (reg. #360160000.05.001.017608; 26.12.2014, last amended 29.04.2026)

The Law establishes the legal framework for the management of various types of waste streams. It establishes a hierarchy of waste management going from prevention all the way down to final disposal. The Code introduces principles of circular economy, promoting waste reuse and recycling.

Paper and plastic waste generated at the campsites will be collected separately and removed by a sub-contractor selected by the contractor and approved by the supervisor. Domestic waste generated from the campsites (if any) will be collected in special containers provided by the municipality and disposed of through municipal services. The majority of excavated material from the canal will be used for backfilling during reconstruction of hydraulic and other structures of the scheme, as well as for site reinstatement, where appropriate. Excess construction waste (if any) will be disposed of at sites designated by the Solid Waste Management Company of Georgia and/or the local municipality, in accordance with the Waste Management Code of Georgia. Since landfills for hazardous waste are absent in the country, such waste shall be handed over to specialized companies for deactivation, recovery, and/or long-term storage.

Law on Water (reg. #400.000.000.05.001.000.253; 26.10.1997, last amended 07.2023)

The Law regulates water resources in Georgia, including the use and protection of surface and underground water. It aims to ensure application of the unified State policy to water protection and use; rationale use of water resources for the benefit of present and future generations; provision of clean potable water to the population of the country; conservation and sustainable use of aquatic fauna; protection of the national interests in the field of water

protection, use, and international trade; regulation of industrial production of water products; and regulate rights and obligations of physical and legal bodies in water protection and use.

The rehabilitation of ZAIS contributes significantly to the protection and sustainable management of water resources. By improving the irrigation infrastructure, the project will enhance the efficiency of water delivery and reduce water losses within the system. These outcomes support the rational use and protection of water for present and future generations, aligning with national policy priorities for environmental sustainability and water resource management.

Law on Water Resources Management (reg. #400000000.05.001.021003; adopted 30.06.2023, last amended 26.06.2025)

The Law aims to establish a modern, integrated legal foundation for water-resources management in Georgia, ensuring implementation of state policy on water protection and use. It seeks to promote sustainable use of surface and groundwater, halt further deterioration of water quality, restore and improve aquatic ecosystems (including terrestrial and wetland systems dependent on water), enable equitable use of water resources for current and future generations, introduce economic instruments (such as abstraction and discharge fees), adopt a river-basin management approach, and safeguard the legal rights and interests of individuals and legal entities in the field of water use and protection.

Georgia is transitioning from the Law of Georgia on Water (1997) to the Law of Georgia on Water Resources Management (2023)**.** The 1997 law remains in force until September 1, 2026**,** when most provisions of the 2023 law come to force. Accordingly, ZAIS works implemented before 1 September 2026 will be governed by the 1997 law and its current by-laws. Should any ZAIS activities extend beyond September 1, 2026, they will comply with the 2023 law and its by-laws, including requirements associated with river-basin management, permits for water abstraction and wastewater discharge, and enhanced monitoring and reporting.

Law on Soil Protection (reg. #370.010.000.05.001.000.080; 12.05.1994, last amended 02.11. 2021)

The Law, aims at the preservation of soil integrity and improvement of its fertility; establishment of rights and obligation of land owners, land users, and the State in soil protection and 12 provision of enabling environment for environmentally friendly farming; prevention of unintended negative impacts of the application of fertilizers; preservation of fertile layer of soil in subalpine and alpine zones of Georgia's mountainous terrain; and coordination of melioration activities for ensuring stable and high yields from farmed crops.

The rehabilitation of ZAIS is relevant to the objectives of this Law, as it is intended to restore reliable irrigation service, reduce losses of seepage from the deteriorated canal, and improve controlled delivery of water to agricultural lands within the command area. Rehabilitation of the main canal, intake structures, and associated hydraulic components will help reduce localized waterlogging caused by leakage from damaged canal sections, improve water conveyance efficiency, and support sustainable agricultural land use and soil productivity.

During earth works, topsoil must be stripped and stored separately and used for site reinstatement after backfilling. The same rule will apply to earth works undertaken in the course of extraction of natural construction materials. In addition, the Law will require the

Project to manage risks of soil contamination from fuel, lubricants, and other hazardous substances.

Law on Soil Conservation and Fertility Recovery-Improvement (reg. #370.010.000.05.001.001.274; 08/05/2003 last amended 30.06.2023)

The law is based on the Constitution of Georgia, laws on Water, Pesticides and Agrochemicals, Soil Protection, System of Protected Areas and others, international treaties and agreements of Georgia and other normative acts. The law regulates the establishment of and compliance with maximum permissible levels of harmful substances, pesticides and agrochemicals in the soil. The law provides measures and remedies for soil conservation and reinstatement and improvement of its fertility.

Law on Protection of Atmospheric Air. (reg. #420.000.000.05.001.000.595; 22.06.1999, last amended 02.07.2025)

The Law is intended to provide, retain, and improve air quality that is needed to ensure human health and wellbeing; regulate emissions; support public disclosure of information on the quality of atmospheric air; and facilitate gradual adoption of EU standards of air quality in Georgia.

Construction works will cause noise and emissions. Although this impact will be limited in time and scale, the noise and emissions' levels must be kept to the minimum by application of mitigation measures.

Law on the Forest Code of Georgia (reg. #390000000.05.001.019838; 22.05.2020 last amended 25.11.2025)

The law regulates legal relations related to forest management. The purpose of this Code is to conserve the biodiversity of the forest of Georgia, and, in order for the environmental, social and economic functions of forest to be performed, preserve and improve its qualitative properties, and the quantitative and qualitative characteristics of forest resources; preserve the original natural and cultural environment of forest, including the vegetation cover and animal world, and natural and cultural property located in forest, and rare and endangered plant species and other assets for future generations and to ensure the harmonized regulation of their interrelation; ensure targeted and rational use of forest resources and other natural potential of forest; determine the main principles of sustainable forest management.

Forest Code is not expected to come into action, since the rehabilitation works on ZAIS sub-project are not going to be undertaken within the territory of the State Forest.

Law on the System of Protected Areas. (reg. #360.050.000.05.001.000.127; 07.03.1996, last amended 04.2022)

The law serves conservation and sustainable use of Georgia's unique biodiversity. It establishes categories of protected areas and defines activities that are permissible within the boundaries of each of them.

Works on ZAIS are not expected to affect protected areas.

Law on the Red List and Red Book of Georgia (reg. #360.060.000.05.001.001.297; 06.06.2003, last amended 02.07.2025)

The law establishes the rules for compiling and maintaining the Red List and Red Book of Georgia, which identify endangered species of wild animals and plants found in Georgia. This law prohibits causing significant impact on listed species and their habitats and poses restrictions on the extraction of specimen of the protected species from the natural environment.

To ensure compliance, during the implementation the project will conduct detailed ecological surveys to identify any species listed in the Red List of Georgia (if any) within the project area. Any identified species will be monitored and, where necessary, mitigation measures will be implemented to protect these species. These measures may include translocation, establishing buffer zones, and scheduling activities to avoid sensitive periods for protected species.

Where the removal of tree species (if any) listed in the Red List of Georgia cannot be avoided, all required permits, approvals, and procedures will be obtained and implemented in accordance with the Law on the Red List and Red Book of Georgia including, species delisting procedures and the issuance of the relevant Government Decree authorizing such removal.

Law on Compensation for Damage caused by Hazardous Substances (23/07/1999 amended 26.06.2025 and renamed as Law on Environmental Liability, reg #. 360150000.05.001.020241)

The purpose of this law is to provide compensation for damage to human life and health, the environment, objects of historical and cultural importance, property and economic interests resulting from the exposure to hazardous substances. The law specifies how charges for the use and / or harmful effects on the environment are to be calculated and levied by the National Environmental Agency under MEPA.

Subproject implementation may require supply of hazardous substances (oil products, diesel etc.) and in case of an emergency event, provision of this law will come to force.

Law on the Rules of Property Expropriation for Imminent Public Needs. (reg. #020.060.040.05.001.000.670; 23.07.1999, last amended 13.06.2023)

This law grants the government the power to seize any property from registered owners by means of expropriation for projects of imminent public necessity. The decision is made only through a Regional Court that must be preceded by the Decree of Minister of Economy and Sustainable Development, justifying the imminent nature of public necessity. The expropriator has to make every reasonable effort to acquire property by negotiation and is required to value the property at fair market value (at its own expense) before negotiations.

Rehabilitation of NIS is not expected to require expropriation of private property.

Law on the Labor Code (reg. #270000000.04.001.016012; 17.12.2010, last amended 16.04.2025)

The Code regulates labor and human resource management in Georgia. The Code regulates labor relationships between workers and employees working in Georgia in enterprises, institutions, and organizations, regardless of their ownership or organizational form. It supports the realization of human rights and freedoms through fair reimbursement and the creation of safe and healthy working conditions. The Code sets provisions for employment guarantees, working time, health and safety conditions and so forth. The Labor Code defines the minimum age of the employees as 14 years. Employees under 18 years of age are not allowed to

undertake certain jobs, as defined in the Code, and there are limits on working hours for workers between 14 and 18.

Law on Occupational Safety (reg. #270000000.04.001.017910; 19.02.2019, last amended 26.06.2025)

The Law defines basic requirements and general principles of occupational safety for jobs that are dangerous, hard, harmful, and/or hazardous. The law imposes a general obligation on employers to provide employees with a safe and healthy working environment and to inform workers of the potential risks their jobs may present to their health and safety. Measures that must be taken include but are not limited to training and information campaigns as well as adoption of relevant preventive measures. The law includes requirements for organizing and managing health and safety programs, providing emergency care and services, and responding to accidents. Other requirements include controlling access to hazardous workplaces, providing personal protective equipment at no charge to workers, and medical examinations.

The Contractor will be required to provide workers with a safe and healthy working environment, conduct regular safety training and toolbox talks, supply appropriate personal protective equipment (PPE) free of charge, control access to hazardous areas, and establish emergency preparedness and accident response procedures. Occupational health and safety performance will be regularly monitored throughout the construction phase by the Contractor, the Engineer, and the Employer.

The requirements of this Law will be applied at both the rehabilitation and operation phases.

Law on Public Health (# 470.000.000.05.001.002.920 27/06/2027 amended 9.12.2025)

The purpose of this law is to provide a safe environment for human health. The law provides the rights and obligations of the population and legal entities for the protection of public health. According to the Georgia Law on Public Health, the environmental qualitative norms are approved, which is required to be performed during the project implementation process.

The requirements of the law will be applied at both the rehabilitation and operation phases. The Contractor will be required to have safety kits on site and trained personnel in case of emergency. If any emergency occurs, Contactor has to contact the national Emergency Service at 112, which will direct the case to the local Kvemo Kartli regional service provider.

Law on Cultural Heritage (reg. #450.030.000.05.001.002.815; 08.05.2007, last amended 10.06.2026)

This law provides for the protection of the national cultural assets in the territory of Georgia and beyond. It regulates legal aspects of cultural heritage preservation and use; sets forth principles of classification and registry of cultural heritage; spells our rules of assigning and abolishing the status of cultural heritage; and formulates frames for physical protection of cultural heritage. The law covers management of chance finds and rules in procedures for authorizing large-scale excavation works by the Ministry of Culture based on the likelihood of archaeological finds in the allocated area to be established through the preliminary study.

No visible historical or cultural heritage sites have been identified within the ZAIS area. However, encountering archaeological sites during the works is not excluded. According to the law, it will be necessary to stop work immediately and inform the relevant state authorities.

Technical Regulations

Technical Regulation No. 414 on the calculation of maximum permissible discharge norms for pollutants discharged into surface water bodies with wastewater

Resolution No. 440 - Technical Regulation on the Water Protection Zones

Technical Regulations for Calculating Maximum Permissible Limit Values of Emission of Harmful Substances into the Ambient Air

Resolution of the Government of Georgia No. on Approval of Technical Regulations for Inventory of Stationary Sources of Atmospheric Air Pollution

Governmental Decree No 370 – Technical Regulation on Acoustic noise limits for rooms/premises in residential houses and public establishments

Resolution No. 424 of 2013 of Georgian Government on Removing Fertile Layer of Soil, Storing, Using and Re-cultivating

Government Decree No. 361 – Technical Regulations on Construction Safety This decree establishes safety norms and procedures for construction activities. It specifies requirements for safe working conditions on construction sites.

Government Decree No. 477 – Technical Regulations on Working at Heights. This decree defines specific safety requirements for working at heights, including fall protection measures. Employers must implement risk assessments and preventive measures to protect workers from falling.

2.2.2. INTERNATIONAL AGREEMENTS AND TREATIES

Table 1. International Agreements and Treaties

Date	Title	Status in Georgia	Date
Natural Environment			
1971	Ramsar Convention on Wetlands of International Importance Especially as Wildfowl Habitat	In force	1997
1973	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	In force	1996
1983	Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (CMS)	In force	2000
1992	Rio Convention on Biological Diversity	In force	1994
2000	Cartagena Protocol on Biosafety to the Convention on Biological Diversity	In force	2009
2010	European Landscape Convention	In force	2011

Date	Title	Status in Georgia	Date
Environmental Pollution, Waste			
1997	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	In force	2009
1998	Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	In force	2007
1989	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	In force	1995
2001	Stockholm Convention on Persistent Organic Pollutants	In force	2007
Climate			
1994	UN Framework Convention on Climate Change (UNFCCC)	In force	1994
1997	Kyoto Protocol to UNFCCC	In force	2005
Land Acquisition and Resettlement			
1995	Constitution of Georgia	In force	2020
1999	General administrative code of Georgia	In force	2025
1996	The Law on Systematic and Sporadic Law Rules of Rights to Plots and Cadastral Data	In force	2025
1999	Law of Georgia on the procedure for the expropriation of property for necessary public needs	In force	2023
1999	Administrative Procedural Code of Georgia	In force	2025
1994	Organic Law of Georgia, Local Self-Government Code	In force	
1997	Civil Code of Georgia	In force	2025
2009	Law of Georgia on Notary	In force	
2010	Law of Georgia on State Property	In force	2025
1996	Law of Georgia on Ownership Rights to Agricultural Land,	In force	2019
2007	Law of Georgia on Legalization of Property	In force	
2008	Law of Georgia on Public Register	In force	2025

Date	Title	Status in Georgia	Date
2007	Law of Georgia on Recognition of the Property Ownership Rights Regarding the Land Plots Owned (Used) by Physical Persons or Legal entities	In force	2025
2006	Law of Georgia on Social Assistance	In force	
1995	Law of Georgia on Social Protection of Disabled Persons	In force	
2014	Law of Georgia on Internally Displaced Persons from Occupied Territories – Refugees	In force	
2010	Tax Code of Georgia	In force	2025
2021	Law of Georgia on Entrepreneurs	In force	2025
Cultural Heritage			
1954	European Cultural Convention	In force	1997
2007	Law of Georgia on Cultural Heritage		
1982	European Convention on the Protection of the Archaeological Heritage	In force	2000
1985	Convention for the Protection of the Architectural Heritage of Europe	In force	2000
2005	Council of Europe Framework Convention on the Value of Cultural Heritage for Society (Faro convention)	In force	2011
Public Participation and Information Accessibility			
1998	Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters	Ratified	2004
Labor Issues			
1930	Forced Labor Convention	In force	1993
1948	Right to Organize and Collective Bargaining Convention	In force	1993
1950	European Convention for the Protection of Human Rights and Fundamental Freedoms	In force	1999
1958	Discrimination (Employment and Occupation) Convention	In force	1993
1962	ILO Social Policy (Basic Aims and Standards) Convention	In force	1997

Date	Title	Status in Georgia	Date
1964	Employment Policy Convention (Geneva)	In force	1993
1973	Geneva Convention concerning Minimum Age for Admission to Employment	In force	1996

3. BASELINE INFORMATION

3.1 PHYSICAL- GEOGRAPHICAL CONDITIONS OF THE AREA

Zeda-Arkhi Irrigation Scheme is located in Bolnisi Municipality, within the Kvemo Kartli Region of southeastern Georgia. The scheme is situated within the Mashavera River valley and is supplied from the Mashavera River through weir-type headworks located on the right bank of the river near Kianeti Village. The main canal extends from the headworks near Kianeti Village and terminates near Talaveri Village. The command area lies within an agricultural landscape characterized by valley plains, gently sloping terrain, and fertile soils suitable for irrigated farming.

Mashavera River has historically been affected by upstream mining activities, resulting in periodic deterioration of surface water quality, particularly during high-flow events and following intensive rainfall. Water quality investigations were not undertaken as part of the feasibility study or during preparation of this ESMP. However, the river is subject to ongoing water quality monitoring by the National Environmental Agency (NEA), as well as various international and academic organizations, due to its long-standing vulnerability to pollution associated with upstream mining activities. The results of these monitoring programmes provide valuable information on existing water quality conditions and trends and support the identification of any deterioration that may require appropriate operational response by Georgian Amelioration. Accordingly, the potential implications of irrigation water quality for agricultural production and community health have been recognized in this ESMP, and appropriate operational monitoring and management measures have been incorporated.

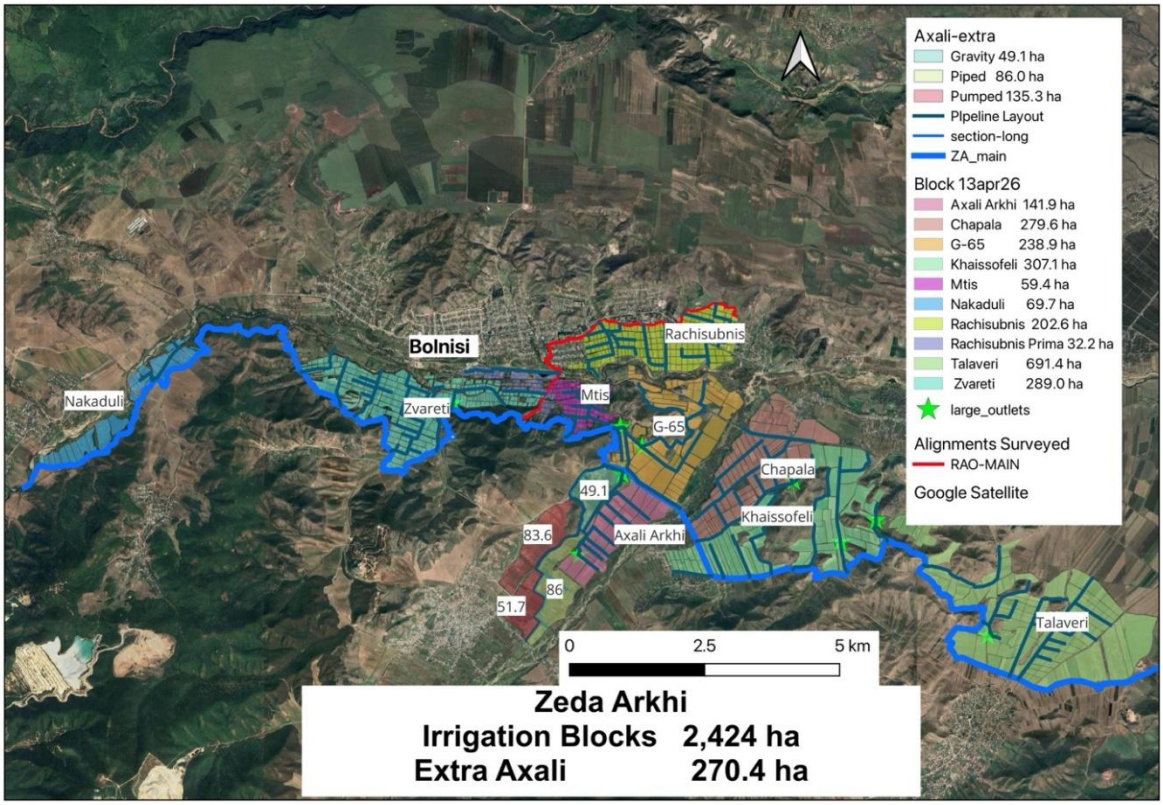
The Kvemo Kartli Region is known for its diverse natural landscapes and significant agricultural potential. The region extends from the lower slopes of the Lesser Caucasus Mountains to the Mtkvari River Valley and includes both mountainous areas and lowland plains. These plains and river valleys provide favorable climatic and terrain conditions for agriculture, particularly in fertile floodplains and alluvial areas.

Within Bolnisi Municipality, ZAIS mainly covers agricultural lands located along the valley plains and inclined slopes of the Mashavera River. The gross command area of the scheme is approximately 3,205 ha. Agriculture is one of the main economic activities in the municipality, with the area known for production of cereals, vegetables, grapes and fruits. The gently sloping terrain and existing irrigation infrastructure provide favorable conditions for gravity-fed irrigation and further modernization of the irrigation distribution system.

Figure 1. Location of Zeda Arkhi Irrigation Scheme

Mashavera River serves as the primary water source for the ZAIS. The scheme is supplied through the existing weir-type headworks located on the right bank of the river near Kianeti Village. Over time, sediment and debris transported by the Mashavera River, as well as leaves and branches entering the canal from tree-covered sections, have affected the performance of the main canal, outlets and siphons. The absence of an effective sediment and debris control system has contributed to sediment accumulation, blockage of outlets, reduced conveyance efficiency, and impaired irrigation delivery and overall system functionality.

Figure 2. Zeda-Arkhi Irrigation Scheme Canal Alignment and Command Area



The average annual rainfall in the project area is approximately 572 mm in Bolnisi and may reach up to 799 mm in nearby Dmanisi. However, precipitation is unevenly distributed throughout the year, with a marked seasonal concentration during spring and early summer. In recent years, the region has experienced increasing climate variability, characterized by prolonged dry periods and occasional episodes of intense rainfall. Rising temperatures and shifting precipitation patterns have further increased crop water demand and evapotranspiration rates. Under these changing climatic conditions, irrigation plays a critical role in stabilizing agricultural production and ensuring crop reliability during dry spells, as rainfed agriculture alone is insufficient to sustain consistent and economically viable yields within the command area.

ZAIS is supplied by the Mashavera River, which serves as the primary water source for irrigation. The scheme is supplied through weir-type headworks located on the right bank of the river near Kianeti Village. The main canal is approximately 34.1 km long and extends from the headworks near Kianeti Village to Talaveri Village. The canal has a design discharge of approximately 2.5 m^3/s and primarily irrigates the valley plains and sloping agricultural lands within the command area. Over time, sediment and debris transported by the Mashavera River, as well as leaves and branches entering the canal from tree-covered sections, have affected the performance of the intake, main canal, outlets and siphons. The absence of effective sediment and debris control facilities has contributed to sediment accumulation, blockage of outlets, reduced conveyance efficiency, and impaired irrigation delivery and overall system functionality.

The vegetation within the ZAIS area consists primarily of canal-side shrubs, grass, seasonal weeds, and trees growing along the canal banks, slopes, river margins and access routes. Some sections of the canal pass through forested or tree-covered areas, where vegetation contributes to debris entering the canal system. Within the irrigation command area, agricultural land is the dominant land use, and natural vegetation has largely been replaced by cultivated fields, orchards and vineyards. Vegetation observed along the canal right-of-way mainly reflects secondary growth due to prolonged sediment accumulation, insufficient maintenance and natural regeneration along canal banks.

The aquatic environment of the Mashavera River and associated irrigation canal system represents a modified river and irrigation infrastructure habitat. No critical habitat or protected/endangered aquatic species were identified within the construction corridor during the site inspection. Potential impacts on the aquatic environment are expected to be localized and temporary, mainly associated with sediment disturbance, increased turbidity, waste runoff, accidental spills, and construction works near the intake, canal, siphons and drainage crossings.

Agriculture within the command area follows a mixed cropping pattern that includes cereals, maize, vegetables, grapes, fruit trees, berries, almond, beans, watermelons, sunflowers and pasture grasses. Agriculture is economically significant for local livelihoods, and reliable irrigation water supply is essential for maintaining crop productivity. Proper management of agricultural runoff, waste, and agrochemical containers should be promoted during operation of the rehabilitated scheme to avoid localized risks to water quality and aquatic ecosystems.

The physical and geographical characteristics of the area, including accessible terrain, productive soils, gently sloping agricultural lands, and availability of Mashavera River-fed irrigation water, create favorable conditions for irrigated agricultural development within the command area.

3.2. Existing Irrigation System and Structures

Zeda-Arkhi Irrigation Scheme comprises weir-type headworks located on the right bank of the Mashavera River, a 34.1 km long main canal, pipe outlets with gate valves, sluice gate openings, siphons, secondary and tertiary distribution elements, and associated measuring and control structures along the canal alignment. The scheme is uptaking water from the Mashavera River and operates mainly as a gravity-fed irrigation system serving agricultural lands within the command area.

The water diversion headworks consist of a flushing sluice and an intake head regulator located near Kianeti Village. The weir is founded on a firm rocky riverbed, and immediately downstream of the head regulator the right bank of the main canal is rocky, providing good structural stability. Overall, the headworks arrangement appears structurally sound and does not require major repairs. However, the flushing sluice gates are completely defunct and non-operational, while the intake head regulator gates are greased and operate smoothly. Except for the under-sluice flushing arrangement, the headworks are in stable condition. Due to recent excessive floods, overtopping of the main canal occurred, and the right bank gates and platform need to be raised by approximately 1.5 m.

The main canal extends from the weir-type headworks located near Kianeti Village and terminates near Talaveri Village. Almost the entire length of the canal is concrete lined, mainly with trapezoidal cross-sections and some rectangular reaches. Along the canal alignment

there are siphons used for crossing drainage systems, valleys and gullies. The steel pipes used in the siphons are in poor condition and need replacement. A small hydropower plant operates in the upstream reach from the main canal supply during the off-irrigation season only.

The canal has a design discharge of 2.5 m^3/s and primarily irrigates the left side of the sloping terrain and valley plains. Visual inspections carried out during irrigation and off-irrigation seasons indicated that canal operation is generally normal, with full supply depth observed. There are no cross-regulating structures, as all outlets are located at bed level and require little head. However, the system lacks an effective sediment and debris flushing mechanism, which has adversely affected the pipe outlets off-taking from the main canal. There are no flow measuring installations in the main canal, except for a staff gauge at the headworks.

The water distribution system is mainly composed of direct outlets, with major branching at the tail-end section of the scheme. In the upstream reach, the command area is represented by isolated agricultural patches adjacent to the Mashavera River, while farther downstream the canal irrigates a significantly larger command area through gravity-fed outlet systems. Secondary and tertiary development is not formally developed in some areas and occurs mainly in the form of earth channels used for water distribution.

Most upstream outlets are controlled and regulated by gate valves, while the outlets along the main canal are provided with simple regulating sluice gates. However, no provisions have been observed to prevent debris from entering the outlets or siphons. There are 85 pipe outlets with gate valves and 62 sluice gate openings along the main canal. Field observations indicate that many of these outlets are leaking and are not operated in a controlled manner. Therefore, this component requires detailed assessment and appropriate remedial measures.

The gross command area of the scheme is approximately 3,205 ha. The valley plains and inclined slopes of the Mashavera River mainly form the command area, which is suitable for gravity-fed closed pipe irrigation systems. The tail-end section of the main canal requires rehabilitation, as the designed supply is not fully reaching the area. Significant wastage of water was also noted in the upper reach of the canal due to poor maintenance and management of the scheme.

3.3 Existing Components of Irrigation Scheme

ZAIS serves a gross command area of approximately 3,205 ha. The scheme is a gravity-fed irrigation system supplied from the Mashavera River and comprises weir-type headworks, a 34.1 km long main canal, siphons, pipe outlets with gate valves, sluice gate openings, secondary and tertiary distribution elements, and associated flow measurement and control structures along the canal alignment. The main canal mainly irrigates the valley plains and inclined slopes located on the left side of the canal, while secondary and tertiary distribution is not fully developed in some areas and is mainly represented by earth channels used for water delivery to agricultural plots.

The headworks are located on the right bank of the Mashavera River near Kianeti Village and include the weir-type diversion structure, flushing sluice, intake head regulator, gates, and associated protection works. The headworks are generally stable; however, the flushing sluice gates are non-operational and require replacement. The main canal extends from Kianeti Village to Talaveri Village and is almost entirely concrete lined, mainly with trapezoidal sections and some rectangular reaches. Along the canal alignment there are siphons for

crossing drainage systems, valleys and gullies, while the existing steel siphon pipes are in poor condition and require replacement.

Water is conveyed from the main canal to agricultural fields and irrigation blocks through pipe outlets with gate valves and sluice gate openings. According to the design assessment, there are 85 pipe outlets with gate valves and 62 sluice gate openings along the main canal. Many of these outlets are leaking or not operated in a controlled manner, and the system lacks effective sediment and debris control facilities. Therefore, rehabilitation and modernization of the existing headworks, main canal, siphons, outlets and related control elements is required to restore reliable irrigation service delivery

Based on the condition assessment of the existing ZAIS, the main irrigation components requiring rehabilitation, replacement, or modernization include the headworks/intake gates, main canal, siphons, outlet structures, sediment and debris control facilities, flow measurement structures, and related distribution elements. The detailed scope of rehabilitation works are presented in Table 2.

Table 2. Summary of Irrigation Structure Condition

No	Structure	Intact	Rehabilitation / Repair	New / Replace
1	Headwork/Intake		1	
2	Desilting basin with SCADA control and flow measurement		-	1
3	Broad-crested weir for SCADA		-	1
4	Siphons with trash racks		8	-
5	Siphon overflow spillways		-	8
6	Main canal secondary SCADA pipe outlets			23
7	Main canal direct pipe outlets with SCADA flow measurement		-	45
8	Tertiary pipeline lateral outlets		-	9
9	Footbridges		-	3
10	Cattle water drinking structures		-	3
11	SCADA outlet Points of measurements		-	68
12	New Canal lining works, m		-	300

Table 3. Linear Rehabilitation Works of the Zeda Arkhi Irrigation Scheme

No.	Item	Required Intervention	Length (km)
1	Main canal cleaning and repair	Removal of weeds, vegetation and deposited sediments from the canal bed and banks; repair of damaged lining sections and reinstatement of displaced lining panels, where required	34.1 km
2	Initial reach of main canal	Raising/reprofiling of the first reach of the main canal to improve hydraulic conditions, reduce sediment deposition and increase conveyance capacity	300 m

The condition assessment indicates that several key hydraulic, control, and access-related components of the scheme require rehabilitation, replacement, or modernization. The headworks are generally stable; however, the flushing sluice gates are non-operational and require replacement, while the headworks platform and right bank gates need to be raised to reduce the risk of overtopping during flood events. The existing siphon steel pipes are in poor condition and require replacement, and trash racks and overflow spillways are required to improve operational safety and prevent blockage by debris.

In addition, many existing pipe outlets with gate valves and sluice gate openings along the main canal are leaking or not operated in a controlled manner. The scheme also lacks effective sediment and debris control facilities and adequate flow measurement installations. Therefore, construction of a desilting basin, installation of SCADA-controlled pipe outlets, flow measurement devices, and modernization of outlet structures are required to improve water regulation and reduce losses.

In addition to rehabilitation of discrete structures, cleaning and repair of the main canal, improvement of damaged lining sections, and rehabilitation of the tail-end canal section are required to restore conveyance efficiency and improve the overall operational reliability of the irrigation system.

4. PROJECT DESCRIPTION

The proposed subproject under the GRAIL Project involves rehabilitation and modernization of the existing ZAIS in Bolnisi Municipality, Kvemo Kartli Region. The objective of the subproject is to restore the functionality of the irrigation system, improve conveyance efficiency, strengthen operational control, reduce water losses, and ensure reliable delivery of irrigation water to the agricultural command area. The rehabilitation and modernization works will mainly follow the existing irrigation infrastructure alignment and are intended to improve the performance of the existing scheme rather than construct a completely new irrigation system.

The works will include rehabilitation of the existing headworks and main canal, improvement of sediment and debris control, rehabilitation or replacement of damaged hydraulic structures, siphons and outlets, and modernization of the secondary and tertiary distribution systems. The subproject will also introduce improved flow measurement and control elements, including SCADA-related equipment, to support efficient operation of the scheme.

Based on the current design, the works will be implemented mainly within the existing canal corridor, construction buffer, and established ROW. Limited land-related impacts have been identified and are addressed through the site-specific RAP prepared in accordance with the GRAIL Project RPF and ESS5. No physical relocation of households, no impacts on residential buildings or commercial structures, and no business or worker displacement are expected. The Contractor shall not enter or use private land outside the approved ROW and agreed temporary-use areas without prior written agreement, compensation where applicable, and reinstatement after completion of works.

4.1 DESIGN OF IRRIGATION CANAL

The scope of the detailed design for the ZAIS rehabilitation includes the full restoration and modernization of irrigation functionality from the headworks on the Mashavera River to the tail-end of the command area. Based on observed deficiencies in the headworks, main canal, siphons, outlet structures, and distribution system, the following components are included in the design works:

- Replacement/rehabilitation of damaged sluice and flushing gates at the headworks to restore operational control.
- Raising the headworks platform and right bank gates by approximately 1.5 m to reduce the risk of overtopping during flood events.
- Provision of a desilting basin downstream of the headworks to improve sediment control and reduce sediment deposition in the main canal.
- Installation of trash racks at siphon inlets to prevent leaves, branches, and other floating debris from entering the siphons and outlet structures.
- Rehabilitation of the main canal, including removal of sediment, weeds, bushes, and vegetation from the canal bed and banks.
- Repair of damaged concrete lining sections and reinstatement of displaced lining panels, where required.
- Replacement of damaged siphon steel pipelines and provision of related safety and overflow arrangements for reliable long-term operation.
- Improvement, replacement, or closure of leaking and uncontrolled pipe outlets, gate valves, and sluice gate openings along the main canal.

- Development of secondary and tertiary distribution systems as closed pipe systems to improve water delivery efficiency and reduce losses.
- Installation of SCADA-controlled pipe outlets, flow measurement devices, electrically operated valves, and related monitoring equipment for improved operation and water accounting.
- Arrangement of footbridges and cattle drinking structures at selected locations to improve access and prevent damage to the canal by livestock.
- Preparation of updated operation and maintenance guidelines to support sustainable functioning of the scheme by GA and water users.

4.2. Design of Headworks and Intake Structure

The Mashavera River serves as the primary water source for the ZAIS. The existing weir-type headworks are located on the right bank of the river near Kianeti Village. According to the detailed design, the intake structure is located at coordinates X: 465411.0 and Y: 4653813.0, with a canal bed level of 775.05 m am

sl. The proposed headworks rehabilitation is intended to restore operational control, improve sediment and debris management, and ensure safe functioning of the intake system, without altering the original hydraulic regime of the scheme.

Headworks comprise a flushing sluice and an intake head regulator. The weir is founded on a firm rocky riverbed, and immediately downstream of the head regulator, the right bank of the main canal is rocky, providing good structural stability. Overall, the headworks arrangement appears structurally sound and does not require major repairs. However, the flushing sluice gates were found to be defunct and non-operational and will be replaced or rehabilitated to restore proper flushing and operational control. The intake head regulator gates are functional; however, repair or replacement of damaged elements will be undertaken where required.

Due to recent excessive flood events, overtopping of the main canal occurred near the headworks. Therefore, the right bank gates and operating platform will be raised by approximately 1.5 m to improve flood safety and reduce the risk of future overtopping. In addition, a desilting basin will be arranged immediately downstream of the headworks to reduce sediment entering the main canal and to improve the reliability of downstream outlets, siphons and distribution structures.

Major rehabilitation works at the headworks will include replacement or repair of damaged gate elements, improvement of flushing arrangements, repair of deteriorated concrete or protection works where necessary, raising of the right bank gates and platform, and installation of associated structural and operational features required for proper intake regulation, sediment control and safe long-term operation of the ZAIS.

Photo 1: Existing type of Canal Outlets

	
Sluice Gate outlet	Gate Valve outlet

4.3. NEAREST SOURCES OF LICENSED MATERIALS

The nearest sources of licensed materials sand, gravel, and water, are located within the riverbeds of the Mashavera and Khrami rivers. The estimated transportation distance to the project site ranges from 5 to 10 kilometers.

Table 4. Information on Licensed Quarries of Natural Construction Material

No.	License No.	Name	Owner	Obt./Exp. Date	Area(m^2)
1	1001415	Sand Gravel Extraction from Khrami River, Daba tamarisi	New Star LLC	From 23.12.13 To 14.02.26	290 006
2	10000618	Sand Gravel Extraction from Mashavera River, near Vil Kianeti	G&K Technology LLC	From 22.03.19 To 20.09.26	50 086
3	№1815	Sand Gravel Extraction from Mashavera River, near Vil Talaveri	Ashirli LLC	From 12.06.25 To 13.06.28	27,110
4	№1881	Sand Gravel Extraction from Mashavera River, near Vil Rachisubani	Landway LLC	From 22.07.25 To 23.07.26	4,420

Concrete required for the rehabilitation works may be supplied from existing batching plants located in or near the Zeda-Arkhi subproject area, including Bolnisi Municipality and/or nearby areas of Kvemo Kartli Region. Licensed sources of sand, gravel and other construction materials are also available in the surrounding area.

The Contractor can use one or more concrete plants during the construction.

The water to be used for construction works may be supplied from the Mashavera River, existing water supply systems and/or licensed boreholes, subject to obtaining the required permits, agreements or consents from relevant authorities. Drinking and domestic-use water

for campsites may be delivered by water tanks from licensed boreholes or obtained from the municipal water supply network, based on agreement with the relevant service provider (Table 5).

Table 5. Information on Licensed Municipal Water Network

No.	License No.	Name	Owner	Obt./Exp. Date	Area(ha)
1	1000901	Groundwater/freshwater Extraction (Entrepreneurial Purpose) in Village Savaneti	Savaneti 99 LLC	From 19.11.12 To 27.07.32	0.07
2	№1140	Groundwater/freshwater Extraction (Entrepreneurial Purpose) in Village Kvemo Bolnisi	RMG Coper LLC	From 10.04.24 To 22.06.46	3,255

5. PUBLIC CONSULTATION

ZAIS rehabilitation design was prepared in a participatory manner and included extensive engagement of the design team with local communities. The present draft ESMP and relevant RAP information will be disclosed through MEPA's webpage in Georgian and English language versions, and stakeholder consultation meetings will be held to discuss it, The meetings will be advertised through communication channels accessible to all interested parties, and the venue will be selected to ensure convenient access for subproject-affected people, including persons with limited mobility or other vulnerability factors. The meetings will be hosted by representative of MEPA and GA and moderated by the PIU. Meetings will inform local communities and PAPs on the scope and nature of upcoming works, expected positive and negative environmental and social impacts, land-related impacts and compensation principles, construction access arrangements, and the GRM available during construction works. Participants will be given an opportunity to ask questions, raise concerns, and provide comments.

Minutes of the consultation meetings will be prepared, including records of presentations, comments, questions and answers, photo documentation, and scanned copies of participants' sign-up lists. Feedback relevant to social risks, land access, temporary restrictions, asset damage, compensation, vulnerable PAPs, and grievance handling will be reviewed and reflected in the final ESMP and RAP implementation arrangements, as appropriate. Consultation minutes will be attached to the final version of the ESMP.

All personal data collected, processed, stored, or disclosed under the Project shall be handled in strict compliance with the World Bank's applicable environmental and social requirements, including provisions on stakeholder privacy, protection of personal information, and grievance management, as well as the applicable national legislation on personal data protection and confidentiality.

6. GRIEVANCE REDRESS MECHANISM

The Grievance Redress Mechanism (GRM) has been established and is operational under the GRAIL Project to ensure that grievances and concerns raised by affected communities and other external stakeholders are addressed in an efficient, timely, transparent, and cost-effective manner. The mechanism covers grievances arising from project-related activities undertaken by the MEPA, as well as by contractors and subcontractors engaged under the Project.

A project-level GRM was established during the design stage of the ZAIS subproject to address project-related concerns and will remain operational throughout civil works implementation and the defect liability period. During initial stakeholder engagement and consultation meetings, local communities and PAPs were informed about available channels for submitting grievances, inquiries, or suggestions throughout both the design and implementation phases of the Project. Stakeholders were also provided with information on the grievance resolution process and procedures for handling and addressing submitted complaints (see Figure 3).

To ensure a transparent, credible, and well-documented process for the fair and effective resolution of grievances, GRM focal points were appointed at each level of the Project implementation structure, from the Contractor to the PIU. Grievance boxes were installed at municipal offices and GA service offices to facilitate the submission of complaints. In addition, GRM brochures have been distributed in languages accessible to the affected communities and PAPs, providing information on grievance submission procedures, confidentiality options, anonymous grievance submission, response timelines, and contact details of designated GRM focal points. Relevant GRM information is also available on the PIU website.

Throughout the implementation of the Project, the Contractor's Social Specialist and the Supervision Engineer, in coordination with the PIU will maintain regular and constructive engagement with local communities to promote effective communication, strengthen trust, and foster cooperation among affected stakeholders and Project representatives. Continuous dialogue will support the timely identification and resolution of concerns arising during Project implementation.

PIU, in coordination with the Supervision Engineer, will be in charge to continue communication with population. Meetings will be conducted to raise their awareness of the Project and the existing Grievance Mechanism.

As of ESMP preparation, no written grievances related to the ZAIS subproject have been received by the PIU or other involved parties. During implementation, all verbal, written, anonymous, social, environmental, labor-related, and land acquisition and resettlement (LAR) related grievances shall be recorded, screened, investigated, and closed out in accordance with the Project GRM procedure.

The Project GRM is intended for project-affected people, local communities, and external stakeholders, and addresses concerns related to project impacts, stakeholder engagement, access restrictions, environmental and social risks, and community-level complaints.

In contrast, the Workers' GRM is specifically designed for direct workers, contracted workers, and other project personnel, and provides a confidential and accessible channel for raising workplace-related concerns, including labor conditions, occupational health and safety,

discrimination, harassment, non-payment, contract-related issues, and other employment matters. Therefore, the Workers' GRM is addressed separately under ESS2 - Labor and Working Conditions, while the Project GRM is covered under the ESS10 - stakeholder engagement and community grievance management provisions. This separation ensures that each mechanism is tailored to the needs, context, confidentiality requirements, and protection measures relevant to its users.

The Worker's GRM is available to both direct and contracted workers engaged under the ZAIS subproject, providing a formal channel through which workers may raise workplace-related concerns and complaints. Such grievances may include, but are not limited to, occupational health and safety issues, working conditions, labor rights concerns, and incidents related to sexual exploitation and abuse / sexual harassment.

The Contractor's Social Specialist will be responsible for providing information and training on the Worker Grievance Mechanism to all direct and contracted workers during induction and recruitment processes. To ensure accessibility, grievance boxes and informational materials will be placed at workers' camps, site offices, and other locations frequently accessed by workers. Information brochures will clearly explain the grievance submission process, applicable timelines, confidentiality provisions, and contact details of the designated grievance focal points.

For direct workers, GRM will be administered by the Human Resources Specialist of the PIU, who will be responsible for receiving, recording, processing, and resolving grievances in accordance with the procedures established in the LMP.

For contracted workers, grievance mechanisms will be established and maintained by their respective employers. Civil works contractors will be responsible for ensuring that all workers have access to the mechanism and are informed of their rights to submit grievances without fear of retaliation. The Supervision Consultant will monitor the contractors' grievance management systems, including the registration, investigation, and resolution of grievances, and will report on their performance through monthly progress reports submitted to the PIU.

Oversight of the Worker Grievance Mechanism will be provided by the designated Grievance Mechanism (GM) Focal Point within the Supervision Consultant's team, who will be responsible for monitoring the effectiveness and accessibility of the mechanism throughout project implementation. In the absence of a Supervision Consultant, the PIU Environmental and Social Specialist will assume responsibility for monitoring, reporting, and ensuring the continued availability and proper functioning of the Worker Grievance Mechanism.

Specifically, the GRM:

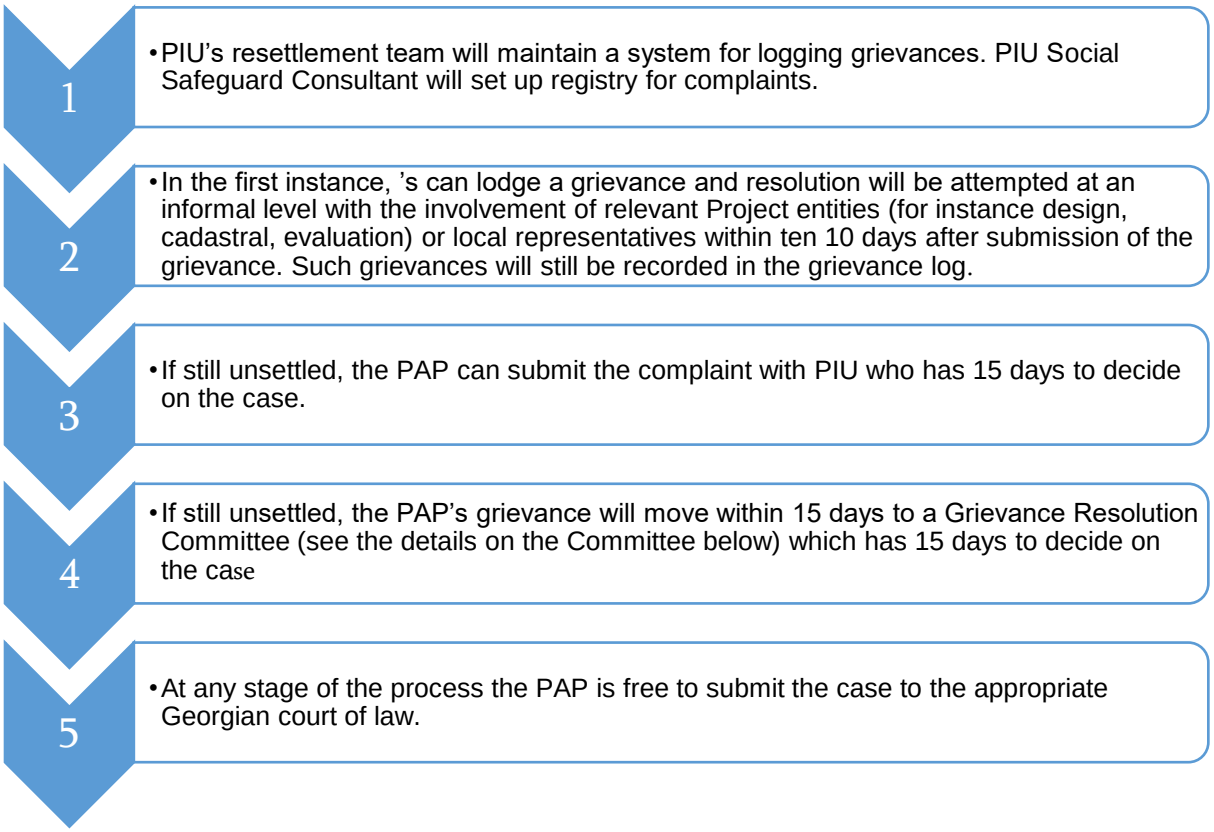
- Provides affected people with avenues for making a complaint or resolving any dispute that may arise during the course of the implementation of the projects;
- Ensures that appropriate and mutually acceptable redress actions are identified and implemented to the satisfaction of complainants;
- Supports accessibility and transparency in handling complaints and grievances;
- Manages time factor (avoids the need to resort to judicial proceedings (at least at first).

Typical grievances under sub-project might relate to:

- Land acquisition and physical displacement; (if occurred during Project implementation)
- Civil work damages;
- Environmental impacts; and
- Direct and/or indirect social - economic impacts.

The Grievance Redress Process in presented below Figure 3

Figure 3. Grievance Redress Process



The point of contact regarding grievance management and the local stakeholder engagement activities are represented at every level of Project implementation and named as GRM Focal Point.

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The GRM addresses, in an efficient, timely and cost-effective manner, grievances that may arise during the implementation of works on the ZAIS in relation to actions undertaken either by the PIU or by contractors employed by the PIU. The GRM is available to affected communities, PAPs, land users, water users, and other external stakeholders. The GRM is discussed in detail in Annex E of the present ESMP.

7. LAND ACQUISITION AND RESETTLEMENT ISSUES

In accordance with the Project's ESMF and the GRAIL Project RPF, the environmental and social risk assessment of subprojects includes screening for land acquisition, restrictions on land use, physical displacement, economic displacement, temporary access restrictions, and asset impacts. This screening confirmed that ESS5 is applicable to the ZAIS subproject and that a site-specific RAP is required.

Based on the current design, the rehabilitation and modernization works will be carried out mainly within the existing canal corridor, construction buffer, and 1.5 m ROW along the main canal. The subproject does not require physical relocation and does not affect residential buildings, commercial structures, businesses, or workers. However, limited land-related impacts have been identified within the ROW, including restrictions on private agricultural land, impacts on crops and trees, and potential temporary restrictions during construction. Therefore, a site-specific RAP has been prepared to define the affected persons, affected assets, compensation entitlements, implementation responsibilities, disclosure requirements, and grievance procedures.

The LAR impact relates to the Project main canal, which extends for approximately 34.1 km, and is limited to the defined 1.5 m-wide construction zone/ROW. The RAP was prepared by Yooshin-Dasan under the guidance of MEPA and should be implemented after World Bank clearance and before civil works commence on affected sections. RAP implementation shall include completion of compensation and any required servitude/easement documentation, disclosure to PAPs, resolution of outstanding LAR-related grievances, and preparation of a RAP implementation/completion report for World Bank review and acceptance.

The confirmed land-related impact comprises 16 registered land plots: 12 private agricultural plots and 4 state-owned non-agricultural plots under Georgian Railway. The total affected area is 2,419.95 m², of which 2,220.88 m² is private agricultural land and 199.07 m² is state-owned non-agricultural land. No full transfer of private ownership is currently proposed under this RAP. The private land impact is treated as a permanent servitude/easement restriction for the irrigation infrastructure and operation and maintenance access, unless the final legal procedure requires acquisition of a specific plot or plot section. Compensation shall cover the permanent restriction of use, affected annual crops, affected perennial trees, and any verified construction- or maintenance-related damages. Any conversion from servitude to full acquisition shall require updated valuation at full replacement cost, disclosure to the PAPs, and World Bank review/clearance before civil works on the affected section.

Any unanticipated LAR impact identified during implementation, including temporary occupation of private land, restriction of access to land or water, damage to fences, gates, crops, trees, irrigation assets, or other property, shall be immediately recorded, assessed, disclosed to the affected person, and compensated or restored in accordance with the RPF, RAP, ESS5, and Georgian legislation. The Contractor shall stop works in the affected location until the impact is assessed and the required corrective measure is agreed with the PIU, Supervision Consultant, and affected person. LAR-related grievances shall be prioritized through the Project GRM and tracked until closure.

8. EXPECTED POSITIVE AND NEGATIVE IMPACTS AND APPROACH TO RISK MITIGATION

8.1 POSITIVE IMPACTS

The rehabilitation of ZAIS is expected to generate substantial environmental, social, and economic benefits. The subproject will improve the reliability, efficiency, and operational safety of the existing irrigation system through rehabilitation of the headworks, modernization of the main canal, and replacement of the existing secondary and tertiary irrigation network with a closed-pipe distribution system. These improvements will significantly reduce conveyance losses, improve water distribution efficiency, and provide a more reliable irrigation service throughout the command area.

The rehabilitation will support sustainable agricultural production by increasing crop yields, improving resilience to climate variability, reducing operation and maintenance requirements, and enhancing the livelihoods of local farmers. Additional infrastructure improvements, including upgraded hydraulic structures, desilting facilities, trash racks, livestock watering structures, and pedestrian crossings, will further improve the safety, functionality, and long-term sustainability of the irrigation system.

Because the project rehabilitates an existing irrigation scheme rather than constructing a new one, environmental disturbance will remain relatively limited while substantially extending the operational life of the infrastructure.

8.2 NEGATIVE IMPACTS – PRE-CONSTRUCTION PHASE

Environmental impacts during the pre-construction phase are expected to be negligible and limited primarily to mobilization, site preparation, detailed surveys, establishment of construction logistics, and administrative activities.

Social impacts during this phase are primarily associated with land acquisition and restrictions on land use. In accordance with the Project ESMF, Resettlement Policy Framework, and the requirements of ESS5, a site-specific Resettlement Action Plan has been prepared for the subproject.

The identified land-related impacts are confined to a 1.5 m-wide construction and maintenance right-of-way (ROW) along approximately 34.1 km of the main canal. The impacts affect 16 registered land plots, comprising 12 privately owned agricultural plots and 4 state-owned non-agricultural plots managed by Georgian Railway. The total affected area is approximately 2,419.95 m², including 2,220.88 m² of private agricultural land and 199.07 m² of state-owned land.

No physical displacement, relocation of households, loss of residential or commercial structures, or business displacement is anticipated. The principal impacts consist of permanent restrictions on land use through establishment of servitudes/easements, together with impacts on agricultural crops and perennial trees within the construction corridor.

These impacts will be mitigated through full implementation of the RAP prior to commencement of civil works in affected sections. RAP implementation includes compensation at replacement cost, disclosure to PAPs, establishment of servitude agreements where applicable, implementation of the Project GRM, and preparation of a RAP completion report acceptable to the World Bank.

8.3 Negative Impacts – Construction Phase

Most adverse environmental and social impacts are expected during the construction phase. These impacts will generally be temporary, localized, and reversible.

Potential environmental impacts include:

- temporary dust emissions and localized deterioration of air quality;
- construction noise and vibration;
- generation of construction and demolition waste;
- temporary soil disturbance and erosion;
- risks of accidental contamination of soil and water from fuels, lubricants, or construction materials;
- temporary impacts on surface water quality during canal rehabilitation works;
- vegetation disturbance within the approved construction corridor.

Potential social impacts include:

- temporary disruption of irrigation services during construction;
- temporary restrictions on access to agricultural land, irrigation facilities, and local roads;
- occupational health and safety risks to construction workers;
- community health and safety risks associated with construction activities and movement of heavy machinery;
- temporary disturbance to nearby residents and agricultural activities;
- potential accidental damage to fences, gates, crops, trees, irrigation assets, or other private property.

Although the works will be undertaken predominantly within the existing irrigation corridor and approved construction buffer, unforeseen land-related impacts may occasionally occur during implementation. Such impacts may include temporary occupation of private land, damage to agricultural assets, or temporary restrictions on access.

Any unanticipated land acquisition or resettlement impacts identified during construction shall be managed in accordance with the Project RPF, the approved RAP, ESS5, and applicable Georgian legislation. Construction activities in the affected area shall cease until the impact has been assessed, appropriate corrective measures have been agreed, and compensation or restoration has been completed where required.

Implementation of the ESMP, RAP, Contractor's management plans, and continuous environmental and social supervision will ensure that construction impacts remain within acceptable levels.

8.4 Negative Impacts – Operation Phase

No significant project-generated adverse environmental or social impacts are anticipated during the operation phase. The rehabilitated irrigation infrastructure will continue to operate within its existing footprint and function. Minor impacts may be associated with routine maintenance activities, temporary generation of maintenance waste, and occupational health and safety risks to maintenance personnel. These impacts are expected to be infrequent, localized, and readily managed through standard operational procedures and good maintenance practices.

The irrigation scheme abstracts water from the Mashavera River, which has been subject to periodic water quality deterioration associated with upstream mining activities. Although the rehabilitation works will not alter the quality of the river water, the use of contaminated irrigation water could affect agricultural production and pose indirect risks to community health through contamination of irrigated crops. This represents an existing environmental condition rather than a Project-generated impact; however, it is directly relevant to the safe operation of the irrigation scheme and therefore requires appropriate operational monitoring and management measures.

In addition, improved irrigation services may encourage more intensive agricultural production within the command area, potentially resulting in increased use of fertilizers, pesticides, and other agrochemicals. Improper handling or excessive application of such substances could potentially affect soil quality and surface or groundwater resources. These risks will be managed through the promotion of good agricultural practices and compliance with applicable national regulations governing the use and storage of agrochemicals.

Overall, operational risks are expected to be localized and manageable through appropriate operational practices, while the long-term environmental, agricultural and socio-economic benefits of the rehabilitation are expected to be substantial.

8.5 MITIGATION HIERARCHY

The design of the ZAIS has followed the mitigation hierarchy by first seeking to avoid environmental and social impacts wherever technically feasible.

The rehabilitation has been designed to maximize the use of the existing irrigation infrastructure, canal alignment, and operational corridor, thereby substantially minimizing land acquisition, habitat disturbance, and impacts on adjacent properties. Nevertheless, limited permanent land-use restrictions within the construction and maintenance ROW could not be entirely avoided and therefore have been addressed through preparation of a site-specific RAP in accordance with the Project RPF and ESS5.

E&S impacts that cannot be avoided will be minimized through implementation of the ESMP, RAP, and Contractor's environmental and social management procedures. Key mitigation measures include:

- implementation of the approved RAP prior to commencement of works on affected sections;
- compensation at full replacement cost for eligible affected assets;
- maintenance of continuous access to agricultural land wherever practicable;
- dust, noise, and vibration control;
- erosion and sediment control;
- pollution prevention and emergency spill response;
- proper management of construction and maintenance waste;
- protection of surface water and soil resources;
- occupational and community health and safety measures;
- traffic and access management;

- biodiversity protection measures where applicable;
- implementation of the Project GRM;
- continuous environmental and social monitoring throughout construction and operation.

Following implementation of these mitigation measures, residual environmental and social impacts are expected to be minor, localized, temporary (except for the permanent servitude restrictions addressed through the RAP), and manageable. No significant residual adverse environmental or social impacts are anticipated, and the overall environmental footprint of the rehabilitation is expected to remain limited while delivering substantial long-term benefits for irrigation efficiency, agricultural productivity, climate resilience, and rural livelihoods.

9. ENVIRONMENTAL AND SOCIAL MITIGATION PLAN

ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
PRE-CONSTRUCTION PHASE			
Contractor Mobilization	Nuisance to local communities	● Notify the public (local municipalities) about the upcoming works, using printed material and electronic media and post notifications in public places of the villages located within the project area. ● Plan physical works on the scheme in that way to avoid disrupting crop growth and harvesting during the season. If some interruptions are unavoidable, inform the farmers of the timing and duration of these disruptions. ● Conduct stakeholder engagement meetings on regular bases to respond to potential grievances or questions raised from the local community in a timely and accurate manner. ● Install grievance boxes at the community accessible locations.	Contractor/Engineer/ PIU
Recruiting and training of labor	Disputes over terms and conditions of labor between Contractor and workers Foregone employment opportunities for local residents. Insufficient upfront arrangements for protecting health and ensuring safety of workers.	● Recruit unskilled or semi-skilled workers from local communities to the extent possible and deliver training, as feasible, to enhance their skills. ● Conclude written contracts with all staff and personnel to be employed observing national labor legislation. Comply with the ESF, ESS2 labor and working conditions, ESS4 health and safety conditions in accordance with GRAIL Project LMP. ● Develop Health and Safety Plan according to the principles of the Organic Law of Georgia (13/06/2023), Law of Georgia on Insurance № 690 02/05/1997 (amended 15/12/2023), Law of Georgia on Fire Safety (and have it approved by PIU) IFC/WB EHS guidelines. Comply with the ESS2/ESS4 D occupational health and safety for identification of hazard and control measures,	Contractor

ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
		● Training of the workers, documentation and reporting the incidents, emergencies preventions and remedial measures taken. ● Interpret Health and Safety Plan to workers through delivery of training on safety rules to be observed at work site. ● Provide relevant personal protective gear to all workers and explain the mandatory nature of its use and enforce wear at the site. ● Disallow forced and child labor	
RAP implementation	Violation of private property and user rights of affected persons; unresolved compensation, servitude/easement or access-restriction impacts; unauthorized entry to private land.	● Implement the approved RAP in accordance with the GRAIL Project RPF, ESS5 and Georgian legislation before civil works commence on any affected section. Confirm and document compensation for permanent servitude/easement restrictions, affected crops and trees, and any other verified assets at full replacement cost. Submit the RAP implementation/completion report to the World Bank and obtain clearance/no-objection before mobilization to affected worksites.	PIU
Establishment of the work assembly/ office area	Damage to environmentally and socially sensitive receptors	● Selected and manage the work assembly/office area in a manner that prevents damage to soil, surface runoff pathways, and surrounding environmental receptors. No on-site accommodation, cooking facilities, or camp-related infrastructure are currently anticipated for this subproject. If established by the Contractor during implementation, such facilities shall comply with the requirements of this ESMP, applicable national legislation, and the relevant Environmental and Social Standards.	Contractor

ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
Mobilization to the worksite	Occurrence of worksite emergencies	● Assess risk of emergencies, develop ERP, and train personnel in its implementation	Contractor
CONSTRUCTION PHASE			
Soil Excavation	- Deterioration of quality or loss of topsoil - Safety threat from poorly stockpiled earth - Environmental damage from poorly disposed excess material - People and animals falling into excavated trenches - Aesthetic damage to landscape	● Do not mix up topsoil and subsoil. ● Designate specific locations for on-site temporary storage of topsoil and subsoil, so that the piles do not restrict access, are stable, and do not pollute surface water bodies due to erosion. ● Keep the height of subsoil stockpiles below 6 meters. ● Keep the height of topsoil stockpiles below 2 meters, the pile must be stabilized to prevent erosion and washing off the topsoil. Provided drainage system. ● Cover open trenches to protect people and animals from falling. Backfill excavated trenches as soon as feasible. ● Carry out re-cultivation of the site upon completion of earth works for site reinstatement. Prohibit alternative use of topsoil.	Contractor Municipal authority
Handling Chance Finds	Loss or damage of historic artifacts	● Contractor to take all physical activity on hold upon encountering of a chance find and immediately inform Supervisor Company and PIU. ● Contractor and/or PIU to formally notify National Agency of Cultural Heritage Preservation (NACHP) on the chance find and seek written communication on further steps and actions. ● NACHP to provide clearance report or guidance to Contractor/PIU and promptly undertake necessary actions required by the law of Georgia on Cultural Heritage.	PIU Contractor NACHP

ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
		• NACHP to provide written notice to Contractor/PIU on the completion of activities on the site and clearance for the resumption of works.	
Clearing of vegetation along the channels	Excessive impact on vegetation	• Where applicable, the contractor shall obtain the necessary permit from the relevant authority with jurisdiction over the respective territory • Avoid unnecessary cutting of the trees. • Hand over timber from the removed trees (if necessary) to the Municipal authority; consider handing over other organic waste from tree cutting to local authorities for distribution to population for firewood. • No wood burning should be allowed at the site • Implement erosion control measures and prevent soil loss from exposed areas. • Train workers in proper procedures for vegetation handling and tree removal.	Contractor
General works	Damage to animals and birds	• All rehabilitation works shall be carried out exclusively within the approved boundaries and the designated ROW of the canals. • Adhere to a maximum speed limit of 10 km/h near croplands and woodlands. • Implement a no-horn policy • Poaching is strictly prohibited. • Install signboards and information boards about local wildlife, emphasizing that poaching is not allowed. • Avoid construction activities during the breeding season. If any nests are discovered, relocate them to the nearest safe location.	Contractor

ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
General works	Damage to aquatic species	● Prevent sediment discharge into water bodies. ● Monitor water quality throughout the works. ● Prepare emergency response for spill prevention.	Contractor
General works	Surface and ground water pollution, Sedimentation triggered by soil erosion	● Prohibit the discharge of untreated wastewater from sewage into water bodies during rehabilitation works; provide bio-toilets for workforce sanitation. ● Ensure no solid waste is disposed of into the canals or surrounding areas; conduct routine site cleanups and remove waste promptly. ● Regularly monitor water quality of discharged water to ensure compliance with permissible pollutant limits. ● Prohibit on-site washing of vehicles and machinery. ● Conduct maintenance and fueling of vehicles only in designated areas or workshops; place generators on drip trays to prevent spills. ● Store fuel and hazardous materials away from water bodies in secondary containment systems (e.g., drip trays, bunded areas) with capacity to hold at least 110% of the tank volume. ● Develop and train a spill response team; ensure spill response kits (absorbent pads, PPE, disposal bags, shovels, brooms, caution tape, dustpans, neutralizing agents) are available on-site.	Contractor
Operation of construction vehicles and machinery	- Emissions - Generation of dust - Generation of noise and vibration	● Control generation of dust from vehicle movement by watering roads as necessary. ● Keep all construction vehicles and machinery in good technical condition to avoid excessive noise and emissions.	Contractor

ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
	- Environment pollution with operation and/or accidental spillage of oil and lubricants	● Ensure that engines and machinery are extinguished or working with a minimum load when not used as well as vehicles are moving in slow speed in order to reduce emissions. ● Establish a speed limit of 30-40 km/h within settlements. Cover the trucks during transportation of waste and construction materials. ● Conduct maintenance and repair of the vehicles at service centers or in designated areas away from surface water bodies. Undertake fueling of vehicles at service centers. If impossible, provide non-permeable surface and spill-confining areas. ● Provide hazardous material storage and spill kits at site and trained the workers to collect the spill. ● Regular water sprinkling on access roads.	
Operation of residential facilities at work camps (if any)	- Littering of the area with household waste - pollution of surface/ground water bodies with liquid discharges	● Implement regular housekeeping of the site, ensuring household waste is placed in designated containers, which are to be regularly emptied by municipal waste collection services. ● Conclude an agreement with the municipality for the handling of waste and provision of municipal waste containers. ● Provide bio-toilets for the workforce, ensuring they are regularly serviced by licensed waste management contractors; where bio-toilets are not feasible, install sewage pits that are regularly emptied by wastewater trucks and disposed of through the nearest approved sewage infrastructure. ● Sign an agreement with the licensed contractor for sewage removal.	Contractor Local Municipality
Generation of non-hazardous	- Environment pollution with construction waste	● Minimize volume of generated waste. ● Separate wastes to:	Contractor

ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
construction waste	- Damage to landscape and surface water bodies from improperly dumped excess materials	- single out reusable and recyclable waste. Reuse waste as feasible except asbestos-containing faction. Hand over recyclable waste (e.g. paper, plastic, metals) to collecting/processing companies - collect household waste separately for the disposal by municipal service provider - collect construction waste for temporary storage at designated locations and deliver it to final disposal locations pre-agreed with local municipality or formal sanitary landfills, depending on composition and volume. ● Avoid piling of excessive volumes of waste at the construction site. ● Raise awareness of workers and personnel on the established rules of waste disposal. Enforce proper waste handling practice among all staff.	
Generation of hazardous construction waste	- Damage to health and safety of workers handling waste - Damage to health and safety of communities within the impact zone - Pollution of environment with hazardous waste - Damage to landscape and surface water bodies from improperly dumped excess materials	Following measures will be taken in case of any accidental exposure to asbestos: ● Provide all employees handling asbestos-containing materials appropriate personal protective equipment and enforce its adequate use. ● Keep the number of workers handling asbestos-containing materials to the necessary minimum; educate them and keep sensitized to the rules of handling asbestos. ● In case of pollution, flooding during the heavy rainy seasons, that can increase the risks of diseases to local communities (through mosquitos, for example), the design consultant will address appropriate mitigation measures in accordance with ESS 4. ● Avoid unnecessary fragmentation of this material to minimize dust generation. ● Pack and seal asbestos-containing debris into minimum of 200 µm thickness polyethylene bags; attach warning labels to the packaging; store the bags temporarily in a protected predefined location on work site. ● Ensure safe transportation of asbestos-containing waste bags for disposal ensuring integrity of packaging; dispose asbestos-containing waste to the formal sanitary landfills based on agreement concluded with the Solid Waste Management Company under the Ministry of Infrastructure of Georgia.	Contractor

ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
		● Safely store all types of fuel, oil, batteries, tires, chemicals and other hazardous substances during construction works and hand them over to the licensed companies for deactivation and processing. ● Minimize volume of generated waste. Separate wastes to: - Single out reusable and recyclable waste. Reuse waste as feasible except asbestos-containing faction. Hand recyclable waste (e.g. paper, plastic, metals) to collecting/processing companies - Collect household waste separately for the disposal by municipal service provider - Collect construction waste for temporary storage at designated locations and deliver it to final disposal locations pre-agreed with local municipality or formal sanitary landfills, depending on composition and volume. ● Raise awareness of workers and personnel on the established rules of waste disposal. Enforce proper waste handling practice among all staff.	
Works generating noise pollution	- Nuisance to local communities - Health impact on workers	● Keep vehicles and machinery in good technical condition to avoid unnecessary noise generation. ● Prohibit conduct of noise-generating works at nighttime. ● Prohibit speeding of construction vehicles and impose adequate speed limits for moving within and nearly settlements. ● In the event of excessive noise, pollution, or vehicle movement during construction that exceeds regulatory limits, appropriate mitigation measures should be implemented, and the local community should be notified accordingly.	Contractor
Labor management	- Violation of the rights of workers	● Comply with national labor legislation and the LMP, including working hours, minimum wages, legal working age, freedom of association, and prohibition of discrimination, forced labor, and child labor.	Contractor/CSC

ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
	- Trauma, morbidity and mortality at work site - Sexual Exploitation and Abuse/Sexual Harassment	● Maintain transparent procedures for preventing rights violations, resolving disputes, and prioritizing recruitment of local unskilled/semi-skilled workers. ● Conclude written contracts with all personnel in line with national laws and ESSs. ● Develop and implement an Occupational Health and Safety Plan compliant with Georgian legislation and ESSs; appoint a site health and safety officer. ● Provide and enforce the use of PPE, communicate workplace safety rules, and train workers regularly on safety and emergency procedures. ● Document and report incidents, maintain emergency preparedness systems, and take corrective measures as needed. ● Provide adequate welfare facilities, including toilets, washing areas, drinking water, catering/rest areas, and hygiene supplies. ● Maintain and operate workers' GRM. ● Each worker shall sign and comply with the Code of Conduct before starting work. Breaches of the Code of Conduct shall result in disciplinary action, including removal from site or termination, where applicable	
Works near settlements	- Nuisance to local communities - Conflicts between Contractor and local population - Sexual Exploitation and Abuse/Sexual Harassment	● Assign a GM Focal Point to lead communication with and receive requests / complaints from the local population. ● Consult local communities to identify and proactively manage potential conflicts between an external workforce and local people. ● Install banners with the name and contact information of contractor in visible locations around/along the work sites to ensure local communities can raise concerns and ask questions to Contractor	Contractor

ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
		● Raise awareness of local communities about any inconveniences they may experience and risks they may face due to presence of an external workforce in proximity to their settlements and works to be undertaken. ● Raise awareness of workers on overall relationship management with local population, establish the code of conduct in line with international practice and LMP and strictly enforce them, including the dismissal of workers and financial penalties of adequate scale.	
Works near settlements	- Nuisance to local communities - Conflicts between Contractor and local population - Sexual Exploitation and Abuse/Sexual Harassment	● Assign a GRM Focal Point to lead communication with and receive requests / complaints from the local population. ● Consult local communities to identify and proactively manage potential conflicts between an external workforce and local people. ● Install banners with the name and contact information of contractor in visible locations around/along the work sites to ensure local communities can raise concerns and ask questions to Contractor. ● Raise awareness of local communities about any inconveniences they may experience and risks they may face due to presence of an external workforce in proximity to their settlements and works to be undertaken. ● Raise awareness of workers on overall relationship management with local population, establish the code of conduct in line with international practice and LMP and strictly enforce them, including the dismissal of workers and financial penalties of adequate scale.	Contractor

ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
Works near and/or inside /agricultural areas	- Nuisance to local communities - Restriction of access to- and use of private property - Damage to private property	● Schedule works outside planting and harvesting periods to the extent possible in order to avoid or minimize crop and access disruption. Inform local population and PAPs in advance about construction schedules, access restrictions and expected duration of works. Restrict vehicle movement to defined access routes and demarcated working areas to prevent excessive damage to vegetation, soil, crops, trees, fences, gates, irrigation assets and other private property. Do not occupy private land or use assets outside the approved ROW and agreed temporary-use areas without written agreement and compensation where applicable. Any accidental damage shall be recorded, valued, compensated or restored promptly, and tracked through the GRM until closure.	Contractor
Site reinstatement	- Excessive impact on landscape - Residual pollution of ROW with construction waste and excess materials	After completion of construction activities, ensure that: ● No waste and excess materials are left behind ● All trenches are backfilled, topsoil and spread and the ROW is reinstated to natural condition ● Access roads are repaired to pre-construction or better condition ● Any accidental damage to fences, pipes or any other private property of local residents is fully compensated either by payment or by restoration to the initial or better condition.	Contractor
OPERATION PHASE			
Operation and maintenance of ZAIS by Service	Flooding, soil erosion, salinization due to improper operation of the system	● Deliver technical training to GA Service Center operators, on permanent functioning and operating of the pumps station, with the purpose to discharge the water on regular basis for avoiding flooding and salinization of the land. ● Duly perform routine and emergency repair works on the irrigation scheme to avoid its malfunctioning.	GA

ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
Center Operators			
Delivery of irrigation services to water users	Soil erosion and salinization from excessive/improper irrigation of fields Water loss, flooding and waterlogging of areas along right of way due to poor operation and maintenance of canals and hydraulic structures Potential use of irrigation water with elevated concentrations of pollutants originating from upstream mining activities.	● Undertake awareness-raising campaigns targeting irrigation water users to promote adequate and rational irrigation practice ● Duly perform routine and emergency repair of the irrigation scheme to avoid its malfunctioning. ● Georgian Amelioration shall establish a periodic irrigation water quality monitoring program at the intake from the Mashavera River. ● Monitoring parameters shall include, as appropriate, suspended solids and heavy metals associated with upstream mining activities, in accordance with applicable Georgian standards and any additional requirements established by MEPA. ● If monitoring identifies significant exceedances of applicable irrigation water quality standards, Georgian Amelioration shall investigate the cause, notify the relevant authorities, and, where necessary, temporarily suspend water abstraction until water quality is restored to acceptable levels.	GA Service Center
Application of pesticides by users of the irrigation scheme	- Environmental pollution and damage to community health and safety from improper application of pesticides and poor disposal of packaging - Poor quality of farm produce due to	● Undertake awareness-raising campaign targeting water users to promote safe and rational use of pesticides and to popularize IPM and Integrated Vector Management approach only targeting the economically significant pest infestations and disease vectors of public health significance. ● Avoid or minimize harm to beneficial organisms that serve as natural predators or control agents of the targeted pests ● Empty bottles of the pesticides should not be thrown in the open environment and handled according to prescribed methods and appropriate PPEs must be used by the farmers.	GA

ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
	excessive and improper use of pesticides	● Farmers should use cultural practices, biological methods, and genetics and as a last resort the chemical means to prevent economically significant damage and disease transmission to human and animals.	
Maintenance of the canal system	Poor management of the removed sediments and vegetation during the cleaning of the canal system	● Ensure regular maintenance of the channels to avoid accumulation of high volume of sediments and debris. ● During the maintenance and removal of vegetation, do not leave organic waste in canals for decaying. ● Collect organic waste generated from canal cleaning and store in an area designated by the Municipality. ● Distribute wooden material to the local communities as firewood as relevant. ● Handle removed sediment in accordance with the established practice (e.g., distribution to the local farmers based on their request, or disposal on the territory designated by the local municipality)	GA Local Municipality

10. ENVIRONMENTAL AND SOCIAL MONITORING PLAN

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
CONSTRUCTION PHASE						
Supply with construction materials	Purchase of construction materials from the officially registered suppliers	Work camp of contractor	Verification of documents, labels and quality	Recurrent	Ensure technical reliability and safety of infrastructure	Engineer
● Transportation of construction materials during construction phase; ● Movement of construction machinery	● Technical condition of vehicles and machinery; ● Confinement and protection of truck loads with covering of material; ● Respect of the established hours and routes of transportation	Transportation routes	Visual inspection	Unannounced inspections during work hours and beyond	● Limit pollution of soil and air from emissions; ● Limit nuisance to local communities from noise and vibration; ● Minimize traffic disruption.	Engineer

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
Operation of construction equipment and machinery	Technical condition of equipment and machinery Equipment and machinery operation practices	Construction sites	Visual inspection	Daily	Reduce air and soil pollution from idling of engines, excessive exhaust and leakage of oil products; Avoid excessive noise generation	Engineer
Servicing of construction vehicles and machinery	Washing vehicles and machinery off-site of in the location sufficiently distant from water bodies; Servicing vehicles and machinery with oils and lubricants at service centers or in an especially arranged location on-site;	Construction sites and work camp	Visual inspection	Entire period of machinery operation	● Avoid land and water pollution with oil products due to servicing of vehicles and machinery; ● Readiness for fire emergency action to promptly localize fire source and	Engineer

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	Technical adequacy of the servicing location: • solid, insulating floor or adsorbent layer (sand, gravel, membrane), • containment barriers allowing enough space for holding fuel over the maximum amount expected on the location at a time, • presence of emergency fire-fighting kit, • sedimentation pool at car wash area.				minimize material damage	
Soil excavation	● No mixing of topsoil and subsoil. ● Organized on-site storage of topsoil and subsoil; no restriction of access, stability of soil stockpiles.	Construction sites	Visual inspection	In the course of earth works	● avoid deterioration of quality or loss of topsoil ● No damage to human and environmental health from	Engineer

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	● Height of subsoil stockpiles not exceeding 6 meters. ● Height of topsoil stockpiles not exceeding 2 meters. ● Subsoil backfilled and excess subsoil disposed to the locations designated by local authorities in written. ● Timely coverage of trenches. ● Topsoil spread over the site upon completion of earth works for site reinstatement. No alternative use of topsoil.				poorly stockpiled earth material ● Prevent falling of people and animals into excavated trenches ● Avoid aesthetic damage to landscape	

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
Handling of chance finds	● Works on hold from the instance of chance find encounter through the formal communication from PIU to resume; ● Communication on the chance find encounter and subsequent actions between contractor and PIU and between PMD and the National Agency of Cultural Heritage Preservation (NACHP) on file; ● No damage to historic artifacts	Sites of excavation works	Checking of documents	Upon encounter of chance finds	Avoid loss or damage of historic artifacts	Engineer/PIU; NACHP
Clearing of vegetation	● Pre-construction survey/tree inventory undertaken prior to commencement of vegetation clearing;	Construction sites	Visual inspection	Prior and during vegetation clearing works	Avoid excessive impact on vegetation	Engineer/PIU

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	● Formal permission from the relevant authority in place for tree extraction; ● Extracted trees stockpiled in a designated location, preferably under cover; ● Documents on the handover of timber and other parts of removed trees in place.					

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
Sourcing of natural construction materials	● Purchase of material from the existing suppliers if feasible; ● Presence of extraction license and strict compliance with the license conditions; ● Excavation of river gravel and sand from outside of the water stream; arrangement of protective barriers of gravel between excavation area and the water stream; prohibition of entry of water stream by machinery; ● Demarcation and fencing of excavation areas; ● Reinstatement of worked sectors of quarries (if any) by	Quarries	Checking documents Visual inspection	During extraction of natural construction materials	● Limiting erosion of slopes and degradation of ecosystems and landscapes; ● Limiting erosion of river banks, water pollution with suspended particles and disruption of aquatic life; ● Protection of cattle and population from damage.	Engineer/PIU; National Agency of Mineral Resources

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	harmonizing with landscape, facilitating natural regeneration of vegetative cover					
Generation of construction waste	● Separation of reusable elements from the construction waste and reuse waste as feasible; ● Separation of recyclable elements from the construction waste and hand over to collecting points or recycling companies;	Construction sites; Work camp; Waste disposal sites; Areas around work sites and waste disposal sites	Checking documents Visual Inspection	Recurrent	Prevent pollution of the construction site and nearby area with waste	Engineer/PIU; Environmental Supervision Department of MEPA

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	● Allocation of special area for temporary on-site storage of construction waste; no accumulation of excessive amounts of waste on site; ● Dispose excessive construction material to the waste disposal area indicated by the Solid Waste Management Company of Georgia					
Generation of household waste	● Placement of containers to collect household waste at construction sites and work camp; ● Concluding agreement with local municipalities on regular disposal of household waste.	Construction sites and work camp	Visual Inspection	Recurrent	Prevent littering; Avoid pollution of soil and water	Engineer/PIU; Local municipalities

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
Generation of hazardous waste	● Provision of workers handling hazardous waste with personal protective gear and enforcement of its adequate use; ● Sprinkling of asbestos-containing waste with water and no unnecessary fragmentation; ● Packaging of asbestos-containing as prescribed; storage of packed waste in designated and protected location and safe transportation to the sanitary landfill of the Solid Waste Management Company; ● No reuse of asbestos-containing waste;	construction sites and work camp	Visual inspection Checking of documents	Recurrent	● Avoid damage to the health of workers and nearby communities; ● Avoid pollution of soil, surface water and group water	Engineer/PIU; Department of Environmental Supervision MEPA Labor Inspection Service of the Ministry of Internally Displaced People from the Occupied Territories, Labor, Health, and Social Affairs

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	● Collection and safe storage of used tires, batteries, filters, used and residual oil products and their hand over to the licensed companies for deactivation and processing.					
Generation of noise	● Vehicles and machinery kept in good technical condition to avoid excessive noise; ● No noise-generating works at night time; ● No speeding of construction vehicles and speed limited to 30-40 km/hour while	● Construction sites and work camp ● Routes of transportation	Visual inspection/ Contractor to buy noise meter	Recurrent	● Avoid nuisance to nearby communities; ● Protect health of workers	Engineer/PIU

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	moving within and nearly settlements.					
Labor management	● Presence of formalized contracts between Contractor and everyone employed by him; ● Observance of Labor Code requirements, including regulations pertaining working hours, leaves, compensation, age of workers, non-discrimination and other as relevant; ● Provision of uniforms and personal protective gear to workers and	Construction sites and work camp	Checking documents; Visual inspection	Recurrent	● Exclude exploitation and unfair treatment of workers; ● Reduce the probability of accidents	Engineer/PIU; Labor Inspectorate

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	enforcement of their use; ● Consistency with the rules of exploitation of the construction equipment and machinery; delivery of training on safety at work site; ● Maintenance of adequate sanitary conditions at construction sites and work camp, including provision of resting and catering facilities, safe drinking water and sanitation, separate WCs for men and women.					

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
GM Focal Point	● Provide effective GRM. ● Install brochures, describing grievance procedure and providing all the necessary information for local communities as well as labor force for providing feedbacks and concerns. ● Appoint Contractor's GM Focal Point, a person whose responsibility will be to have timely and efficient communication with the local population, positively or adversely impacted by the Project as well to the labor force employee under the Construction Company.	Settlements affected by construction works	Visual inspection; Interviews with affected communities; Checking of GRM logs	Recurrent	● Minimize nuisance to local communities; ● Avoid conflicts between contractor and local communities	Engineer/PIU

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	● Monitor the effectiveness of community liaison activities carried out by the Contractor and verify that the Contractor responds promptly and appropriately to community grievances and requests. ● Banners with the name and contact information of contractor installed in visible locations around/along the work sites; ● Awareness of the local communities about the nature and duration of the works and along with providing timely warnings about any disruptions to utility					

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	services due to the construction works. ● Ensure that awareness raising activities and consultations with local communities are conducted in a timely, inclusive, and transparent manner. ● Report to the PIU on the status of community relations, emerging issues, and the resolution of grievances					
Works near privately-owned land, buildings and other assets	● RAP implementation status; compensation and servitude/easement documentation; absence of unauthorized entry outside the ROW; condition of private	All RAP-affected plots and any private land or assets adjacent to construction sites, access routes, work camps and	Review RAP implementation/ completion report, compensation records, servitude/easement and temporary land-	Before mobilization to affected sections; weekly during works near private assets; and at completion/reinstatement.	Ensure compliance with ESS5 and the Project RPF; avoid unauthorized land use; confirm timely compensation,	PIU; Engineer/CSC; Contractor Social Specialist

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	land, crops, trees, fences, gates, irrigation assets and access routes; registration and resolution of LAR-related grievances.	temporary-use areas.	use agreements, and grievance logs; conduct visual inspections; interview PAPs and land users.		reinstatement, and grievance closure.	
Site reinstatement	● No waste and excess materials remaining at construction sites and work camp; ● All trenches are backfilled, topsoil and spread and the ROW is reinstated to quasi-natural condition; ● Access roads are repaired to pre-construction or better condition ● No unaddressed consequences of accidental damage to	Construction sites and work camps	Visual inspection	Final phase of construction works	● Avoid excessive impact on landscape; ● Avoid residual pollution of ROW with construction waste and excess materials	Engineer/PIU

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	fences, pipes or any other private property of local residents.					
OPERATION PHASE						
Delivery of irrigation services to farmers	No malfunctioning of the irrigation scheme; Awareness-rising among farmers being undertaken to promote adequate and rational practices Irrigation water quality	Along right of way of the irrigation scheme; Office of the service provider Mashavera River intake	Visual inspection; Checking of awareness-raising campaign records Laboratory tests	- During irrigation season - After extreme weather events - Periodically during operation (or in accordance with GA monitoring program) and after significant rainfall events where justified	Minimize soil erosion and salinization from excessive/improper irrigation; Minimize water lose, flooding and waterlogging of areas along right of way	GA

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
Application of pesticides by users of the irrigation scheme	No excessive use of pesticides and adherence to the principles of Integrated Pest Management	In the agricultural fields served by Zeda Arkhi irrigation scheme	Interviews with farmers Interviews with agricultural service providers	Recurrent	• Educate farmers on environmentally friendly practices through awareness campaigns and training. • Provide training in IPM, Integrated Nutrient Management (INM), and safe handling of hazardous substances in line with MSDS guidance, explained in practical terms. • Promote compost and manure as	GA

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
					alternatives to chemical fertilizers. ● Ensure safe use, storage, and disposal of pesticides and fertilizers; encourage the use of PPE. ● Where feasible, establish vegetative buffer strips near field edges and water bodies to reduce sediment and pesticide runoff.	

APPENDIXES

APPENDIX A: CHECKLIST FOR ENVIRONMENT AND SOCIAL SCREENING OF SUBPROJECTS

Checklist for Environmental and Social Screening and Classification of Sub-Project Impact Identification

May the subproject have a high impact on the environment?	No A slight and short-term impact on the environment may occur during the construction phase; however, no significant adverse effects are anticipated. The project involves rehabilitation of the existing ZAIS, which is expected to improve the reliability and efficiency of irrigation water delivery, support agricultural productivity, and enhance the overall functioning of the irrigation system. Construction activities will be limited in scope and duration and will be confined within the designated project boundaries. All activities will be conducted under the strict supervision of the Engineer and the PIU, ensuring full compliance with relevant national laws and regulations as well as the World Bank's environmental and social policies.
What are the expected beneficial and adverse environmental impacts of subproject?	The rehabilitation of the ZAIS is expected to have significant positive impacts through restoration of effective irrigation service, improved reliability of water delivery, reduction of conveyance losses, improved agricultural productivity, and better livelihood opportunities for local farmers. The project will also strengthen water management through improved monitoring and operational control of the irrigation system. Potential adverse impacts are expected to be temporary and mainly limited to the construction phase, including vegetation clearance, spoil and construction waste generation, dust, noise, traffic disturbance, localized soil erosion, pollution risks from construction materials and fuels, and temporary disturbance to fauna and irrigation service. These impacts can be mitigated through implementation of ESMP.
May the subproject have a high impact on the local communities and other affected people?	No The subproject focuses on rehabilitation of the existing irrigation scheme to improve irrigation

	service and support agricultural productivity within the command area. The improvement will enhance agricultural production, boost crop yields, raise income levels, and improve the livelihoods of those involved in farming. However, some temporary disturbances may occur during the rehabilitation activities, such as noise, dust, pollution, and movement of machinery during the construction phase. In case such impacts occur, relevant mitigation measures will be applied. As well as minor resettlement impact will be on several land plots, that will be addressed according to ESS5 and relevant national legislation of Georgia.

2. Mitigation Measures

Were there any alternatives to the subproject design considered?	Yes Two alternatives were considered: No project Option and Rehabilitation of the Existing ZAIS to smooth supply of Irrigation water to the farmers. However, the rehabilitation of the existing irrigation schemes was considered best option to improve the irrigation structures and to increase agriculture productivity.
What types of mitigation measures are proposed?	The proposed mitigation measures include strategies to prevent topsoil loss through proper stockpiling, minimize vegetation clearance, protect faunal species and the national park, manage non-hazardous and hazardous waste responsibility, avoid or reduce noise generation, impact on the aquatic environment, dust suppression measures, ensure safe storage of oil, fuel, batteries, and chemicals, effectively manage labor practices and mitigate potential damage to private land. From the social perspective, if any unanticipated damage or temporary intervention to private property occurs, prior to the rehabilitation works, it will be documented, and all related issues will be addressed in full compliance with the World Bank's Environmental and Social Standard 1 (ESS1) and Environmental and Social Standard 5

	(ESS5): Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement.
What lessons from the previous similar subprojects have been incorporated into the project design?	The design should consider the public opinion in terms of collecting the information of past operations and current requirements of the farmers and their growing needs.
Have concerned communities been involved and how have their interests and knowledge been adequately taken into consideration in subproject preparation?	Several stakeholder engagement meetings have been conducted at Project design phase by Design consultant with GA and Municipality representatives and local famers at Municipal Office During the meetings Consultant Company design team presented preliminary project to the farmers and GA local representative received their feedback and suggestions. The site visits were also conducted to asses resettlement impact on the site and exchange information on the following issue, with local farmers Municipal Representatives and GA. Due to the minor LAR impact socio -economic studies were also conducted were local population as well as APs were participating and providing information on their socio-economic situation

Resettlement Screening Information		Yes	No
1	Is the information related to the affiliation, ownership, and land use status of subproject site available and verifiable? (The screening cannot be completed until this is available)	x	
2	Will subproject (temporary or permanently) reduce other people's access to their economic resources, such as land, pasture, water, public services, or other resources that they depend on?	x	
3	Will subproject result in resettlement of individuals or families or require the acquisition of land (public or private, temporarily or permanently) for its development?	x	
4	Will subproject result in the temporary or permanent loss of crops, fruit trees and household infrastructure (such as ancillary facilities, fence, canal, granaries, outside toilets and kitchens, etc.)?	x	
If answer to any above question (except question 1) is "Yes", then ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement is applicable and mitigation measures should follow this ESS and the Project RPF Cultural			

Cultural resources safeguard screening information		Yes	No
5	Will the project require excavation near any historical, archaeological, or cultural heritage site?		×
If answer to question 5 is "Yes", then possible chance finds must be handled in accordance with relevant procedures provided in the ESMF			

3. Conclusion

1. Subproject is declined[2] ☐
2. Subproject is accepted ■

Subproject preparation requires undertaking of Environmental and Social Impact Assessment ☐

Subproject preparation requires Completion of the Checklist

Environmental and Social Management Plan for Small Construction and Rehabilitation Activities ■

[2] A high environmental and/or social risk/impact subproject is ineligible for the Project support. Only activities with moderate or substantial risks may be funded from the Project proceeds.

APPENDIX B: SCHEMATIC LAYOUT PLAN OF THE SCHEME

The planned rehabilitation and modernization of the ZAIS includes restoration and improvement of the existing gravity-fed irrigation system supplied from the Mashavera River. The scheme comprises weir-type headworks, a 34.1 km long main canal, siphons, pipe outlets with gate valves, sluice gate openings, secondary and tertiary distribution systems, lateral outlets, and associated flow measurement and control structures.

The schematic layout plan presents the functional distribution of irrigation water from the main canal through secondary canals, tertiary canals and lateral networks along the command area. The layout identifies the main outlet locations and distinguishes between direct outlets from the main canal and outlets supplied through secondary and tertiary pipeline systems. It also shows key command areas and distribution nodes, including Nadakuli Direct, Zvareti, Rachisubani, Mtis, Axali, Chapala, Khaissofeli and Talaveri.

The proposed system reflects a mixed distribution approach, combining direct offtakes from the main canal with secondary and tertiary pipeline networks to improve water delivery efficiency and operational control. The design includes 45 direct outlets, 23 secondary pipe outlets, 39 tertiary outlets from secondary pipelines, and 9 laterals from selected tertiary pipeline connections. SCADA-supported monitoring and flow measurement will be integrated into the system to support improved water accounting, operational scheduling and efficient scheme management.

Figure 4. Schematic Flow Diagram representing all Secondary Outlets and all Head Reach Direct Outlets

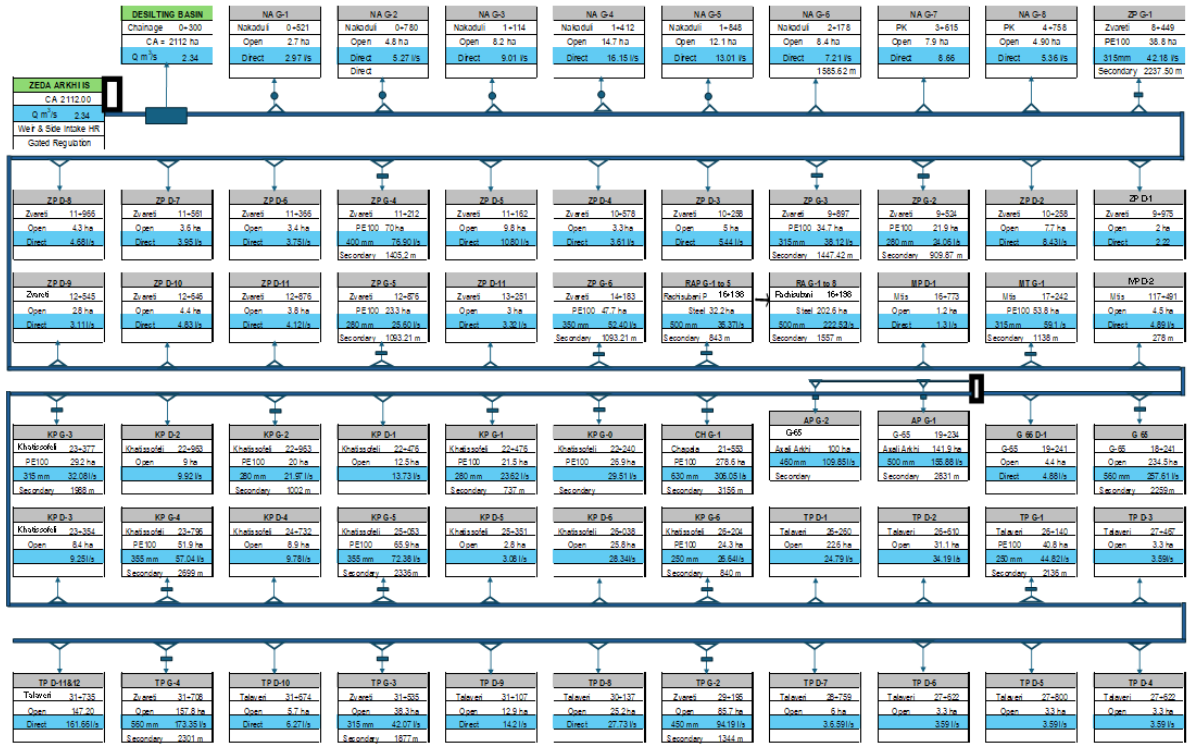
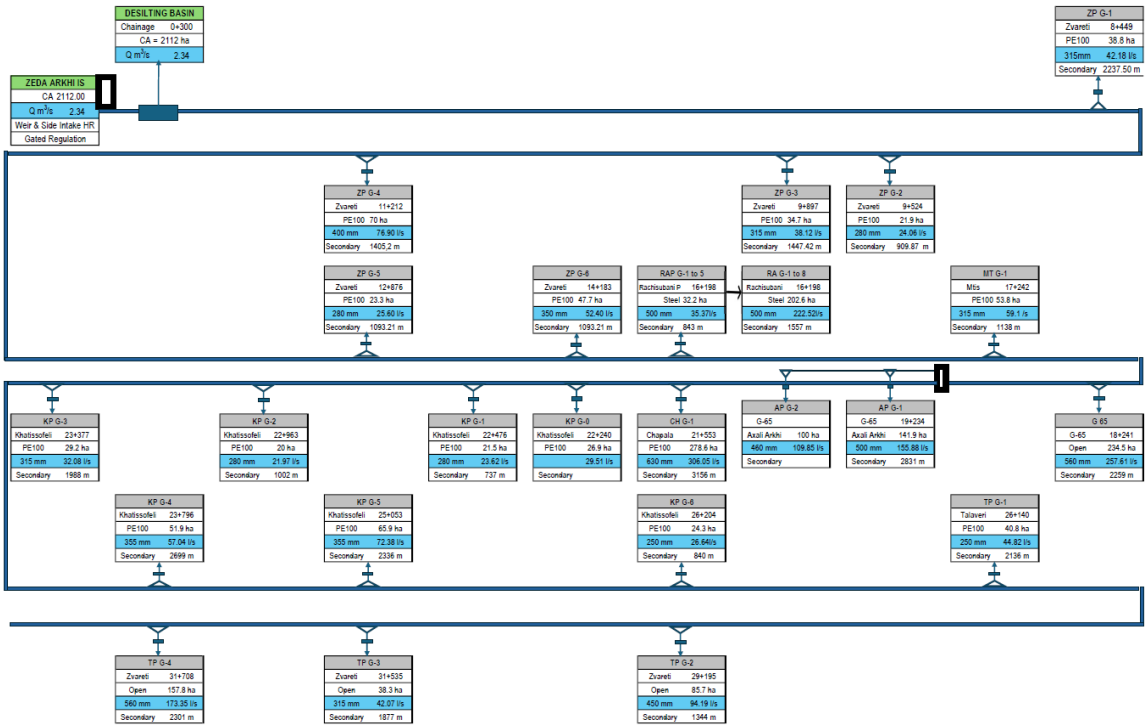


Figure 5. Schematic Flow Diagram representing all Secondary Outlets and with SCADA Arrangement.



APPENDIX C: PRESENT CONDITION OF ZEDA ARKHI IRRIGATION SCHEME

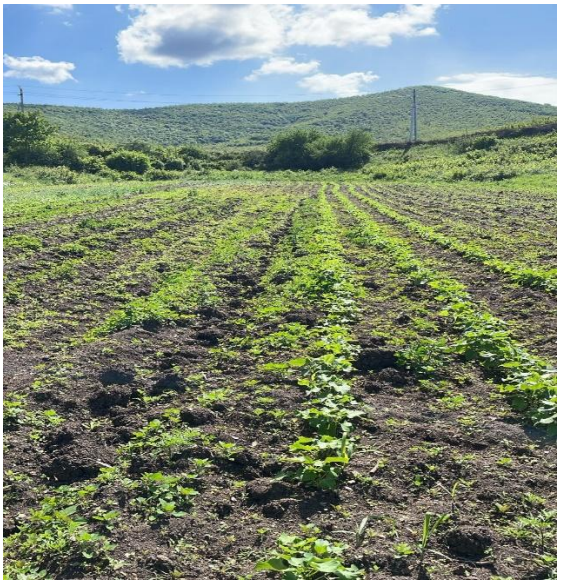
Diversity of vegetables, fruit trees and cropping pattern of the project area.

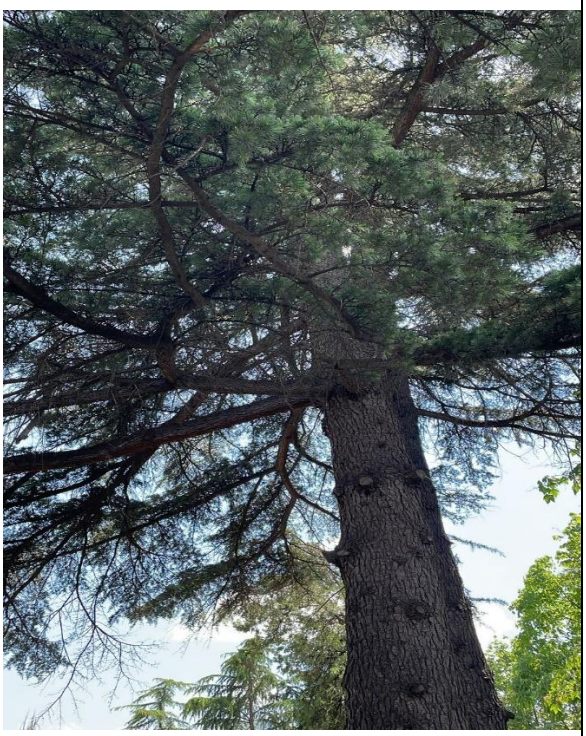
Headworks at Mashavera River

Zeda Arkhi Main Canal

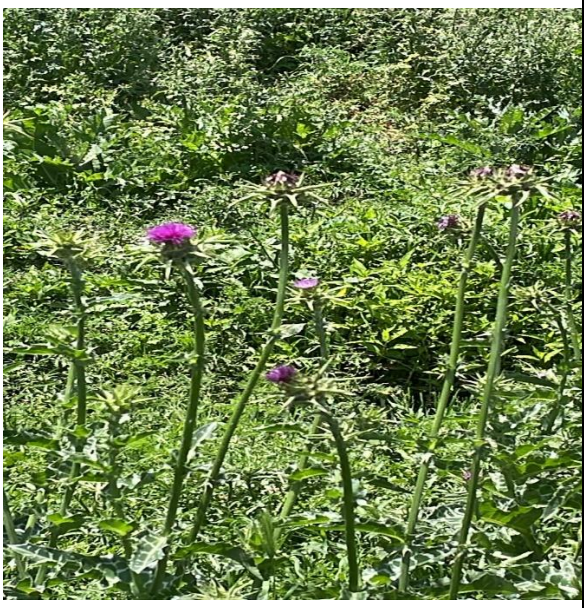
Cyphone on the main Canal

Figure: Diversity of vegetables, fruit trees and cropping pattern of the project area.

	
Grapes Garden in the Project area	Peach Fields in the Project Area
	
Fig trees in the project area	Beans Farm in the project area

	
Corn Fields in the project Area	**Almond Trees**
	
Wallnut trees	**Cedar trees**

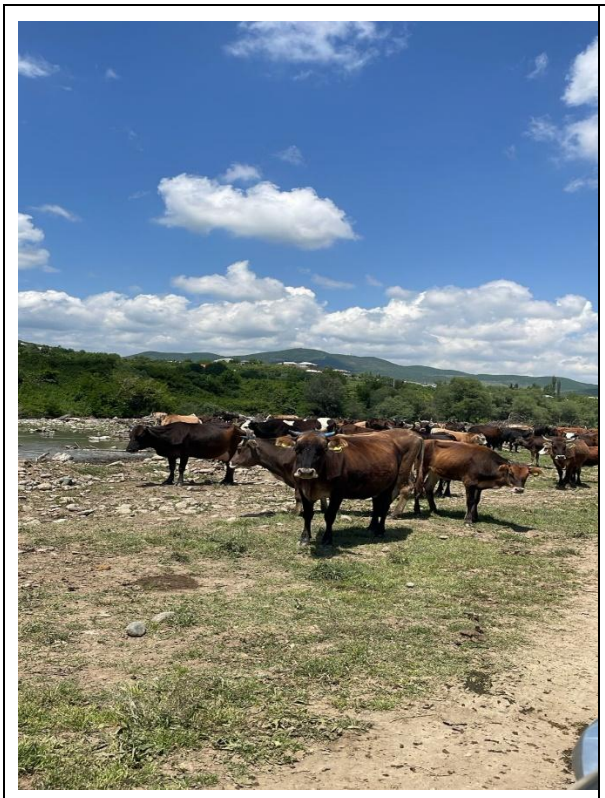
Shrubs along the Canals

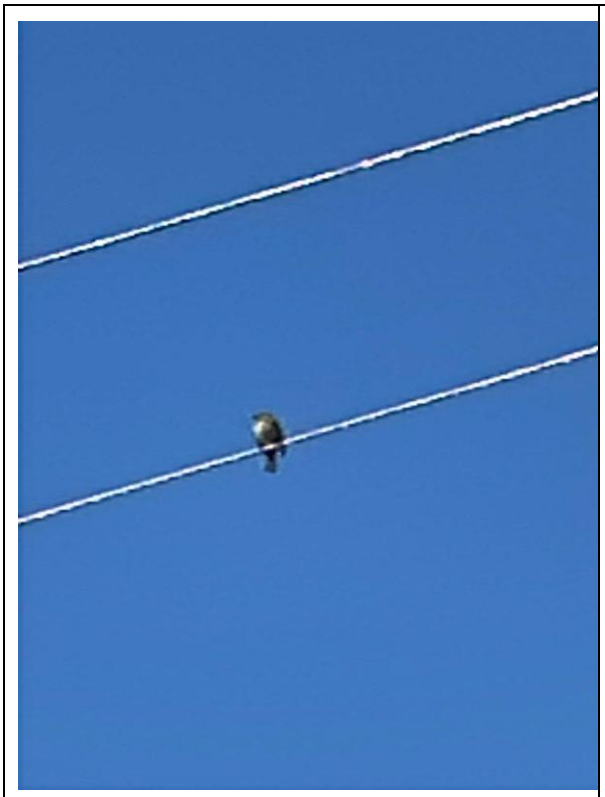
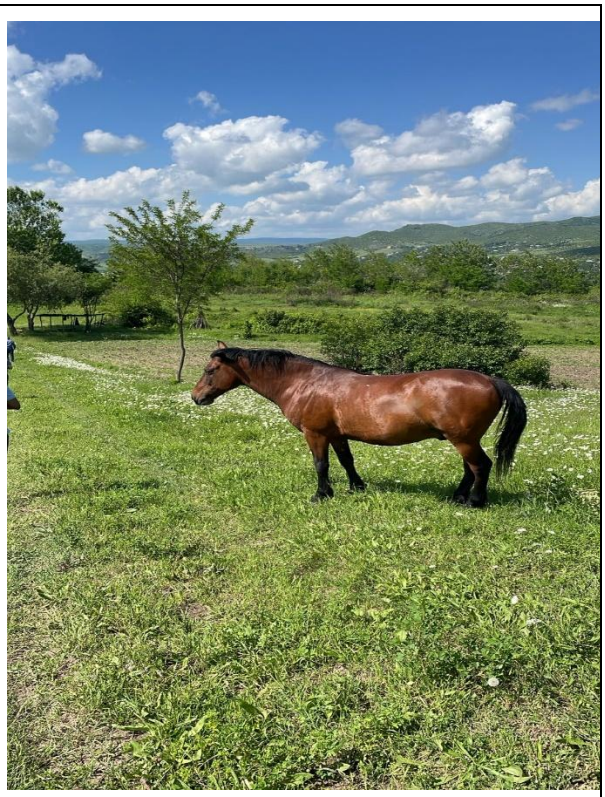
	
Veronica chamaedrys L. Germander Speedwell	Veronica chamaedrys L. Germander Speedwell
	
Wild rose	Milk thistle (silybum marianum)

5.

Figure: Vegetations Grown along the canal Banks

Cows, dogs, horses, cats, and sheep grazing in the Project Area

	
Cows along the river	Goats in the project area

	
Swallow Bird	Georgian Horse

APPENDIX D: GRIEVANCE REDRESS MECHANISM OF THE PROJECT PLANNING AND MONITORING DIVISION

1. Introduction

ESS10 -Stakeholder Engagement and Information Disclosure, requires timely and permanent engagement and communication with the local and other stakeholders, as well as all other interested parties, which is essential to ensure smooth collaboration between project staff and local communities, minimize and mitigate environmental and social risks related to the project, and expand project benefits to all targeted beneficiaries including ones that may be traditionally vulnerable, disadvantaged, disproportionately affected by the project activities.

The main objective of a Grievance Redress Mechanism (GRM) is to assist to resolve complaints and grievances in a timely, effective and efficient manner that satisfies all parties involved. Specifically, it provides a transparent and credible process for fair, effective and lasting outcomes. It also builds trust and cooperation as an integral component of broader community consultation that facilitates corrective actions.

GRM will also address grievances in an efficient, timely and cost-effective manner that arise in the Zeda- ArkhiSub-Project under either due to actions by MEPA or the contractor or sub-contractor employees by MEPA from affected communities and external stakeholders.

A separate mechanism is developed to address worker grievances, which is described in the Labor Management Procedure (LMP) document approved by the World Bank.

MEPA is responsible for managing the GRM, but many of the grievances on the ZAIS subproject will likely relate to the actions of the design consultant /sub-consultant and so will need to be resolved by the design consultant /sub-consultant. MEPA together with them will administer the GRM process deciding whether they or the Contractor is responsible and determining the best course of action to resolve the grievance. The Implementation Consultant will support MEPA to monitor grievance resolution being undertaken by the contractor.

Project GRM deals with the issues of land and other assets acquisition (e.g., amount of compensation, suitability of residual land plots, loss of access roads, etc.) as well as the losses and damage caused by rehabilitation works, and any direct or indirect environmental and social impacts. Therefore, GRM has to be in place by the time MEPA starts preparation of RAPs and other site-specific environmental and social instruments and shall function until the completion of all civil work activities and beyond till the defect liability period ends. PAPs and other potential complainants should be fully informed of the GRM, its functions, procedures, timelines and contact persons during consultations meetings and other stakeholder engagement activities. All grievance related correspondence will be documented, and the grievance resolution process will be systematically tracked.

Specifically, the GRM:

- Provides affected people with avenues for making a complaint or resolving any dispute that may arise during the course of the implementation of the projects.
- Ensures that appropriate and mutually acceptable redress actions are identified and implemented to the satisfaction of complainants.
- Supports accessibility and transparency in handling complaints and grievances;
- Manages time factor (avoids the need to resort to judicial proceedings (at least at first).

Complaint and grievances are divided in this manner:

Complaint: an expression of dissatisfaction that is related to an impact caused by a project activity, which has adversely affected an individual or group. The interests of an individual or group wants a proponent or operator (or contractor) to address and resolve it (e. g. problems related to dust deposition, noise or vibration). A complaint is normally of a less serious nature than a grievance; and

Grievances: a claim raised by an individual or group whose livelihood, health and safety, cultural norms and heritage are considered to have been adversely affected (harmed) by a project activity which, if not addressed effectively, may pose a risk.

- Typical grievances under component 1 may relate to:
- Land acquisition and physical displacement
- Civil work damages
- Environmental impacts; and
- Direct and/or indirect social - economic impacts.

As a Governmental Structure, the grievance practice at MEPA is based on the General Administrative Code of Georgia. As part of the project, MEPA will modify the GRM practice to allow a PAP to complain about any decision about concerns regarding the project. All types of grievances will be recorded by the GRM. Anonymous grievances will also be accepted, recorded, and investigated to the extent feasible.

GRM will include following Steps:

Step 1: Submission of grievances either in writing via/through telephone hotline/mobile, mail, social media, website, grievance logbook via a contractor organization and directly to the MEPA. The GM will also allow anonymous grievances to be raised and addressed.

Step 2: Recording grievance, classifying the grievances based on the typology of complaints and the complainants in order to provide more efficient response and providing the initial response immediately as possible. The typology will be based on the characteristics of the complainant (e.g., vulnerable groups, persons with disabilities, people with language barriers, etc.) and the nature of the complaint.

Step 3: Grievance can be investigated in three stages, namely:

Grievance Resolution Committee (Stage 1)

Stage 1, of the GM involves an informal (oral) review of the complaint (whether written or oral). A local Grievance Resolution Committee (GRC) will be established in the Municipality, with an office in the municipal building. Once a standing grievance has been logged, the corresponding local GRC will be engaged to define a solution to solve the grievance. At this stage, the grievance is reviewed in an informal (oral) way, and the Grievance Redress Committee members make and sign the minutes on the matter.

If at Stage 1 the PAP's complaint is not resolved the PAP is informed about grievance resolution procedures of Stage 2. A PAP has the right to use the procedures of Stage 2 without applying to Stage 1 procedures. In the first instance, a PAP can lodge a grievance and resolution will be attempted at an informal level with the involvement of relevant Project entities (for instance design, cadastral, evaluation) or local representatives within ten 10 days after submission of the grievance. Such grievances will still be recorded in the grievance log.

Special provisions will be made for any complaints of a confidential nature. The GRC is a nine members committee consisting of the following.

- PIU Team member as a committee coordinator.
- Social Safeguard Specialist of Supervision Consultant - as a committee member
- Regional/municipal representative (from "Gamgeoba") as a committee secretary.
- Village attorney ("Rtsmunebuli") as a committee member;
- Representative of PAP as a Committee member.
- Woman – representative of the Project Affected Household (AH) as a committee member;
- Representative of local non-government organization (NGO) taking into account the grievance character – as a committee member;
- Local specialist of social and environmental safeguards from the Supervision Consultant – as a committee member;
- Local specialist of social and environmental safeguards from the Construction Company – as a committee member.

Members of the GRC will be invited in accordance with the types of complaints to be addressed. The meeting will start without the complainants by reviewing all PAP complaints received since the last GRC meeting, and propose a solution to all grievances within the past one or two weeks. Then, the GRC will welcome the complainants whose grievances had been reviewed during the previous meeting to discuss the proposed resolution.

For each grievance, the GRC will determine whether additional investigations are warranted. If so, additional information will be collected before the next GRC meeting and will also be provided to the PAP before the meeting. The GRC will then inform the PAP about the date, time and place of its review meeting, and invite the PAP accordingly.

The GRC will receive the complainant and discuss with them a solution to their grievance. The committee shall draw up and sign the minutes of their discussion on the matter. If the grievance is satisfactorily resolved, the PAP will also sign the minutes in acknowledgement of the agreement. In cases where the project has agreed to put in place additional measures, these will be specified, with a timetable for delivery, in the minutes of the meeting. If the grievance remains unresolved, the PAP will receive the explanation of the Stage 2 escalation process.

Grievance Resolution at Central Level (Stage 2)

In this stage, the grievance will be reviewed at the MEPA level. Unsolved grievances at Stage 1, with the complainant's consent, will be sent to MEPA in written form. Similarly, aggrieved complainants/PAPs dissatisfied with the GRC decision, can escalate their grievances to MEPA at the PIU Level. The GRC will assist him/her in lodging an official complaint. MEPA's GM Focal point will review the written complaints of PAPs, which were not satisfied at Stage 1 and send them internally to the appropriate departments for redress. The timeframe for referral is 15 days. The complainant shall be informed of the decision within a maximum of 30 days, in accordance with the response time stipulated in the Administrative Code of Georgia.

MEPA's Grievance Redress Commission (Stage 3)

The grievance continues to be unresolved at Stage 2 by the appropriate department; If still unsettled, the PAP's grievance will move within 15 days to a Grievance Resolution Committee (see the details on the Committee below) which has 15 days to decide on the case. The

Grievance Redress Commission will review and decide upon the grievance in compliance with the Administrative Code of Georgia. The complainant shall be informed in writing of MEPA's decision. If MEPA's decision fails to satisfy the aggrieved affected persons, they can pursue further action by submitting their case to the appropriate court of law.

The composition of the Grievance Redress Commission is as follows:

- Member of Board of MEPA (Head of the Grievance Redress Commission);
- PIU Team Leader (Deputy Head of Commission);
- GRM Focal Point within in PIU (member);
- Head of Legal Division (member);
- Head of Resettlement Division (member);
- Head of International Projects Division (member);
- Head of Technical Supervision and International Projects Planning Division (member);
- Resettlement and social issues consultant (member);
- Environmental consultant (member);

Closure of Grievances

A grievance will be considered "resolved" or "closed" when a resolution satisfactory to both parties has been reached, and after corrective measures have been successfully implemented. When a proposed solution is agreed between the Project and the complainant, the time needed to implement it will depend on the nature of the solution. However, the actions to implement this solution will be undertaken within one month of the grievance being logged and will be tracked until completion. Once the solution is being implemented or is implemented to the satisfaction of the complainant, a complaint closes out form will be signed by both parties (MEPA - PIU Team and the complainant), stating that the complainant considers that his/her grievance is closed. The grievance then, will be archived in the Project Grievance database. A detailed grievance logbook will be maintained and submitted to the World Bank team.

In certain situations, however, the Project may "close" a grievance even if the complainant is not satisfied with the outcome. This could be the case, for example, if the complainant is unable to substantiate a grievance, or it is obviously speculative or fraudulent. In such situations, the Project's efforts to investigate the grievance and to arrive at a conclusion will be well documented and the complainant advised of the situation. PIU team will not dismiss grievances based on a cursory review and close them unless the complainant has been notified and had the opportunity to provide supplementary information or evidence.

Grievance Records and Documentation

MEPA will nominate a GM Focal Point to manage a grievance database to keep a record of all grievances received. The database will contain the name of the individual or organization lodging a grievance; the date and nature of the grievance; any follow-up actions taken; the solutions and corrective actions implemented by the Contractor or other relevant party; the final result; and how and when this decision was communicated to the complainant.

Supervisor Consultant company in its monthly monitoring reports will provide information on grievance management. Grievance monitoring and reporting will occur in MEPA's six-monthly and annual public reports. GRM Focal Point Contact Information is provided above in this ESMP.

Information on the Project and future stakeholder engagement programs will be available on the PIUs website and will be posted on information boards in affected villages in the Project area. Information can also be obtained from the GM Focal Point

All grievance related correspondence will be documented, and the grievance resolution process will be systematically tracked in Grievance Log Book.

Grievance Logbook

Name of reporter: **Institutional affiliation of Reporter:** **Date of report:**			
Name of the Project: **Name of the creditor/grant recipient:** **Name of responsible person for grievance resolution (if any):**			
Grievance Nature	**Response**	**Actions Taken**	**Subsequent Developments**

Design consultant/sub-consultant companies in their monthly monitoring reports will provide information on grievance management in the Report Form on Public Grievance. Grievance monitoring and reporting will occur in MEPA's six-monthly and annual public reports.

Form of Report on Public Grievances

Designated GRM Officer	Name of Reporter if not Anonymous	Nature of Complain	Actions Taken/ Redress Made	Subsequent Developments	Total # of Grievances	# of Redress Grievances