



**MINISTRY OF ENVIRONMENTAL PROTECTION AND AGRICULTURE
OF GEORGIA**

**IRRIGATION AND LAND MARKET DEVELOPMENT PROJECT (ILMDP)-P133828
PREPARATION OF DETAILED ENGINEERING DESIGN FOR REHABILITATION AND
RECONSTRUCTION OF THE EXISTING SECONDARY AND TERTIARY NETWORKS IN
IRRIGATION SYSTEM OF ZEDA RU**

**VOLUME - 3
DRAFT ESMP FOR ZEDA RU IN DELIVERABLE-6
On
Contract No: IDIC/CS/QCBS/02-1**



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LIST OF ABBREVIATIONS

ESMF	: Environmental and Social Management Framework
ESMP	: Environmental and Social Management Plan
GDP	: Gross Domestic Produce
GRC	: Grievance Redress Committee
GRM	: Grievance Redress Mechanism
HSE	: Health and Safety, Environment
ILDMD	: Irrigation and Land Market Development
IPM	: Integrated Pest Management
MEPA	: Ministry of Environmental Protection and Agriculture of Georgia
NACHP	: National Agency of Cultural Heritage Preservation
PIU	: Project Implementation Unit
RAP	: Resettlement Action Plan
ROW	: Right of Way
ToR	: Terms of Reference
TBD	: To be Determined
WB	: World Bank

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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 8 percent of GDP, it provides income and employment for about 39 percent of the country's workforce. In addition, the sector has a priority by the Government of Georgia in the context of food security. Irrigation is one of the bottlenecks especially for the eastern part of the country. The government foresees the rehabilitation and reconstruction of the irrigation network in Zeda Ru.

Under the Irrigation and Land Market Development (ILMD) Project, the rehabilitation/re-construction of secondary and tertiary irrigation networks with quarternary canals is also on the agenda and the design works are carried out. Due to the rehabilitation and re-construction works mostly by using old routes, environmental and social risks of ILMD Project are medium. They are not expected to influence territories outside the project sites, neither to be significant or irreversible. Therefore, according to the *OP/BP 4.01 Environmental Assessment*, the ILMD Project is classified as environmental category B (ref. Environmental and Social Management Framework, 2014). An Environmental and Social Management Framework (ESMF) has been prepared as a guidance of site-specific environmental works for the Project and it is also used as source for the studies.

This Environmental and Social Management Plan (ESMP) is prepared in order to identify the potential environmental and social impacts of rehabilitation and reconstruction of existing irrigation schemes as well as provide mitigation and monitoring measures to minimize negative impacts of preparation, construction and operation works.

The ESMP has been prepared by considering Annex A: Checklist of ESMP for Irrigation Rehabilitation Activities in ToR, as well as WB Environmental Assessment Requirements under OP 4.01.

The Checklist consists of 2 major sections:

- Project Design and Specification
- Environmental and Social Mitigation and Monitoring Plans

2. LEGAL FRAMEWORK

2.1 World Bank's Safeguard Policies Applicable to ILMD Projec

ILMD Project triggers the following safeguard policies of the World Bank:

OP/BP 4.01 Environmental Assessment

The Project helps to improve irrigation and drainage efficiency in several existing deteriorated schemes. This implies rehabilitation or replacement of damaged hydraulic structures, and cleaning and lining of canals. No new schemes are being constructed and no new agricultural areas are covered with irrigation/drainage services. Based on the nature and scope of the planned physical works, ILMD Project is classified through environmental screening as Category B. Its expected environmental and social impacts are low to medium. The Project does not carry risks of destroying natural habitats, damaging forest stands, significantly altering hydrology of the natural waterways, or affecting other ecosystems in any tangible and/or irreversible ways. The ESMF is developed for the Project to cover all key aspects of screening, risk assessment, environmental evaluation and management planning of the schemes to be rehabilitated. Environmental and social screening of proposed works is part of their selection and approval for the ILMD Project support. ESMF provides guidance and carries a template for the preparation of site-specific ESMPs.

OP 4.09 Pest Management

ILMD Project aims at improving water availability and drainage for the serviced areas and, possibly, restoration of some agricultural areas back to irrigation/drainage. It is anticipated that because of improved services delivery, agriculture will intensify in the coverage areas, which could entail more intensive usage of pesticides. Hence, OP 4.09 Pest Management is triggered despite the fact that the Project will not finance their purchase and/or support to their application. Good pest and pesticide management practices, including Integrated Pest Management (IPM), is supported through the implementation of agricultural extension plans developed for each irrigation scheme covered by ILMD Project to ensure that farmers are adequately informed about best practice on pest management.

OP/BP 4.12 Involuntary Resettlement

The rehabilitation of primary-, secondary- and tertiary-level irrigation infrastructure may necessitate land acquisition, although every attempt will be made to agree rehabilitation design plans that minimize land acquisitions. OP/BP 4.12 is triggered, and a Resettlement Policy Framework (RPF) is prepared. Should land acquisition be required, the RPF will guide the development of site-specific Resettlement Action Plans to ensure that the possible risks of resettlement, loss of land and loss of income are mitigated.

OP/BP 4.37 Safety of Dams

Some of the irrigation schemes to be rehabilitated under the ILMD Project are fed with water from the existing reservoirs. No new reservoirs will be constructed under the project, but because operation of some Project-supported schemes will depend on the integrity of the dams of the existing reservoirs, OP/BP 4.37 Safety of Dams is triggered. It means that for any scheme included for rehabilitation into the ILMDP work program which depends on a dam-supported reservoir, technical condition of such dam as well as its operation and maintenance pattern will be examined, and remedial actions will be undertaken as part of the Project, as required. 3

OP/BP 7.50 Projects on International Waterways

Most of the irrigation schemes of East Georgia, including those provisionally identified for the ILMD Project support, abstract water from transboundary rivers Mtkvari and Alazani, or their tributaries. Project interventions will not increase water intake or discharge beyond the designed parameters of the existing schemes, because they will be strictly limited to the rehabilitation of the existing irrigation and drainage infrastructure without altering of their original capacities. Therefore, while OP/BP 7.50 is triggered, communication between the riparian states on the Project interventions was deemed unnecessary.

2.2 Environmental and Social Legislation of Georgia and International Agreements

The following laws and international conventions which Georgia is a party to are relevant for the rehabilitation and operation of Zeda Ru irrigation system:

- Water Law (October 16, 1997) No. 936
- Law on the System of Protected Areas (March 7, 1996) No.136
- Law on Environment Protection (December 10, 1996) No. 519
- Law on Soil Protection (May 12, 1994) No. 490
- Law of Georgia on Ambient Air Protection (June 6, 1999) No. 2116
- Law of Georgia on Soil Conservation and Fertility Recovery-Improvement (May 8, 2003) No. 2260
- The Law on Licenses and Permits (June 24, 2005) No. 1775
- Law of Georgia on Public Health (June 27, 2007) No. 5069
- Law of Georgia on Labor Safety (February 2, 2019) No. 4283-III
- Law of Georgia on Compensation for Damage caused by Hazardous Substances (23/07/1999) No. 2350
- Law of Georgia on Calculating Costs and Compensating Damage Due to Use of Agricultural Lands for Non-agricultural Means (02/10/1997) No.900¹
- Law of Georgia on Rule for Seizure of Property Rights for Pressing Public Need (23/07/1999) No.2349
- Law of Georgia on Registration of Rights for Real Estate (December 28, 2005) No. 2635

¹ The law No 900 (02/10/1997) will be valid till July 1, 2020. The law will be substituted by the new legislative act which is: „Georgian Law on Land Use Designation and Sustainable Management of Agricultural Land “as adopted (25/06/2019) No. 4849-III. The new law is adopted in line with Georgia’s harmonization to European Union standards and regulations. The scope of the law is discussed in the section 11.).

- Law of Georgia on Cultural Heritage (May 8, 2007) No. 4708
- The Civil Code of Georgia (June 26, 1997) No.786
- Waste Management Code of Georgia (December 12, 2014) No. 2994-რს
- Labor Code of Georgia (December 17, 2010) No. 4113-რს
- Law of Georgia on Occupational Safety (February 19, 2019)
- Environmental Assessment Code of Georgia (June 1, 2017) No. 890-ილს

- United Nations Framework Convention on Climate Change (became effective in Georgia on May 9, 1992)
- Convention on Biological Diversity (became effective in Georgia on April 21, 1994)
- The United Nations Convention to Combat Desertification (became effective in Georgia on June 23, 1999)
- The UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention) (became effective in Georgia on February 11, 2000).

**SECTION 1: PROJECT DESCRIPTION, BACKGROUND INFORMATION,
ENVIRONMENTAL AND SOCIAL RISKS**

Institutional and Administrative Data				
1	Project name	Georgia Irrigation and Land Market Development		
2	Sub-project title	Zeda Ru Irrigation System's Secondary and Tertiary Network		
3	Sub-Project location	Shida Kartli Region, Territories of Gori and Kareli Municipalities		
4	Watershed (river basin)	Basin of the River Didi (Great) Liakhvi		
Institutional Arrangements				
5	Institutional Arrangements World Bank	Task Team Leader Wilfried Hundertmark	Safeguards Supervision Darejan Kapanadze (Environment) Sophia V. Georgieva (Social)	
6	Institutional Arrangements Ministry of Environmental Protection & Agriculture of Georgia	Project Implementing Entity Project Implementation Unit (PIU) Lali Durmishidze (Project Manager)	Works Supervisor TBD	Contractor (Institution) TBD
Site Description				
7	Geographic name of the site			
	Physical-geographical region of Zemo (Upper) Kartli: West part of sub-region of Tiriponi-Saguramo plains – accumulative plains of Tiriponi and valley of the River Mtkvari			
8	Short description of the sub-project activities (type of planned works)			
	<p>The service area with the total of 2 304 ha is supplied by the Zeda-Ru main canal, taking water from the headwork on Liakhvi River near Kvemo Nikozi. The canals/pipelines cross the villages: Pkhvenisi, Shindisi, Sakasheti, Sasireti, Ruisi and Urbnisi. The existing irrigation water distribution canals within the irrigated area are concrete, parabolic flume, pipe and earth canals.</p> <p>Necessity for rehabilitation of existing secondary and tertiary irrigation canals and construction of quarterly canals emerged due to their unsatisfactory conditions and impossibility to supply irrigation water in necessary volume to the beneficiaries.</p> <p>Most of the existing open canals (parabolic flumes, concrete slabs, earth) will be converted to the pressurized pipeline system due to their bad physical conditions. But the secondary canals G-1, G2,</p>			

G3, G4, G5, G-6, G-7 and G-8 with their tertiaries and quaternaries will be kept as open concrete lined canal. Main and tertiary channels will be under the management and supervision of the Georgian Amelioration.

In this project, there are 26 pcs. secondary, 35 pcs. tertiary and 9 pcs. quaternary canals/pipelines in the irrigation system. The system with pipelines will be operated in pressure. The water amount to be distributed in irrigation system will be 2.5 m³/sec.

The lengths of the canals and pipelines to be constructed instead of existing open canals (earth, parabolic flume, concrete slab) are:

- Secondary pipelines: 46.12 km
- Tertiary pipelines: 35.08 km
- Quaternary pipelines: 6.67 km
- Total: 87.87 km

The diameters of pipelines will be app. in DN110-DN630 range. Up to DN630 the HDPE pipes will be used. If the larger diameters are needed the steel pipes will be proposed. The min. soil cover depth on the pipe will be 1 m and max. 3-4 m.

The existing canals go cultivated and non-cultivated land plots as well as through the settlements. Canals with concrete slab and the concrete flumes are damaged with trees growing inside or nearby them. Rehabilitation of canals will imply clearing vegetation which prevents normal operation and maintenance of canals and other hydraulic infrastructure of the irrigation scheme. Within the settlements, new pipelines will be laid parallel to and outside the existing roads. New pressurized pipelines will follow the routes of the existing open canals which are placed in the state-owned land strips. However, the initial screening of the pipeline route, undertaken in February 2020, indicated that some segments of Zeda Ru irrigation scheme's designed alignment pass through the privately-owned land plots. Construction of segments with open canals will require permanent land take, but segments with buried closed pipes may be installed within private plots and operated on the basis of servitude agreements. Exact scope and type of arrangements altering land ownership and user rights will be worked out, discussed and agreed with the affected people in the process of resettlement action planning.

The construction works will consist of:

- establishment of campsites (incl. energy and water supply, wastewater collection, treatment and disposal, organization of waste removals)
- taking necessary permits and licenses to field/campsite preparation and construction
- topsoil stripping, storage and protection
- demolishing/dismantling of existing parabolic flumes and concrete slabs
- cleaning of routes to open trenches if the trees are available (the trees will be kept if possible)
- removal of construction wastes to the site to be indicated by local government (municipality)
- leveling of existing and new canal routes
- provision and storage of pipe materials to/in campsite
- excavation of trenches for pipelines and storage of excavation material in campsite
- usage of excavation material in backfill of existing canals as top filling

	<ul style="list-style-type: none"> • provision and storage of bedding and initial backfill materials to/in campsite • laying of pipelines • hydrostatic tests for the pipelines • making crossings under roads with pipelines • building of reinforced concrete water intake structures for secondary pipelines (with width in 3-5 m range and length in 6-15 m range) • building of small reinforced concrete structures such as isolation valve chambers, air release valve chambers, discharge valve chambers, hydrant chambers on the pipelines and drop structures by the creeks to discharge the irrigation water from discharge valve chambers • installation of Tee pieces for the connection of tertiaries to secondaries and quarterlies to tertiaries, air release valves, isolation valves, discharge valves and hydrants • reinstatement of grounds. <p>In the current situation, the existing road crossings have been made with asbestos pipes in general. Asbestos is a carcinogenic mineral and dismantling it without protection causes health problems. In the case of rehabilitation or reconstruction of asbestos pipelines, special attention should be paid and the relevant national laws (Decree #145 of the Prime Minister of Georgia as of March 29, 2016 on “Allocation and disposal of the asbestos wastes”) and international regulations (WB Occupational Health and Safety Guidelines 2984/06/30) should be considered. Therefore, it is recommended not to damage asbestos pipes during their replacement at the road crossings in order to have less asbestos dust spreading during construction activities.</p> <p>The construction wastes will be transferred in relevant conditions by considering mitigation measures and dumped into a disposal site to be indicated by Gori/Kareli Municipality. Transferring process will be impended in accordance of the national requirements Waste Management Code #2994 as of December 26, 2014. The domestic and hazardous wastes generated on the territories of worksites will be collected and temporarily stored in special containers. Domestic waste generated from the camp sites will be collected in special containers provided by municipality and disposed by the municipality services in the nearest landfill in Gori.</p> <p>Hazardous wastes (tires, oil filters and etc.) will be handed to the private company with the relevant license, for example: “Sanitari” Ltd - Purpose of the activity Hazardous Waste Disposal Plant (Arrangement of industrial chemical waste neutralization and bioremediation of oil-contaminated soils). Environmental Decision of the Ministry of Environment Protection and Agriculture of Georgia №000021, code MD1, 08/10/2013. Basis for issuance of permit - Environmental expertise report no. 51; 07.10.2013</p> <p>The construction company may cooperate with other companies, who have environmental Decision for waste disposal. For more information about these companies please, visit: http://maps.eiec.gov.ge - Map / Registry of Environmental Impact Decision.</p>
9	<p>Short narrative description of site (physical and natural environment, land ownership and use including whether the proposed civil works will have an impact on private land, assets or livelihoods):</p> <p>The project territory is located in the western part of the Shida Kartli, on Tiriponi plains. A large part of the canals passes through the populated areas of the villages of Gori and Kareli municipalities:</p>

Pkhvenisi, Shindisi, Sakasheti, Sasireti, Ruisi and Urbnisi. While the rest of the canals pass through the agricultural lands of the villages.

Tiriponi plain occupies both banks of the lower part of Liakhvi River. The latitudinal distance of the plain is 55-60 km from the village Mokhisi to the village Igoeti. It is generally triangular, the tip of which is near Tskhinvali. Its greatest width is 25-27 km. Absolute height of the plain varies from 550 m (near Gori) up to 800-850 m (near Tskhinvali). Plain is drained by lower streams of Proni, Liakhvi and Mejuda rivers.

One of the main climate-forming factors is air temperature, territorial distribution of which is based on peculiarities of the relief and hypsometrical development of the area. The climate is transitional from moderately warm steppe to moderately humid. Winter is moderately cold, summer is hot. Average annual air temperature is 11°C. The average temperature in January is - 1,5-1,7°C; in August - 22,5°C; Average annual precipitation is 500mm; Maximum - 760 mm; Minimum - 330 mm.

According to geological structure, accumulative plains of Tiriponi is built up by Quaternary alluvial - alluvial sediments. Lithological, alluvial sediments are represented by soil containing clay material, while alluvial sediments fill Tiriponi plains and are represented by sand - gravel and boulders – pebble materials. Alluvial sediments are mainly spread in river valleys. Terraces are well developed in Mtkvari River valley, as well as in valleys of its tributaries: Greater Liakhvi, Small Liakhvi, Lekhuri, Mejudi and Ksani. In the vertical profiles they are gradually turning to old alluvial sediments. Loamy is widespread on the route of the main channel of the upper stream, the capacity of which is 1.5-5.0 m.

Soil cover of Tiriponi plain is represented by old alluvial and alluvial soils, which are characterized by a weakly developed profile and steppe signs.

Secondary vegetation is developed within the study corridor - Hemixerophilic and xeric shrublands, the overwhelming majority of which are secondary. Dominated shrubs are: Thorn (*Paliurus spina christi*), Spiraea (*Spiraea hypericifolia*), Juniper (*Luniperus oblonga*), Dog rose (*Rosa canina*), Hawthorn (*Crataegus kyrtostyla*), Blackthorn (*Prunus spinosa*), Smoketree (*Cotinus coggygria*), Firethorn (*Cotoneaster racemiflora*), etc. Along with the main rivers (Liakhvi, Mtkvari, etc) there are fragments of meadows and rarely of wetlands.

The territory of Zeda Ru irrigation scheme does not cross the significant forest zone. Tree vegetation of the neighboring areas of the canals is represented by willow, poplar, as well as fruit trees (apples, pears, etc.). Walnut has been observed as well, which is included in the Red List of Georgia.

Based on the baseline survey conducted for the Zeda Ru scheme area, there are mainly State - owned and private-owned land plots. The land tenure in the territory can be summarized as follows: (a) Persons who have legal, formal rights on land (including legal title or customary and statutory rights of occupancy recognized under the Law), (b) Persons who do not have formal legal rights on land at the time the census begins but have a claim to such land or assets provided that such claims are recognized under the national law or become recognized through a process identified in the resettlement and compensation plan, (c) Persons who have no claim to land they are occupying or using the land.

The private properties will be screened prior to start of civil works and where impacts on private lands will be identified, an Abbreviated Resettlement Action Plan (RAP) will be prepared to guide the process of land acquisition or servitude agreements and compensations to affected persons for any affected assets (structures, crops, trees, etc.). While implementing rehabilitation works in case of open canals depending on land plots there will be either servitude agreements required or in some

cases permanent land acquisition this issue will be clarified during census and inventory of the assets. All these issues discussed above will be assessed in the RAP.

According to the literature, jackal (*Canis aureus*) inhabits in the study corridor (bushes, valleys and groves), Red fox (*Vulpes vulpes*) has also been observed. Beech marten (*Martes foina*), Least weasel (*Mustela nivalis*) and European hare (*Lepus europaeus*) occur in some places as well.

The existence of large areas of agricultural land contributes to the growth of wild rodents. In many places there are widespread Partly-coloured bat (*Vespertilio murinus*), Geoffroy's bat (*Myotis emarginatus*), Barbastelle (*Barbastella barbastellus*), etc. The following birds are inhabiting in bushes: Chukar Partridge (*Alectoris chukar*), Grey Partridge (*Perdix perdix*) and Common Quail (*Coturnix coturnix*).

The upper stream of the irrigation system is supplied by water from Liakhvi River. The river originates from the southern slope of the Caucasus Mountains at an altitude of 2337,7m and joins Mtkvari river from left side near Gori at 972 m a.s.l. the length of the river is 98 km. Overall drop is 1755m; Average slope is 17.9%; Catchment area is 2440 km²; Average height of the basin is 1590m. 591 tributaries are connected to the river, the total length of which is 1800 km. the most significant among them are Small Liakhvi (63 km) and Mejuda (46 km).

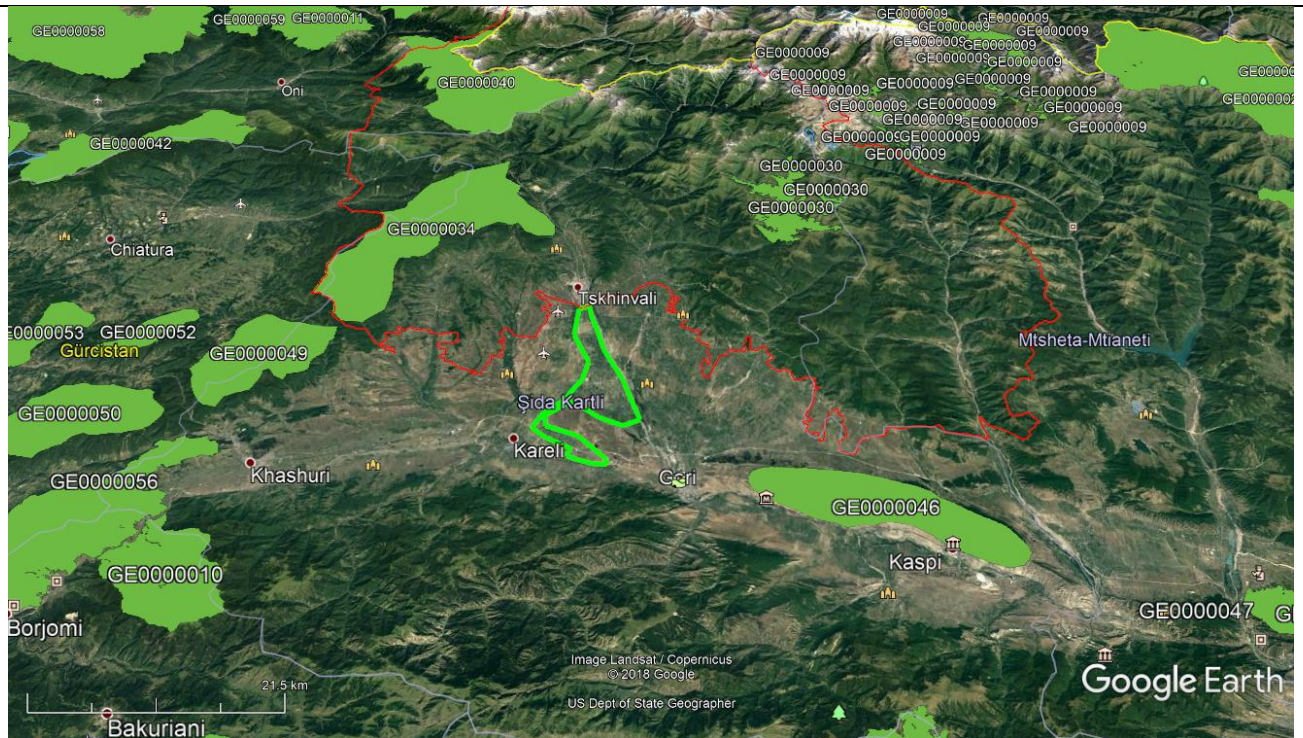
The river is fed by rain, snow, glaciers and groundwater. 30-39% of the annual flow occurs in spring, in summer - 37-42%, in autumn - 14-16%, in winter - 8-9%. Catchment area of Liakhvi river includes 12 glaciers with total area of 5,5 km, which ensures the steady flow of the river during summer.

Runoff of Greater Liakhvi has been studied near Kekhvi Village and Tskhinvali. Data from Kekhvi water intake point have been used to determine the average annual flow of the river, as the data from Tskhinvali water intake point are very approximate and doubtful.

The average multi-annual flow of Greater Liakhvi along the headworks of the irrigation system is determined by the method of analogy. In this case, conversion coefficient is 1,091. Therefore, the average multiannual flow of Greater Liakhvi along the headworks of the irrigation system is 29.8 m³/s. Sanitary flow of the downstream of the headworks was determined according to 10% of the average multiannual flow, which is 2.98 m³/s.

It should be noted that there is not organized supply of river water for irrigation from downstream of the headworks of the irrigation system. Plants for crushing and sorting inert materials and fish ponds on the left bank of Liakhvi River are the existing water users. In case of the established sanitary flow, the risk of negative impact on water users' activities is minimal.

There isn't known movable/immovable cultural/historical and archaeological assets in the area. The irrigation system of Zeda Ru is out of the protected areas as shown below in green regions.



The canals and pipelines follow the routes inside and outside the settlement areas in the ambient which doesn't shelter special flora-fauna species, some part of pipelines go along the highway which has medium dense transportations, etc. In the cultivated lands, generally tomato and fruit (apple) are produced.

Most of the pipelines/canals are on the boundaries of the plots without crossing them. Based on the initial screening, most part of the RoW crosses the State- owned lands and, in some areas, private lands as well. The canals with concrete slab and the concrete flumes are damaged by the trees growing inside or nearby these canals. Rehabilitation works will imply removal of vegetation which prevents conduct of rehabilitation works and operation and maintenance of the irrigation scheme. In most parts, the step vegetation dominates. The meadows, shrubs, bushes are available at the both sides and inside of canals. Some poplar and apricot trees are observed. Based on the survey, vegetation in the area is not classified as sensitive.

Some pipelines and road passing in irrigation system includes asbestos pipelines and culverts. In the case of rehabilitation or reconstruction of asbestos pipelines/culverts, the special attention should be paid, and the related national laws or international regulations should be considered. If possible, the asbestos pipelines/culverts should be kept without destroying due to the hazardous impacts of destroyed asbestos material. On the route of some earth canals the erosion and slump were observed. During the reconstruction of these canals, mitigation measures should be considered.

The rehabilitation and re-construction work especially within the settlements will require application of mitigation measures carefully from most aspects such as safeguard policies, human health, traffic, pollution management (noise, dust, hazardous waste), management of social issues, etc. The environmental and social impacts of the project can be mitigated with the consideration of general mitigation and monitoring plans.

The following details are given to describe the routes of planned canals/pipelines, in terms of environment and social aspects:

Half of the plots around the houses in the settlement areas are used for arable purposes to produce vegetables and half is covered by perennials. There are grasses, bushes, trees and some of them fruit trees in the existing earth canals and on the both sides on the berm (on total length).

The canals G-1 lays between the cultivated /arable lands. It will be kept as open canal in irrigation system and built as concrete lined.

The canals G-2 and G-2-3 go through the Pkhvenisi and they follow the routes of existing earth canals. G-2 enters the private plots² and, along their routes, the buildings and gardens are screened. Other tertiary canals (G-2-1 and G-2-2) lay between cultivated/arable lands. All canals will be kept as open canal in irrigation system and built as concrete lined.

The canal G-3 passes from Pkhvenisi and follow the route of existing earth canal and existing road. In the settlement, it partly enters the private plots. Along its route the buildings with gardens, and trees are available. The canal will be kept as open canal in irrigation system and built as concrete lined.

The canal G-4 passes from Pkhvenisi and follow the route of existing earth canal and existing road. Along its route the buildings with gardens, and trees are available. The canal will be kept as open canal in irrigation system and built as concrete lined.

The canal G-5 and its tertiaries passes from Shindisi and G-5 as well as G-5-1 and partly G-5-2 follow the route of existing earth canals and existing roads. G-5 and G-5-2 partly enters the private plots. Along the routes of the canals the buildings with gardens, and trees are available. The canals will be kept as open canal in irrigation system and built as concrete lined.

The canal G-6 goes along the cultivated lands and follow the existing earth canal route. The canals pass from Shindisi. Its tertiary canal G-6-1 and some quaternary canals also follow the routes of existing earth canals. The quaternary canals G-6-1 and G-6-2 as well as G-6-1-1-1 go through the private plots having trees in dense. Along the routes of the canals the buildings with gardens are available. The canals will be kept as open canal in irrigation system and built as concrete lined.

The canal G-7 follows the route of existing earth canal and existing roads. It goes along the cultivated lands. The canals pass from Shindisi. The other canals will be also laid into the routes with the existing canals but tertiary canal G-7-1 and quaternary canal G-7-1-3 enters the private plots. Along the routes of the canals the buildings with gardens, and trees are available. The canals will be kept as open canal in irrigation system and built as concrete lined.

The canal G-8, its tertiary canals (G-8-1..... G-8-6) and quaternary canals go along and between the plots as well as they will be laid into the same routes with the existing canals. The cultivated/arable lands are available and there isn't any building in the region. The canals G-8 and G-8-6 partly go through the private plots. The canals will be kept as open canal in irrigation system and built as concrete lined.

² If an open canal is to be arranged, then the permanent land take will be required; if a pipe is to be laid underground, then concluding a servitude agreement will suffice.

The pipeline G-9 and its tertiary pipeline (G-9-1... G-9-6w) go through Sakasheti. Some of them follows the routes of existing canals and roads. Along the routes of the pipelines, the buildings with gardens, and trees as well as cultivated/arable lands are available. The pipelines G-9 and G-9-3 partly go through the private plots.

The pipeline G-10 partly passes from Sakasheti. This secondary and its tertiary pipelines will be generally laid between cultivated (with fruit trees and other crops)/arable lands. The pipelines follow the routes of existing canals and roads in some places. Along the roads, no fruit trees are available. The pipeline G-10-1 partly goes through the private plot.

The secondary pipelines G-11 and G-12 and their tertiaries will be generally laid between cultivated (with fruit trees and other crops)/arable lands. The pipelines follow the routes of existing canals and roads in some places. Along the roads, no fruit trees are located. The pipeline G-11 and G-11-1 partly goes through the private plots.

The secondary pipeline G-13 will be laid between cultivated (with fruit trees and other crops)/arable lands. The pipeline partly follows the route of existing canal and road. Trees grow along the roads.

The pipeline G-14 and its tertiary pipelines will be laid between cultivated/arable lands. The pipelines generally follow the routes of existing earth canals and roads in some places. The pipeline G-14-2 partly goes through a private plot.

The pipeline G-15 and its tertiaries will be generally laid between cultivated (with fruit trees and other crops)/arable lands. The pipelines generally follow the routes of existing canals, and roads in some places. Along the roads the ordinary trees are available. The pipeline G-15 goes through the private plots.

The secondary pipeline G-16 will be laid between cultivated/arable lands in Sasireti. Along the route the ordinary trees are available.

The secondary pipeline G-17 will be laid between cultivated/arable lands and follow the route of existing earth canal. Along the route there isn't any building.

The secondary pipeline G-18 and its tertiary G-18-2 will be laid between cultivated/arable lands and G-18 will follow the route of existing earth canal. Along these routes there isn't any building. But the pipeline G-18-2 will pass from Sasireti and follow the existing road. The pipeline G-18 partly goes through the private plots.

The secondary pipelines G-19, G-20, G-21, G-22 and G-23 and their tertiaries as well as quaternaries pass from Ruisi. They mostly follow the routes of existing canals, and roads in some places. These pipelines will be generally laid between cultivated (with fruit trees and other crops)/arable lands. The pipeline G-19-2, G-20 and G-21 partly go through the private plots.

The secondary pipeline G-24 and its tertiaries as well as quaternaries remain outside Ruisi. They mostly follow the routes of existing canals, and earth roads in some places. All pipelines will be laid between cultivated (with fruit trees and other crops)/arable lands. There isn't any building at the site.

The secondary pipelines G-25 and G-26 and their tertiaries as well as quaternaries pass from Urbnisi. They mostly follow the routes of existing canals, and roads in some places. These pipelines will be generally laid between cultivated (with fruit trees and other crops)/arable lands and gardens of the buildings.

10 Locations and distances from the nearest sources of licensed materials, especially aggregates, water, stones

Backfill and construction materials (sand, gravel, concrete mixture, etc.) will be provided from the corresponding factories and firms.

The nearest licensed material quarries are located in the riverbeds of the river Liakhvi and river Mtkvari and, therefore, long-range transportation will not be required.

The materials will be provided from local firms. There are 5 firms in the territory. The Contractor will contact to them to make contract for the supply of materials:

	License N	Name	Owner	Date	Quantity	Area	Distance
1	00293	On the right bank of Rv. Didi Liakhvi gravel extraction (Gori municipality)	LTD "Fgari 2005"	From 11.09.2006 15 year	Maximum extraction 210000 m ³	6.12 ha	1 km from project territory.
2	1002089	Gravel extraction on Rv Mtkvari (Near ct. Gori)	LTD "Ibolia"	from 19.11.14 to 20.11.19	Maximum extraction 60 600 m ³	2 ha	1-2 km from project territory.
3	1002493	Gravel extraction on "Variani" (Gori municipality near vil. Variani)	LTD "Shara"	From 28.04.15 to 29.04.20	Maximum extraction 108 300 m ³	3,6 ha	Inside project territory
4	1002564	On the right bank of Riv. Liakhvi, Otarasheni gravel extraction	Giorgi Mikheladze	From 18.05.15 to 29.12.26	Maximum extraction 200 000 m ³	4,7 ha	1-2 km from project territory
5	1003648	Gravel extraction on Riv Mtkvari (Gori municipality near village Tiniskhidi)	LTD "agroimpex"	From 06.06.16 to 07.06.21	Maximum extraction 65 400 m ³	2.1 ha	3-4 km from project territory

It is possible to deliver concrete mixture from "Mshenebeli 80" Ltd. which has got the sand/gravel crusher and concrete plant near the river Liakhvi.

The water to be used in construction works will be supplied from the river Liakhvi and/or boreholes. But, the drinking/using waters can be delivered to the campsites by tankers from the following boreholes:

License N	Name	Owner	date	Quantity	area
1004092	Groundwater /freshwater extraction (for entrepreneurial purposes) (well and borehole at 2 km of Shindisi highway in Gori)	Individual Tamaz	22.11.16 26.02.26	1000 m3/year	0.07 ha
1004093	Groundwater /freshwater extraction (for entrepreneurial purposes) (Well and borehole at 2 km of Shindisi highway in Gori)	“Goreli” Ltd	22.11.16 26.02.26	2000 m3/year	0.07 ha
1004104	Groundwater /freshwater extraction (for entrepreneurial purposes) (In Gori Municipality, on the territory of Karaleti village)	Individual Avtandil Unapkoshvili	24.11.16 25.11.41	10 950 m3/year	0.07 ha
1004113	Groundwater /freshwater extraction (for entrepreneurial purposes) (Well and borehole at 2 km of Shindisi highway in Gori)	Individual Lia Nadiradze	02.12.16 03.12.41	1825 m3/year	0.07 ha

In general, the boreholes are used for water supply. In Gori some part of settlements receive water from their own boreholes, some from the water tanks. Villages Nikozi, Pkhvenisi, Sasireti, Shindisi, Ruisi, Urbnisi get water from the wells.

11 Legislation

Law of Georgia on Licenses and Permits № 1775-24/06/2005

The law sets forth fields regulated by licenses and permits, gives full list of licenses and permits, and defines rules for issuing, amending and cancellation of licenses and permits.

Based on legislation requirements, construction of the new pipelines require Environmental Decisions followed by Construction Permit. Rehabilitation, reconstruction, demolition of the existing pipeline and routes do not require Environmental Decision. Since the planned works on Zeda Ru irrigation scheme envisage rehabilitation of the existing scheme, no permit is required

Works on Zeda Ru scheme are unlikely to require installation of the cement and crushing plant. The concrete mixture and backfill materials will be provided from local factories/plants. Therefore, no license will be required. Operators of the plants should hold such licenses and contractor should ascertain purchase of such materials from licensed authorized companies.

If contractor needs to use municipal water networks, consent and agreement has to be obtained from local subdivision of the Georgian Amelioration LLC or local Municipality. The decision on selecting of the water supply sources shall be decided by contractor before selecting of the camp location. If drilling of the new borehole is required, contractor will obtain permit/license from the National Mining Agency under the Ministry of Economy and Sustainable Development of Georgia.

In order to dispose construction waste within the project area construction company has to identify volume and composition of the waste and, depending on that, apply to the Ministry of Environment Protection and Agriculture (MEPA) for an Environmental Conclusion or obtain consent from the local municipality.

Environmental Assessment Code of Georgia № 890II-ႆ 21/06/2017

Environmental Assessment Code sets the legal basis for issuance of an environmental decision, including implementation examination process, public consultations and community involvement in the processes. The main purpose of the Code is protection of the environment, human life and health which may have a significant impact on the environment, human life and health. Annexes of the Code provide a list of activities that are or may be subject to the Environmental Impact Assessment procedure.

The rehabilitation activities of the Zeda Ru irrigation scheme are not subject of the Environmental Assessment Code. However, contractors supplying construction materials need to be checked whether they comply with the requirements of the Code. It is also possible that any other activities such as installation of the camp site may fall under Annex II of the Code. In this case, a screening procedure and agreement with the Ministry of Environment Protection and Agriculture of Georgia will be required.

Waste Management Code of Georgia № 2994-26/12/2014

The purpose of the Law is to establish a framework for waste management and to impose measures that facilitate waste prevention and its increased re-use as well as environmentally safe treatment of waste. The objective of the Law is to protect the environment and human health.

The paper, plastics in the campsites will be collected separately and removed by subcontractor selected by contractor and approved by supervisor. Domestic waste generated from the camp sites will be collected in special containers provided by municipality and disposed by the municipality services in the nearest landfill in Gori. The majority of excavated soil will be used for backfilling. The excess material will be disposed in sites designated by local Municipality and in accordance with the Waste Management Code of Georgia.

Regulations on Special Requirements for Hazardous Waste Collection and Treatment №145 29/03/2016

This regulation is developed based on of the requirements of the Waste Management Code of Georgia. The document defines specific actions that have to be applied during hazardous waste collection and disposal. Regulation defines rules how hazardous wastes have to be treated and then disposed. With respect to the planned works on Zeda Ru scheme, there might be asbestos wastes such as asbestos pipes and tiles. If such wastes occur, Contractor should avoid fragmentation of asbestos-containing waste, water the waste at all times while handling and dispose it in the following way: (1) Equip personnel with the personal protective equipment; (2) Provide double wrapping of the wastes with plastic layers; (3) Label the asbestos wastes; (3) Keep the asbestos waste on site in a specially designated and protected location; and (4) Deliver waste for final disposal to the licensed landfill managed by the Solid Waste Management Company under the Ministry of Regional Development and Infrastructure.

Law of Georgia on Water № 936 25/11/1997

The Law covers issues related to water protection and use. The main objectives of the law are to: ensure pursuance of the uniform State policy in the sphere of water protection and use; protect water bodies and use rationally water resources with due regard to the interests of the present and future generations and the principles of sustainable development; meet the demands of the population for drinking water as a priority task; sustainability and sustainable use of water fauna; prevent adverse

impact on water and mitigate such impacts effectively; ensure protection of State interests of Georgia in the sphere of water protection, regulate use and international trade in water; ensure the compliance of commercial production of water with international principles and standards; protect lawful rights and interests of natural and legal persons in the sphere of water protection and use.

Works on the Zeda Ru irrigation scheme will result in the decrease of water loss during its transportation to end-users, which is in line with the legal requirement of the rational water use. Also, the new concrete lined canals and pipelines will result in decreased water pollution, which meets the legal requirement. On the other hand, the rehabilitation of the irrigation system will stimulate agriculture and may thus increase the use of agrichemicals, including pesticides. Excessive use of pesticides may cause pollution of surface water and ground water. GILMD Project supports awareness-rising of beneficiary farmers on the safe and sound use of pesticides and the methods of Integrated Pest management.

Law of Georgia on Soil Protection №490 12/05/1994

The objectives of this law are to: ensure the integrity of top soil, increase and maintenance of soil fertility; specify the duties and responsibilities of land users, land owners and the government in order to create the conditions required for soil conservation and production of ecologically pure products; prevent the negative consequences of the use of soil fertility enhancers which endanger soil, human health, flora and fauna; ensure the preservation of endemic vegetation and top soil in the highlands through protection of alpine and subalpine meadows; facilitate the coordination of amelioration activities in order to ensure high and stable yields from ameliorated lands.

This Law establishes the norms and standards defining maximum allowable concentrations of chemicals in soil in order to protect human health, vegetation cover, wildlife and natural environment as a whole.

Replacement part of the open canals with closed pipeline system will reduce risks of soil erosion and waterlogging. At the same time, the rehabilitation of irrigation system can create risks of fertile soil layer damage and soil quality deterioration. These risks must be addressed and avoided during the construction phase by applying mitigation measures such as stripping and storage of the soil in accordance of the best environmental practices.

Regulations on Topsoil Removal Storage, Use and Re-cultivation, approved by Resolution of the government of Georgia#424 30 December 2013

The purpose of the regulation is to determine the rules for the removal and disposal of fertile, productive layers (Topsoil) and rocks during various earthworks, for their intended purposeful use in specially designated areas. Subject to the requirements of the regulations, any activity that causes soil disturbance or degradation is liable to compensate and to ensure the integrity of the soil cover and its productivity to its nearest state.

Compliance with regulatory requirements will be done by Contractor in the course of earth works.

Law of Georgia on Ambient Air Protection №2116 22/06/1999

The purpose of the law is to ensure protection of the ambient air from harmful anthropogenic impacts and to regulate legal issues related to protection of the ambient air. Harmful anthropogenic impacts on ambient air means any impacts on ambient air as a result of human activities, which affects or may adversely affect human health and the natural environment.

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.

Civil Code of Georgia №786 26/06/1997

This regulates private civil relations, determines property, family and neighborhood rights and inheritance rules.

On some sections of the irrigation system (mainly on sections passing through settlements), there are various facilities of private owners, and land is used for agricultural purpose. Right of way for the canal is not respected. These issues must be handled in accordance with the Civil Code of Georgia and with the World Bank OP/BP 4.12 Involuntary Resettlement as a conclusion in resettlement action plan.

Law of Georgia on Registration of Rights for Real Estate №2878-ІІ 11/12/14

The Law defines organizational and legislative basis for registering rights on real estate, sequestration and lien/mortgage, also rights and obligations of the body keeping the register.

This law will be applied in case of damage or loss of private land plots or other types of real estate.

Law of Georgia on Rule for Seizure of Property Rights for Public Need №2349 23/07/1999

The Law defines conditions and rules for expropriation in the name of pressing public need. The expropriation necessary for social need is carried out on the basis of the order of the Minister of Economy and Sustainable Development of Georgia (hereinafter - Minister) and the court decision, in favor of public authority or local government body or public or private entity, which is entitled to expropriation in accordance with this law.

Enforcement of this law along with the World Bank's OP/BP 4.12 Involuntary Resettlement may become necessary if the project implementation requires resettlement. But in this project pipelines will be laid at the place of existing canals in general. Therefore, the shifting living spaces to another region will not occur.

Law of Georgia on Calculating Costs and Compensating Damage Due to Use of Agricultural Lands for Non-agricultural Lands №900 02/10/1997

The Law regulates rules for paying compensation (land replacement cost) to the state or private landowner due to deterioration of soil quality. According to the law, there are fixed rates which depend on quality and location of the land plot. Land compensation fees are given in Appendix 1 to the law. The law does not consider compensation for facilities, annual or perennial plants.

On some sections of the irrigation system, private land plots are crossed and may be damaged. Damage done must be compensated in compliance with the requirements of the law. In addition, requirements pertaining compensation for or full restoration of the caused damage should be complied in conformity with the RPF and the Resettlement Action Plan (RAP) to be prepared for works on Zeda Ru irrigation scheme.

The main purpose of the new law is to determine compensation measures for agricultural lands that can be used for nonagricultural purposes. The compensations measures will be determined based on the regions of Georgia. New law will determine scope of compensation and how these compensations will be allocated. Also, the law will determine compensation for land users and owners in case if the land use is temporarily suspended and/or quality of the land is deteriorated or there are limitations for land use.

Labor Code of Georgia

The Labor Code establishes a general obligation of the employer to provide its employees with a working environment that is safe for their life and health. This includes an obligation of the employer to provide employees with full, objective, and comprehensive information regarding all factors affecting employees' life and health or safety in the natural environment.

Labor Code regulates hours of work, mandates eligibility of employees for an annual leave, grants workers the right to organize, prohibits forced and child labor. These requirements apply to migrant workers as well.

Law of Georgia on Occupational Safety #4283-II 19/02/2019

The Law on Labor Safety further elaborates on the responsibility of employers for guaranteeing the safety of their employees in the workplace, since the jobs performed by these employees are considered to be dangerous, hard, harmful and hazardous. The main obligation of the employers in this case is to ensure that they have taken all measures to avoid any damage to the health and safety of employees and third parties. From September 2019 the law mandates employees to have regular health and safety officer if the capacity of the business is more than 10 employees.

The construction works will be conducted in accordance with the provisions of this Law as well as all related procedures and principles. The minimum health and safety conditions will be provided in construction sites by considering this law. In the case of project activities, it is obvious that there will be more than 10 workers. Therefore, construction company has to consider requirements of the legislation.

Law of Georgia on Soil Conservation and Fertility Recovery-Improvement #2260 08/05/2003

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 fertility recovery and improvement.

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

Law of Georgia on Public Health #1139 10/12/1997

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 construction and operation phases. Contractor companies will be entitled to have safety kits on site and trained personal in case of the emergency. If any emergency happens, Contactor has to contact national emergency services 112 which will direct with local Shida Kartli regional service provider.

Law of Georgia on Compensation for Damage caused by Hazardous Substances #2350 23/07/1999

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 as a result of 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

It is possible that there will be supplies of hazardous substances (oil products, diesel etc.) at the construction camp. In unforeseen situations, it may be necessary to comply with the requirements of the law.

Law of Georgia on Cultural Heritage#2209 08/05/2007

The purpose of this law is to protect the cultural heritage of Georgia and to regulate relevant legal relations. The law defines the rights and obligations of private and legal entities with regard to the protection of cultural heritage. The law obliges them to immediately inform the state authorities about the discovery, detection or existence of endangered cultural heritage.

There are no visible historical-cultural heritage sites in the Zeda Ru irrigation scheme area. However, late discovery of 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.

12 Public Consultation

Present draft ESMP will be disclosed in Georgian and English versions through the web page(s) of the MEPA and/or Georgian Amelioration LLC as well as other media deemed easily accessible and convenient for the affected local communities ahead of scheduling stakeholder consultation meetings. Information on the consultation meetings will be placed on the Ministry's and/or Company's web page(s), published in the local press and posted at the public spaces in the settlements along Zeda Ru irrigation system, including administrations of respective municipalities and local self-governing bodies. Consultation meetings will be held in the locations convenient for attendance by majority of the affected settlements. Meetings will be hosted by the representative of the MEPA and the Georgian Amelioration LLC and moderated by representatives of the Project Implementation Unit (PIU) of the MEPA. Meetings will inform local communities on the scope and nature of the upcoming works, expected positive and negative environmental and social impacts at the construction and operation phases and the Grievance Redress Mechanism (GRM) to be made available for their use during construction works. Meeting participants will be given floor for questions and comments.

Minutes of the consultation meetings will be developed including record of presentations, comments, questions and answers; photo documentation; and scanned copies of participants' sign-up lists. ESMP will be finalized based on the public feedback and minutes of consultations will be attached to the final version of ESMP.

13 Grievance Redress Mechanism

The point of contact regarding the management of grievances by the Project and the local stakeholder engagement activities is PIU Deputy Project Manager:

Description	Rehabilitation and Reconstruction of the Zeda Ru irrigation Channel
Client:	Ministry of Environment Protection and Agriculture of Georgia
To:	Giorgi Kalandadze
Address:	6 Marshal Gelovani Avenue
E-mail:	giorgi.kalandadze@mepa.gov.ge
Website:	www.mepa.gov.ge
Telephone:	+995591518888

PIU ES Specialist - Communications Officer – Sophie Berishvili

Description	Rehabilitation and Reconstruction of the Zeda Ru irrigation Channel
Client:	Ministry of Environment Protection and Agriculture of Georgia
To	ES Specialist - Communications Officer – Sophie Berishvili
Address:	6 Marshal Gelovani Avenue
E-mail:	Sophiko1@hotmail.com
Website:	www.mepa.gov.ge
Telephone:	+995599270049

PIU - Community Liaison Officer - David Karkarashvili

Description	Rehabilitation and Reconstruction of the Zeda Ru irrigation Channel
Client:	Ministry of Environment Protection and Agriculture of Georgia
To	Community Liaison Officer - David Karkarashvili
Address:	6 Marshal Gelovani Avenue
E-mail:	dkarkarashvili@gmail.com
Website:	www.mepa.gov.ge
Telephone:	+995599 503 910

The GRM addresses, in an efficient, timely and cost-effective manner, such grievances that may arise during conduct of work on Zeda Ru irrigation scheme in regard to the actions undertaken either by PIU or contractors employed by PIU. The GRM is for the use of the affected communities and external stakeholders. The GRM is discussed in detail in **Annex C** of the present ESMP.

14 Attachments

- Annex A: Photos from the existing canals illustrating routes and present condition of sites
- Annex B: Map of the planned irrigation system
- Annex C: Grievance Redress Mechanism
- Annex D: Records of public consultation process (to be provided)

ANNEX A: PHOTOS FROM THE EXISTING CANALS ILLUSTRATING ROUTES AND PRESENT CONDITION OF SITES

Canal G1



Canal G2



Canal G3



Canal G4



Canal G5



Canal G6



Canal G7



Canal G10



Canal G11



Canal G12



Canal G13



Canal G14-Outlet



Canal G15



Canal G16



Canal G17



Canal G18



Canal G20



Canal G21 - Outlet



Canal G25



Canal G27



Canal G28



Canal G29



Canal G30



Canal G31



Canal G32



Canal G33



Canal G34



Canal G35



Canal G36



Canal G37



Canal G38



Canal G39



Canal G40



Canal G41



Canal G42



Canal G43



Canal G44



Canal G45



Canal G46



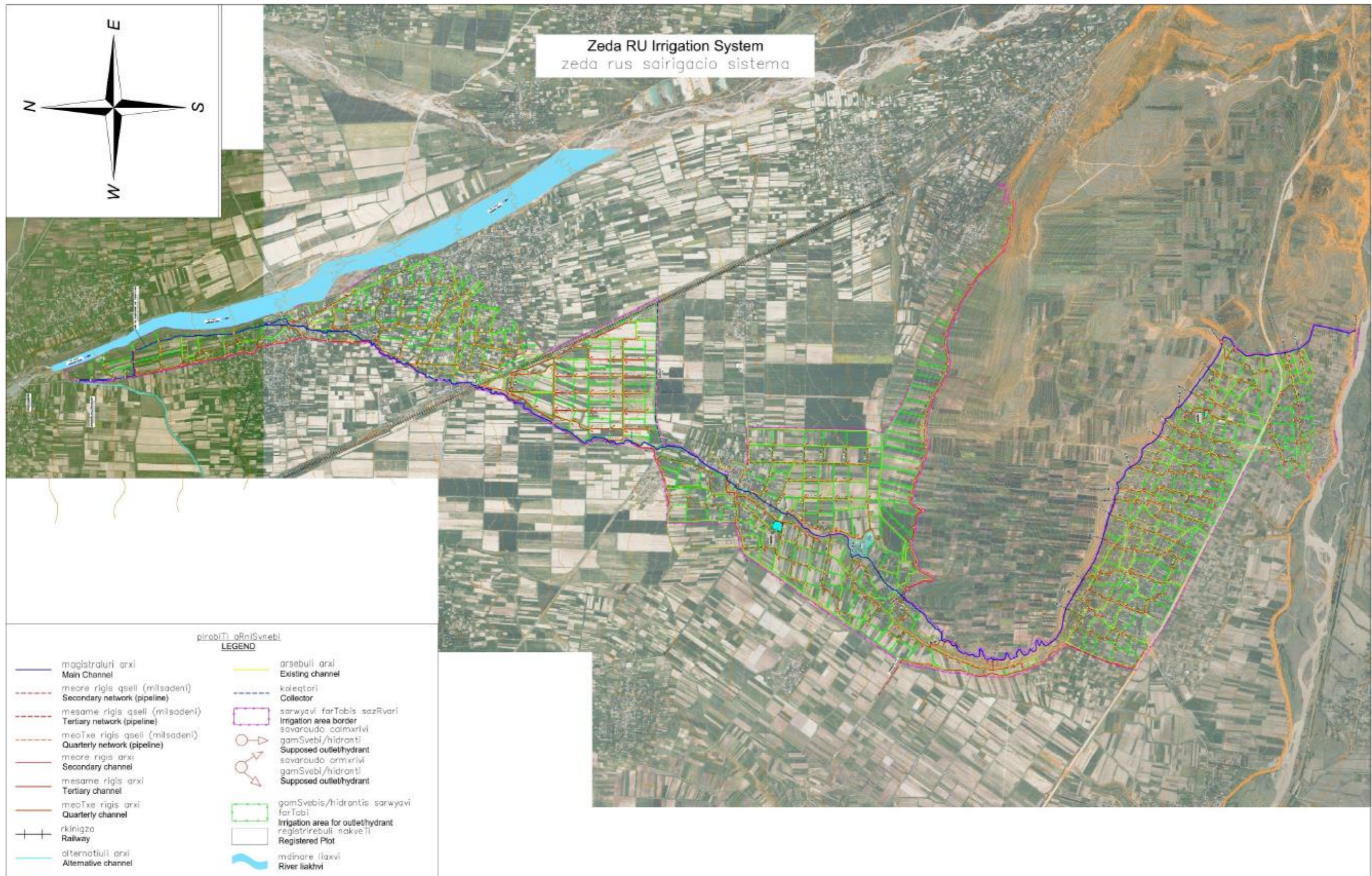
Canal G47



Canal G48



ANNEX B: MAP OF THE PLANNED IRRIGATION SYSTEM



ANNEX C: GRIEVANCE REDRESS MECHANISM OF THE PROJECTS PLANNING AND MONITORING DIVISION

Introduction

The Grievance Resolution Mechanism (GRM) addresses grievances in an efficient, timely and cost-effective manner, that arise as a result of the ILMPD Project, either the result of actions by PIU any or the Contractor employed by PIU from affected communities and external stakeholders. A separate mechanism will be developed to address worker grievances. PIU is responsible for managing the GRM, but the many of the grievances on the Project will likely relate to the actions of the Contractor and likewise will need to be resolved by the Contractor. PIU with the support of the Consultant 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 PIU to monitor grievance resolution being undertaken by the contractor.

Typical grievances for transmission line projects include those related to:

- land acquisition and physical displacement;
- construction damages;
- environmental impact; and
- Indirect social impacts.

PIU will implement an amicable GRM, with the objective of helping third parties to avoid resorting to the judicial system as far as possible. This mechanism includes three successive tiers of extra-judicial amicable grievance review and resolution: (i) the first is the Grievance Resolution Committee (GRC) at the Municipal level, and (ii) the second being an official processing of the complaint by PIU formal process at the national level. (iii) the third Grievance Redress Commission (GRC) level. Complainants can resort to the Court at any time. The step-by-step process does not deter them from doing so.

All grievances will be documented, and each grievance resolution process and communication will be systematically tracked.

Grievance process

The two-tiered grievance resolution process involves the following main steps:

- (i) receipt of complaints;
- (ii) screening for standing;
- (iii) Grievance Resolution Committee (first tier), and
- (iv) PIU resolution at central level (second tier).
- (v) PIU Grievance Redress Commission (GRC) (third tier)

These steps are described hereafter and shown in Figure 3.

Receipt of complaints

Anyone from the affected communities or anyone believing they are affected by the Project can raise a grievance:

By completing a written grievance registration form that will be available (i) in the Town halls of the local municipalities and in the affected villages and by local Community Liaison Officers (CLO)'s those within proximity of construction activities), (ii) at the entrance of each construction site, (iii) on the Project's website and (iv) at the Project's headquarters in Tbilisi. An example of a grievance registration form is provided in Appendix 01. The Project's Community Liaison Officer of each Municipality will review these registers at least twice a week.

By contacting the PIU Project Manager/Social Consultant, or the environmental coordinator and community relationships managers of the Contractor, either by phone, or in person. Grievances received verbally will be written down by the Consultant on the grievance registration form and logged into the Grievance Register. A copy of the logged grievance will be forwarded to the complainant, giving them the opportunity to alert PIU if the grievance has not been noted down correctly.

The Community Liaison Officers will explain the possibilities and ways to raise a grievance to local communities or PIU office during meetings organised in each affected area at the time of disclosure. The GRM will be disclosed through the Project's website and will also be advertised on billboards in each community and at the entrance of the local Town halls. Information material on the GRM will also be made available at the Municipalities Town halls.

In order to ensure that all grievances are captured, the PIU Consultant will contact the Municipality authorities and the Ministry of Economy and Sustainable Development, the MEPA, the National Agency of Public Registry to explain how the grievances they may receive concerning the project should be channelled through the Project's GRM. Information on the way to log a

grievance locally, at PIU office in Tbilisi or through the project's website will be explained to these authorities and the PIU Consultant will call them regularly to ensure no grievances are missed.

All grievances will be registered, reported and tracked by PIU in the Grievance Register by Consultant responsible for grievances redressing and logging. Once a grievance is logged, the related event(s) that caused the grievance will be tracked to prevent similar grievances. The status number and trends of grievances will be discussed between PIU, the Contractor and Consultant during weekly E&S meetings during the construction phase.

Screening for 'Standing'

Once a grievance is raised, the PIU Project Manager will determine whether the complaint has 'standing,' i.e., warrants further consideration as an acceptable complaint.

The resolution of grievances of all types will follow the same steps, but the stakeholders involved will depend on the nature of the complaint. All grievances will be handled through the system described hereafter, involving respectively the PIU, the Contractor's grievance resolution representative, and the Implementation Consultant as representatives of the Project. Complaints related to resettlement (land take and its consequences) will also involve Resettlement Action Plan (RAP) consultant in the resolution of grievances related to land acquisition and resettlement.

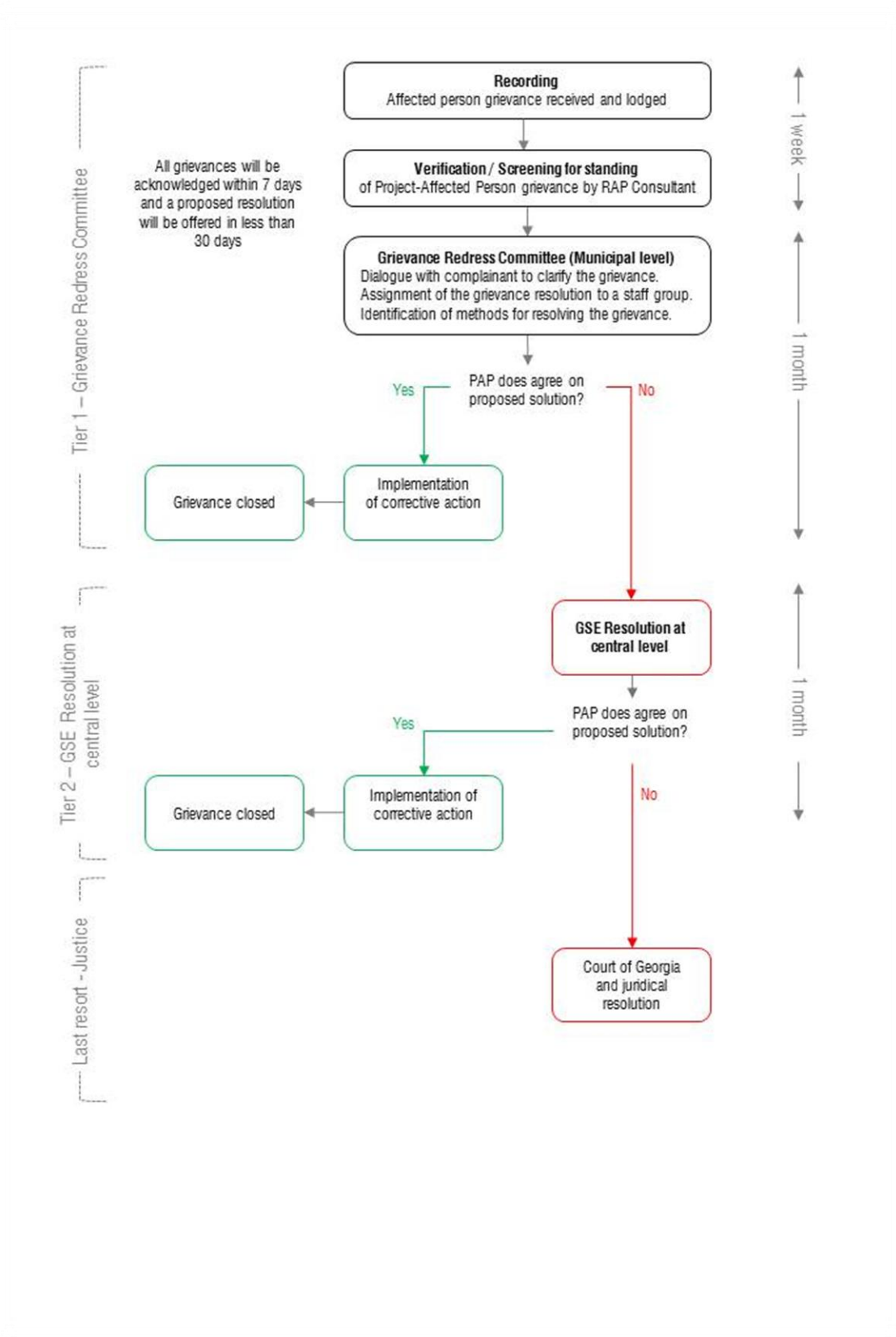
If the matter has standing, grievance information will be recorded in a grievance log by Company's special; nominated person. The following information will be recorded: (i) Name and contact details, (ii) Details of the grievance and how and when it was submitted, acknowledged, responded to and closed out. All grievances will be acknowledged within 7 days; and responded to no later than 30 days. Once a grievance is logged, the related event(s) that caused the grievance will be tracked to ensure proper close-out of the grievance and prevent similar grievances.

If the grievance is deemed as ineligible, the PIU Consultant will record the reason and document that the complainant has been informed of this decision and the basis for this is explained. Ineligible cases will generally be those that PIU are confident have not occurred as a result of PIU or the Contractor's actions. If the complainant is not satisfied with this outcome, they can pursue further action by submitting their case to the appropriate court of law (Regional Court).

PIU will determine whether the resolution of the grievance is the responsibility of the Contractor, PIU or the I Consultant. If the grievance is the responsibility of the Contractor or the Consultant, PIU shall review, comment and approve any corrective actions.

After logging the grievance, the PIU Project Manager will inform the complainant in writing within 10 days.

Figure 3 - Grievance Management Process



Grievance resolution is a three-stage process, including:

Stage 1 – informal (oral) review of the AP’s complaint (whether written or oral). At this stage the AP’s complaint is reviewed in an informal (oral) way and the Committee members (the composition of the committee is specified in Section 1.2.3) make and sign the minutes on the matter. If at Stage 1 the AP’s complaint is not resolved the AP is informed about grievance resolution procedures of Stage 2. An AP has the right to use the procedures of Stage 2 without applying to Stage 1 procedures. Timeframe for resolving the stage 1 grievance is 7 days. The GRC shall gather as per necessity (but at least once a month) and shall include eight members.

Stage 2 – review of AP’s complaint at PIU level. For Stage 2 of grievance resolution process, unsolved grievances at stage 1 will be send to PIU in written form. PIU’s special nominated person reviews the written complaints of APs, which were not satisfied at Stage 1 and send them internally to appropriated departments (legal, technical, contraction etc.) for redress. The internal timeframe is 10 days.

Stage 3 –If AP’s complaint is not resolved at stage 2 by appropriate department, it will be presented to Grievance Redress Commission (GRC), GRC reviews the written complaints of APs, which were not satisfied at Stage 2. At stage 2 the AP’s complaint is resolved and GRC makes a decision in compliance with the Administrative Code of Georgia.

Grievance redress procedure of Stage 1 is an informal tool of dispute resolution allowing APs and the project implementation team to resolve the disagreement without any formal procedures, procrastination and impediments. The international experience of different projects shows that such informal grievance redress mechanism helps to solve most of the complaints without formal procedures (i.e. without using the procedures specified in the Administrative Code or litigation). This mechanism enables unimpeded implementation of the Project and timely satisfaction of complaints. If the AP is not satisfied, the grievance redress mechanism should assist him/her in lodging an official complaint in accordance with the procedures of Stage 2 (the plaintiff should be informed of his/her rights and obligations, rules and procedures of making a complaint, format of complaint, terms of complaint submission, etc.).

The grievance redress mechanism 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 damages caused by the construction works, any direct or indirect environmental and social impacts. Therefore, the grievance redress mechanism has to be in place by the time the PIU started preparation of RAP, ESIA and shall function until the completion of the construction.

At the relevant documents’ preparation stage during the consultation meetings and negotiations, the Aps have to be fully informed of the grievance redress mechanism, its functions, procedures, contact persons and rules of making complaints through oral information and booklets. Care is always taken to prevent grievances rather than going through Stage 2. The achievement of this goal can be ensured through active participation of APs, effective consultations, proper communication and coordination among local communities, PIU and local authorities.

Tier 1: Grievance Resolution Committee

A local Grievance Resolution Committee (GRC) will be established in 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. The composition of each GRC is described in Table below. Special provisions will be made for any complaints of a confidential nature.

TABLE - COMPOSITION OF THE LOCAL GRIEVANCE RESOLUTION COMMITTEE

- 1) PIU representative as a Committee coordinator;
- 2) Regional/municipal representative (from “Gamgeoba”) as a Committee secretary;
- 3) Village attorney as a Committee member;
- 4) Representative of a Project Affected People (AP) as a Committee member;
- 5) Woman – representative of the Project Affected Household (AH) as a Committee member;
- 6) Representative of local non-government organization (NGO) taking into account the grievance character – as a Committee member;
- 7) Local specialist of social and environmental safeguards from the Supervision Consultant – as a Committee member;
- 8) Local specialist of social and environmental safeguards from the Construction PIU– as a Committee member.

The PIU Project Manager will act as secretary of the GRC (creation, coordination, and documentation). Members of the GRC will be invited by them in accordance with the types of complaints to be addressed. The meeting will start without the complainants by the review of all PAP complaints received since the last GRC meeting, and to propose a solution to all grievances within the past one or two weeks. Then, the GRC will welcome the complainants whose complaint had been reviewed during the previous meeting to discuss the proposed solution.

For each complaint, the GRC will determine whether additional investigations are warranted. If so, the additional information will be collected before the GRC meeting with the PAP complainant and will 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 complaint 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.

Tier 2: PIU resolution at central level

If any aggrieved PAP is unsatisfied with the GRC decision, the next step will be to lodge the grievance with PIU at the central level. The GRC should assist him/her in lodging an official complaint. PIU shall then review the complaint in compliance with the procedures specified in the Administrative Code of Georgia. (Response time according to the Administrative Code of Georgia is 30 days.). The complainant shall be informed of the decision within a maximum of 30 days.

The complainant shall be informed in writing of Company's decision. If PIU's decision fails to satisfy the aggrieved affected persons, they can pursue further action by submitting their case to the appropriate court of law (Rayon Court).

TABLE - COMPOSITION OF THE GRIEVANCE REDRESS COMMISSION (GRC) AT PIU LEVEL

- 1) Member of Board of PIU as a Head of Commission;
- 2) Head of Permissions Department as a Deputy Head of Commission;
- 3) Head of Permissions Department as a Commission member;
- 4) Head of Legal division as a Commission member;
- 5) Head of Resettlement division as a Commission member;
- 6) Head of International projects division as a Commission member;
- 7) Head of Technical supervision and international projects planning division as a Commission member
- 8) Resettlement and social issues consultant as a Commission member
- 9) Environmental coordinator for international projects as a Commission 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 has 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 (PIU Project Manager and the complainant), stating that the complainant considers that its complaint is closed. This form will be archived in the Project Grievance database.

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 complaint and to arrive at a conclusion will be well documented and the complainant advised of the situation. PIU will not dismiss grievances based on a cursory review and close them in their grievance record unless the complainant has been notified and had the opportunity to provide supplementary information or evidence.

Grievance records and documentation

The PIU special nominated person will manage a database to keep a record of all complaints recorded. The database will contain the name of the individual or organization lodging a grievance; the date and nature of the complaint; 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 and construction companies with monthly reports will provide information on grievance management. Monitoring and Reporting and in the six-monthly and annual public reports.

Workers grievance mechanism

The Contractor will set up a worker's grievance mechanism for the construction period. Workers representatives will be elected, and a Workers Safety Committee will be established. The workers can raise a grievance by referring to their elected representative or by completing a form and posting it in the complaint boxes that will be located at key construction sites (offices and canteens). No worker shall be disadvantaged or penalised in any way due to their submission of a grievance. In addition, members of the Workers Safety Committee shall not be disadvantaged or penalised in any way due to their role and the time spent fulfilling the duties of this role. All workers grievances will be registered and tracked by the Contractor HR manager in a worker's grievance database. Workers grievances will then be raised and answered at each Workers Safety Committee meeting. The Contractor HSE site manager will then transmit the grievance resolution to the workers and document their resolution and the workers acceptance. This workers' grievance mechanism will be monitored by PIU on a weekly basis, detailed information on the number, nature and resolution of the workers' grievances are included in the Monthly E&S reports of the Contractor. The PIU's Team will integrate the workers grievance register into the main grievance management system of the Project.

Should there already be collective agreements on-site which include grievance mechanisms, these should be followed in preference to the PIU mechanism described here.

PIU contact information

The point of contact regarding the management of grievances by the Project and the local stakeholder engagement activities is PIU Deputy Project Manager:

Description	Rehabilitation and Reconstruction of the Zeda Ru irrigation Channel
Client:	Ministry of Environment Protection and Agriculture of Georgia
To:	Giorgi Kalandadze
Address:	6 Marshal Gelovani Avenue
E-mail:	g.kalandadze@meopa.gov.ge
Website:	www.mepa.gov.ge
Telephone:	+591518888

Information on the Project and future engagement programmes will be available on the Project's website and will be posted on information boards in key villages in the Project area. Information can also be obtained from the Community Liaison Officers.

In addition, for information on engagement with national and international stakeholders, and for information on the environmental and social performance of the Project, NGOs, CSOs and media are invited to contact PIU Communications in Tbilisi:

Description	Rehabilitation and Reconstruction of the Zeda Ru irrigation Channel
Client:	Ministry of Environment Protection and Agriculture of Georgia
To	ES Specialist - Communications Officer – Sophie Berishvili
Address:	6 Marshal Gelovani Avenue
E-mail:	Sophiko1@hotmail.com
Website:	www.mepa.gov.ge
Telephone:	+599270049

In addition to the Deputy Project manager and ES Specialist. The Community Liaison Officer will explain the possibilities and ways to raise a grievance to local communities or PIU office during meetings organised in each affected area at the time of disclosure. The contact of the officer is as follows:

Description	Rehabilitation and Reconstruction of the Zeda Ru irrigation Channel
Client:	Ministry of Environment Protection and Agriculture of Georgia
To	Community Liaison Officer - David Karkarashvili
Address:	6 Marshal Gelovani Avenue
E-mail:	d.karkarashvili@mepa.gov.ge
Website:	www.mepa.gov.ge
Telephone:	+599503 910

Complaints and Grievance Submission Form

Complaints and Grievance Submission Form	
Name, Last name	
Contact Information Please indicate the preferable means of communication (Mail, Telephone, E-mail)	<input type="checkbox"/> Mail: Please indicate the postal address: _____ _____ <input type="checkbox"/> Telephone: _____ <input type="checkbox"/> E-mail: _____
The language desirable for the communication	<input type="checkbox"/> Georgian <input type="checkbox"/> English <input type="checkbox"/> Russian
Describe the grievance/claim: What is the complaint about? What is the claim?	
Date of Negotiation:	Resolution of Negotiation:
What is the basis of your claim?	
Signature: _____ Date: _____	

SECTION 2: ENVIRONMENTAL AND SOCIAL MITIGATION PLAN

STAGE	ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
Pre-construction	Notification of stakeholders	Nuisance to local communities	<ul style="list-style-type: none"> - Notify public about the upcoming works using printed and electronic media and notifications posted in public places of the villages located within the impact area. - Schedule physical works on the scheme so that irrigation service delivery is not interrupted during the season. If some interruptions cannot be avoided, inform water users on the timing and duration of the disruptions. 	- PIU
Pre-construction	Recruiting and training of labor	<ul style="list-style-type: none"> Disputes over terms and conditions of labor between contractor and workers Damage to health and safety of workers 	<ul style="list-style-type: none"> - 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. - Develop Health and Safety Plan according to the principles of the Law on Labor Safety 4283-III 19/02/2019, Law of Georgia on Insurance № 690 02/05/1997, Ordinance of the Government of Georgia Technical Rules of Fire Safety Regulations and Conditions № 370 23/07/201, and have it approved by PIU. - 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 mandatory nature of its use. 	- Contractor
Pre-construction	Implementation of the Resettlement Action Plan	Violation of private property and user rights of the affected communities	<ul style="list-style-type: none"> - Implement Resettlement Action Plan (RAP) as approved by the World Bank prior to mobilization of contractor to the work site. - Produce and submit RAP completion report to the World Bank for approval. - Give formal notice to contractor on taking the site upon approval of RAP completion report. 	- PIU
Pre-construction	Establishment of the work camps	Damage to environmentally and socially sensitive receptors	<ul style="list-style-type: none"> - In coordination with PIU and municipality authorities, select worker camp locations in the areas that have least possible environmental and social impacts (e.g.: away from water sources, wetlands, settlements, etc.) 	- Contractor
Construction	Soil Excavation	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - 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 height of subsoil stockpiles below 6 meters. - Keep height of topsoil stockpiles below 2 meters. - Use subsoil for backfilling as required and dispose excess subsoil to the locations designated by local authorities in written. 	<ul style="list-style-type: none"> - Contractor - Municipal authority

STAGE	ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
			<ul style="list-style-type: none"> - Cover open trenches so to protect people and animals from falling. Backfill excavated trenches as soon as feasible. - Spread topsoil over the site upon completion of earth works for site reinstatement. Disallow alternative use of topsoil. 	
Construction	Handling Chance Finds	Loss or damage of historic artifacts	<ul style="list-style-type: none"> - Contractor to take all physical activity on hold upon encountering of a chance find and immediately inform technical supervisor and PIU. - 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 guidance to PIU and promptly undertake actions required for removal of artifacts from the right-of-way of the irrigation scheme, conservation of the site or to request re-routing of the given section of the irrigation scheme. - NACHP to provide written notice to PIU on the completion of activities on the site and clearance for the resumption of works. - PIU to give formal notice to contractor for the resumption of works. 	<ul style="list-style-type: none"> - PIU - Contractor - NACHP
Construction	Clearing of vegetation	Excessive impact on vegetation	<ul style="list-style-type: none"> - Undertake pre-construction survey of the activity corridor to identify exact need of tree-cutting within the ROW. - In case of a need for tree extraction, obtain formal permission from municipal authority; - Stockpile removed trees in a designated location, preferably under cover; - Hand over timber from the removed trees to the Ministry of Economy and Sustainable Development; consider handing over other organic waste from tree-cutting to local authorities for distribution to population for firewood. 	<ul style="list-style-type: none"> - Contractor
Construction	Operation of construction vehicles and machinery	<ul style="list-style-type: none"> - Emissions - Generation of dust <p>Generation of noise and vibration</p> <ul style="list-style-type: none"> - Environment pollution with operation and/or accidental spillage of oil and lubricants 	<ul style="list-style-type: none"> - Control generation of dust from vehicle movement by watering of roads as necessary. - Keep all construction vehicles and machinery in a good technical condition to avoid excessive noise and emissions. - 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 speed limit of 30-40 km/h within settlements. Cover trunk vehicles 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 nonpermeable surface and spill-confining areas. 	<ul style="list-style-type: none"> - Contractor
Construction	Operation of work camps	<ul style="list-style-type: none"> - Littering of the area with household waste - pollution of surface/ground water bodies with liquid discharges 	<ul style="list-style-type: none"> - Undertake regular housekeeping of the site and allocating of the household waste in the specially designated containers, that will be regularly cleaned by municipal waste trucks. - Ensure that construction company establishes sewage pits that regularly will be cleaned by wastewater truck and discharged by a sewage truck to the nearest infrastructure system. 	<ul style="list-style-type: none"> - Contractor - Local Municipality

STAGE	ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
Construction	Generation of non-hazardous construction waste	<ul style="list-style-type: none"> - Environment pollution with construction waste - Damage to landscape and surface water bodies from improperly dumped excess materials 	<ul style="list-style-type: none"> - Minimize amount of generated wastes. - Separate wastes to: <ul style="list-style-type: none"> • single out reusable and recyclable waste. Reuse waste as feasible except asbestos-containing fraction. 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. - 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. 	- Contractor
Construction	Generation of hazardous construction waste	<ul style="list-style-type: none"> - Damage to health and safety of workers handling waste - Damage to health and safety of communities within the impact zone - Environmental damage from pollution with hazardous waste 	<ul style="list-style-type: none"> - Provide all employees handling asbestos-containing materials appropriate personal protective equipment and enforce its adequate use. - Keep number of workers handling asbestos-containing materials to the necessary minimum; educate them and keep sensitized to the rules of handling asbestos. - Sprinkle asbestos-containing materials when handling; 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 pre-defined 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 Regional Development and Infrastructure of Georgia. - 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. 	- Contractor
Construction	Generation of noise	<ul style="list-style-type: none"> - Nuisance to local communities - Health impact on workers 	<ul style="list-style-type: none"> - Keep vehicles and machinery in good technical condition to avoid unnecessary noise generation; - Prohibit conduct of noise-generating works at night time; - Prohibit speeding of construction vehicles and impose adequate speed limits for moving within and nearby settlements. 	- Contractor

STAGE	ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
Construction	Labor management	<ul style="list-style-type: none"> - Violation of civil rights of workers - Trauma, morbidity and mortality at work site 	<ul style="list-style-type: none"> - Respect workers' rights and the requirements of national legislation pertaining duration of working shifts, minimum wages, minimum age of workers, freedom of organization and non-discrimination. - Appointment of a person responsible for health and safety at works site; establish clear rules of safety at workplace and instructions for safe operation of equipment/machinery; communicate and explain these rules and instructions to workers and enforce adherence to them by all personnel. - Provide personal protective gear and safety equipment to workers and enforce their adequate use. - Conduct regular health and safety trainings for all workers and personal. - Provide adequate lavatory facilities (toilets and washing areas) in the work site with adequate supplies of hot and cold running water, soap, and hand drying towel; make adequate arrangements for catering and rest during breaks. 	- Contractor
Construction	Community liaison	<ul style="list-style-type: none"> - Nuisance to local communities - Conflicts between contractor and local population 	<p><u>PIU is responsible to:</u></p> <ul style="list-style-type: none"> - Set up and effectively operate Grievance Redress Mechanism allowing people affected by construction works to ask questions and raise their concerns. <p><u>Contractor is responsible to:</u></p> <ul style="list-style-type: none"> - Assign local liaison person to lead communication with and receiving requests / complaints from 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 strictly enforce them, including the dismissal of workers and financial penalties of adequate scale. 	<ul style="list-style-type: none"> - PIU - Contractor
Construction	Works near and/or inside residential areas	<ul style="list-style-type: none"> - Nuisance to local communities - Restriction of access to- and use of private property 	<ul style="list-style-type: none"> - Schedule works beyond irrigation season to the extent possible in order to avoid/minimize service disruption. Inform local population about construction and work schedules. 	- Contractor

STAGE	ACTIVITY	RISK / EXPECTED IMPACT	MITIGATION MEASURES	RESPONSIBILITY
		<ul style="list-style-type: none"> - Damage to private property 	<ul style="list-style-type: none"> - Restricted vehicle movement to defined access routes and demarcated working areas in order to prevent excessive damage to vegetation and soil. Use noise-generating technologies between 08.00a.m-19.00 p.m. - Do not locate work camps in immediate proximity to settlements. Properly mark and fence work site. Allocate areas for temporary storage of construction materials and waste so that free movement of traffic and pedestrians is not hindered. - In case a need for additional land take not completed prior to commencement of construction works emerges in the course of works, immediately inform PIU, do not engage in debates with community representatives, do not enter such area before PIU has completed required resettlement, and take site after formal notification by PIU 	
Construction	Site reinstatement	<ul style="list-style-type: none"> - Excessive impact on landscape - residual pollution of ROW with construction waste and excess materials 	<p>After completion of construction activities, ensure that:</p> <ul style="list-style-type: none"> - no waste and excess materials are left behind - all trenches are backfilled, topsoil and spread and the ROW is reinstated to quazi-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	Delivery of irrigation services to water users	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - Undertake awareness-rising campaign targeting irrigation water users to promote adequate and rational irrigation practice - Duly perform routine and emergency repair works on the irrigation scheme to avoid its malfunctioning. 	- Irrigation System Operator
Operation	Application of pesticides by users of the irrigation scheme	<ul style="list-style-type: none"> - 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 excessive and improper use of pesticides 	<p>Undertake awareness-rising campaign targeting irrigation water users to promote safe and rational use of pesticides and to popularize Integrated Pest Management</p>	- Irrigation System Operator

SECTION 3: 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	PIU
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.	PIU
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	PIU
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 locations on-site; Technical adequacy of the servicing location: <ul style="list-style-type: none"> • 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. 	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 minimize material damage	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?)
Soil excavation	<p>No mixing of topsoil and subsoil.</p> <p>Organized on-site storage of topsoil and subsoil; no restriction of access, stability of soil stockpiles.</p> <p>Hight of subsoil stockpiles not exceeding 6 meters.</p> <p>Height of topsoil stockpiles not exceeding 2 meters.</p> <p>Subsoil backfilled and excess subsoil disposed to the locations designated by local authorities in written.</p> <p>Timely coverage of trenches.</p> <p>Topsoil spread over the site upon completion of earth works for site reinstatement. No alternative use of topsoil.</p>	Construction sites	Visual inspection	In the course of earth works	<p>Void deterioration of quality or loss of topsoil</p> <p>No damage to human and environmental health from poorly stockpiled earth</p> <p>Prevent falling of people and animals into excavated trenches</p> <p>Void aesthetic damage to landscape</p>	PIU
Handling of chance finds	<p>Works on hold from the instance of chance find encounter through the formal communication from PIU to resume;</p> <p>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;</p> <p>No damage to historic artifacts</p>	Sites of excavation works	Checking of documents	Upon encounter of chance finds	Avoid loss or damage of historic artifacts	PIU; NACHP
Clearing of vegetation	<p>Pre-construction survey of the activity corridor undertaken prior to commencement of vegetation clearing;</p> <p>Formal permission from local authority in place for tree extraction;</p> <p>Extracted trees stockpiled in a designated location, preferably under cover;</p> <p>Documents on the handover of timber and other parts of removed trees in place.</p>	Construction sites	Visual inspection	During vegetation clearing works	Avoid excessive impact on vegetation	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?)
Sourcing of natural construction materials	<p>Purchase of material from the existing suppliers if feasible;</p> <p>Presence of extraction license and strict compliance with the license conditions;</p> <p>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;</p> <p>Demarcation and fencing of excavation areas;</p> <p>Reinstatement of worked sectors of quarries by harmonizing with landscape, facilitating natural regeneration of vegetative cover, and/or planting /seeding greenery</p>	Quarries	<p>Checking documents</p> <p>Visual inspection</p>	During extraction of natural construction materials	<p>Limiting erosion of slopes and degradation of ecosystems and landscapes;</p> <p>Limiting erosion of river banks, water pollution with suspended particles and disruption of aquatic life;</p> <p>Protection of cattle and population from damage.</p>	<p>PIU;</p> <p>LEPL National Agency of Mines under the Ministry of Economy and Sustainable Development</p>
Generation of construction waste	<p>Separation of reusable elements from the construction waste and reuse waste as feasible;</p> <p>Separation of recyclable elements from the construction waste and hand over to collecting points or recycling companies;</p> <p>Allocation of special area for temporary on-site storage of construction waste; no accumulation of excessive amounts of waste on site;</p> <p>Arrangements for permanent disposal of construction waste in the form of written instructions from local authorities and conclusions from the Ministry of Environment Protection and Agriculture if required; disposal of waste exclusively in the authorized locations.</p>	<p>Construction sites; Work camp;</p> <p>Waste disposal sites;</p> <p>Areas around work sites and waste disposal sites</p>	<p>Checking documents</p> <p>Visual Inspection</p>	Recurrent	Prevent pollution of the construction site and nearby area with waste	<p>PIU;</p> <p>Environmental Supervision Department of the Ministry of Environment Protection and Agriculture</p>

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 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	PIU; Local municipalities
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; 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.	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	PIU; Department of Environmental Supervision under the Ministry of Environment Protection and Agriculture; Labor Inspectorate
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 moving within and nearby settlements.	Construction sites and work camp Routes of transportation	Visual inspection	Recurrent	Avoid nuisance to nearby communities; Protect health of workers	PIU
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 enforcement of their use;	Construction sites and work camp	Checking documents; Visual inspection	Recurrent	Exclude exploitation and unfair treatment of workers; Reduce the probability of accidents	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?)
	<p>Consistency with the rules of exploitation of the construction equipment and machinery; delivery of training on safety at work site;</p> <p>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.</p>					
Community liaison	<p>Operation of Grievance Redress Mechanism (GRM)</p> <p>Contractor's community liaison person assigned and channels of communication with the population of settlements located in the vicinity of construction sites and work camp operational;</p> <p>Banners with the name and contact information of contractor installed in visible locations around/along the work sites;</p> <p>Local communities informed on the nature and duration of works and timely notified on any disruption of communal service delivery due to construction works.</p>	Settlements affected by construction works	<p>Visual inspection;</p> <p>Interviews with affected communities;</p> <p>Checking of GRM logs</p>	Recurrent	<p>Minimize nuisance to local communities;</p> <p>Avoid conflicts between contractor and local communities</p>	PIU
Works near privately-owned land, buildings and other assets	<p>Works performed beyond irrigation season;</p> <p>Vehicle movement restricted to the defined access routes and demarcated working areas in order to prevent excessive damage to vegetation and soil. Use noise-generating technologies between 08.00a.m-19.00 p.m.;</p> <p>Work camps located away from settlements; work sites properly marked and fenced; temporary storage of construction materials and waste not preventing free movement of traffic and pedestrians;</p> <p>No entry to land area owned/used by private owners or squatters and no clearing of privately owned/operated assets from ROW</p>	Settlements in the vicinity of construction sites and work camp	Visual inspection	Recurrent	Exclude temporary or permanent violation of ownership and/or user rights on the private property	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?)
	without formal notification from PIU that involuntary resettlement and compensation process have been fully completed.					
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 quazi-natural condition; Access roads are repaired to pre-construction or better condition No unaddressed consequences of accidental damage to fences, pipes or any other private property of local residents.	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	PIU
OPERATION PHASE						
Delivery of irrigation services to water users	No malfunctioning of the irrigation scheme; Awareness-rising among water users being undertaken to promote adequate and rational irrigation practices	Along right of way of the irrigation scheme; Office of the irrigation service provider	Visual inspection; Checking of awareness-raising campaign records	During irrigation season	Minimize soil erosion and salinization from excessive/improper irrigation; Minimize water loss, flooding and waterlogging of areas along right of way	Irrigation service provider
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 Ru irrigation scheme	Interviews with water users Interviews with agricultural extension service providers Checking databases on chemical and physical indicators of soil within Zeda Ru irrigation scheme service area	Recurrent	Minimize environmental pollution and damage to community health and safety from improper application of pesticides and poor disposal of packaging; Avoid excessive concentration of pollutants in agricultural produce	Irrigation service provider