



Irrigation and Land Market Development Project

Rehabilitation of Zeda Ru Irrigation System

Section 1: Project design and specifications

Institutional and Administrative Data				
1	Project name	Irrigation and Land Market Development		
2	Sub-project title	Rehabilitation of Zeda Ru irrigation system		
3	Sub-Project location	Shida Kartli region, territories of Gori and Kareli municipalities		
4	Watershed (river basin)	Basins of the rivers Didi (Great) Liakhvi and Mtkvari		
Institutional Arrangements				
5	Institutional Arrangements (names and contacts)	<u>WB</u> <u>(Task Team Leader)</u> Peter Goodman	<u>Project Management</u> Project Planning and Monitoring Division (PPMD)	<u>Local Counterpart or Recipient</u> United Amelioration Systems Company of Georgia
6	Implementation arrangements (names and contacts)	<u>Safeguard Supervision</u> Darejan Kapanadze (Environment) and Nino Metreveli (social)	<u>PPMD supervision</u> <u>(Env. Specialist)</u> Tbd	<u>Contractor</u> (to be entered once contracted)
Description of the territory				
7	Geographical title of the territory	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 sub-project considers full rehabilitation of Zeda Ru irrigation scheme, including:</p> <ul style="list-style-type: none"> Rehabilitation of Zeda Ru irrigation scheme main canal with all structures on it; overall length 27.1 km; Rehabilitation of the first-line distribution network of Zeda Ru irrigation system. <p>Rehabilitation of Zeda Ru irrigation scheme is urgent due to its unsatisfactory technical condition. The scheme fails to deliver required volume of water to end users. Most significant problems include:</p> <ul style="list-style-type: none"> On initial section of the main canal, from Dm 0+00 to Dm 12+20, existing earth bed is steep. Due to this, water flow velocity in the canal exceeds permissible velocity for wash-out and these sections are washed-out and deepened; On certain sections of main canal (especially on territories of villages Sakasheti and Sasireti) water-flow capacity is not enough and in case of design flow, excessive water will overflow to the adjacent berms. Besides, increased water flow also increases seepage losses from the canal and this seepage water floods adjacent territories and basements of nearby 		

houses;

- Large sections of canal (from vil. Sakasheti till the vil. Sasireti, also before entering the vil. Ruisi) pass through steep slopes, which creates possibility of water seepage or threat of berm breakthrough due to overflow to the berms;
- On sections, which are lined with reinforced concrete plates, surfacing is damaged and lining plates are amortized;
- The cross-sections of some sections of canal with an earth bed does not comply with design dimensions. At some sections the canal is washed-out and deepened and dimensions of its cross-section exceed design ones. Due to such situation, water level in the canal lowers and it is hard to fix the water on the necessary level without ponding. At some sections the cross-section is filled with sediment and is unable to discharge design water flow;
- On the canal there are not enough culverts, water outlets and water flow regulating and measuring structures, and most of existing structures are damaged or obsolete;
- Due to high seepage and technical loss of the water at the upper sections, water is not supplied to the vil. Ruisi, which causes public discontent;
- On the final section of the canal (after the crossing of vil. Ruisi and Tbilisi-Kutaisi motorway) existing concrete lining at some sections is damaged;
- Ameliorator existing adjacent to the vil. Sakasheti is also obsolete and damaged.

For solving aforementioned problems, ZedaRu irrigation scheme rehabilitation sub-project considers implementation of following activities:

- Lining of steep canal sections with mass concrete. Lined trapezoidal canal will be arranged with bottom lining thickness $\delta=20$ cm and slope lining thickness $\delta=15$ cm. At some sections (initial section, section passing through villages Sakasheti and Sasireti), due to the fact that trapezoidal canal cannot be fit within boundaries of existing line (due to large width 3.8 m), rectangular canal will be arranged. As lined sections of the canal are mainly arranged at washed-out and deepened sites, where lining concrete will be disposed on the ground, reinforcement of lining layer of trapezoidal cross-section and rectangular canal is envisaged;
- Cleaning of earth bed sections from accumulated ground and provision of design cross-section dimensions; filling of some earth bed sections with imported padding, compacting of this padding layer by layer and restoration of design cross-section;
- Removal of bushes and thorns from canal berms, cutting and removal of single trees on the canal perimeter;
- Dismantling and removal of existing culverts and water outlets and arrangement of new, typical structures. Arrangement of new water outlet facility is envisaged. Arrangement of new bridges, instead of existing obsolete ones, in compliance with dimensions of rehabilitated canal;
- Rehabilitation of less damaged facilities for future operation.

Types and contents of necessary works depend on dimensions and structures of cross-section at different sections. Therefore, 11 sections were distinguished and contents and volumes of works were determined for each one individually:

1. Arrangement of lined rectangular canal at section Dm 0+00 – Dm 8+40;
2. Arrangement of concrete lined trapezoidal canal at section Dm 8+41 – Dm 38+06. L = 2965 m;
3. Earth bed trapezoidal canal Dm 38+06 – Dm 71+77. L = 3371 m (using tunnel for crossing

railway line);

4. Earth bed trapezoidal canal Dm 72+58 – Dm 106+14. L = 3856 m;
5. Arrangement of concrete lined trapezoidal canal at section Dm 106+14 – Dm 119+07. L = 1293 m;
6. Arrangement of lined rectangular canal at section Dm 119+07 – Dm 128+70. L = 953 m;
7. Arrangement of trapezoidal section of Zeda Ru canal Dm 128+70 – Dm 143+68. L = 1498 m;
8. Arrangement of lined rectangular canal at section Dm 143+68 – Dm 155+29, L=1161 m;
9. Arrangement of concrete lined trapezoidal canal at section Dm 155+29– Dm 198+12. L = 4283 m;
10. Rehabilitation of earth bed section Dm 198+12 – Dm 247+28. L = 4916 m;
11. Rehabilitation of existing lined trapezoidal canal section Dm 247+282 – Dm 271+02. L = 2374 m.

Design capacity of main canal is 2.5 m³/sec. As it is not possible to arrange a spillway, design capacity on the whole length of the canal is 2.5 m³/sec.

Distributional canal network of Zeda Ru irrigation scheme is represented by earth bed canals. Sub-project envisages cleaning these canals manually and with use of excavator (wherever the canals will be accessible by the machinery). Some sections of distributional canals, which are practically erased, will be restored using special canal-boring equipment. Simple water outlets and tube-bridges are planned to be arranged on the distributional canals.

Within the framework of envisaged rehabilitation works, shields with standard structures will be installed on the irrigation system, namely:

- Underground shield ГС-40;
- Above ground shield ПС-40;
- Underground shield ГС-60;
- Above ground shield ПС-60;
- Above ground shield ПС-150;
- Above ground shield ПС-200.

After rehabilitation, irrigation system will service 2304 ha area (netto).

Construction Camp

The sub-project implementation will not require arrangement of big construction camps and powerful infrastructure. Construction camp sites, installation of temporary facilities and their characteristics will be defined after the detection of the construction contractor on a competitive basis.

Based on a preliminary opinion, the best possible location for the construction camp may be considered the area north of Sakasheti village, where at present regional department of amelioration system is located. Coordinates for this location are: X - 415381; Y – 4661647. Approximate area of the territory is 5000 m². Main advantages of the territory are:

- The distance to the start and end points of the rehabilitation canal from the area is almost equal. Connection with individual construction sites and central road of Sakasheti village will be possible by earth roads that are passing through the agricultural fields. Considering this circumstances, transportation operations will be facilitated during the rehabilitation period;

- The area and the building is the property of the United Amelioration Systems Company of Georgia. The project includes the rehabilitation of the building. Therefore there is no need for additional land for the arrangement of the construction camps;
- The shortest distance from the nearest residence (Sakasheti village) is about 1 km. Given the above, local population is not likely to be disturbed with noise, dust and other negative impacts during the construction camp operation;
- There is no a highest percentage of vegetation. Apple orchards are cultivated in some areas, though cutting down the trees is not expected during construction phase. Mainly grass and bush vegetation will be destructed;
- Significant earth works will not be required for the arrangement of the construction camp due to the topographic conditions of the territory (the area is flat). Development of any kind of dangerous geodynamic processes is not expected within the area;
- Energy supply of the construction camp will be possible through air-insulated transmission line passing to the north of the area (150-170 m distance from the reclamation building). Tank trucks will be used for water supply;

In addition, two alternatives have been selected for temporary location of heavy equipment and vehicles during the rehabilitation works:

1. About 1500 m² area near the village Pkhvenisi, adjacent to Gori-Nikozi road (Coordinates: X - 467320; Y - 4667199). The area is a state property, it is flat and free of plant and soil cover; Proximity to the central road is convenient for transportation operations (0+00 - 72+50 section of the canal, connecting to the construction sites);
2. About 1000 m² area adjacent to the village Ruisi (Coordinates: X - 416162; Y - 4653622). The area is a state property. It is flat and free of vegetation. 163+00 - 271+02 section of the canal, connecting to the construction sites.

Disposal of waste generated during rehabilitation works:

Generation of household and construction wastes (including hazardous waste) is expected during rehabilitation works of the irrigation system. Most sections of the canal are polluted with household waste. Cleaning works will be required prior to commencement of rehabilitation. The collected waste must be temporarily stored at pre-selected location and afterwards relocated to a relevant landfill.

Household waste generated on the territories of a construction camp and construction sites will be collected in the special hermetic containers and afterwards removed to the nearest landfill.

There are no landfills in vicinity of the corridor of the irrigation system to be rehabilitated. Therefore waste will be disposed on the landfills of Kareli or Gori.

Construction waste will be maximally put to use for the needs of the sub-project, while the part of it will be disposed on the construction waste polygon of Gori. Hazardous waste (tires, oil filters, etc.) must be temporarily stored on the territory of construction camp. For the further management hazardous waste will be handed to the contractor holding a relevant license.

9	Short narrative description of site (physical and natural environment)
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The irrigation system of the upper stream is located in the western part of the Shida Kartli, on Tiriponi plains. A large part of the canal passes through the populated areas of the villages of Gori and Kareli municipalities: Pkhvenisi, Shindisi, Sakasheti, Sasireti, Ruisi and Urbnisi. While the part of the canal passes 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.

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 spinachristi*), Spiraea (*Spiraea hypericifolia*), Juniper (*Juniperus 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 rare wetlands.

Corridor of the main canal does not cross any significantly forested area. Tree vegetation of the neighboring areas of the canal is represented by willow, poplar, as well as cultural plants (apples, pears, etc.). Walnut has been observed as well, which is included in the Red List of Georgia.

According to the literary sources, jackal (*Canis aureus*) and Red fox (*Vulpes vulpes*) inhabit the study corridor. 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 Parti-coloured bat (*Vespertilio murinus*), Geoffroy's bat (*Myotis marginatus*), Barbastelle (*Barbastellabarbastellus*), etc. The following birds inhabit bushes: Chukar Partridge (*Alectoris chukar*), Grey Partridge (*Perdix perdix*) and Common Quail (*Coturnix coturnix*).

Headwork of Zeda Ru irrigation system: 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 runoff 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.

Headwork of the complex irrigation system build on river Liakhvi distributes the stream to three irrigation schemes and releases part of the water into the natural river bed. Right canal,

originating from headworks, delivers water to a distribution well. Two schemes branch out of this well one of which is Zeda Ru. The Headwork and the main canal between the headwork and the distribution well were rehabilitated in 2012 and are fully operational. Works for the rehabilitation of Zeda Ru scheme will have no influence on the water intake at headworks.

Section 1 (pk0+00 – pk28+00)

From pk0+00 to pk8+40 the canal runs adjacent to the paved road of Gori-Nikozi, from North to South. From the right side the canal is bounded by Gori-Nikozi highway and artificially planted trees and vegetation along it (poplar trees), and from the left side – agricultural lands (orchards).

From pk8+40 the canal makes sharp left. From the right side it is bounded by agricultural lands and from the left – ground road, technical condition of which is unsatisfactory.

From pk12+20 the canal turns right and runs on Liakhvi terrace. From the right side it is bounded by agricultural lands and household plots. No private lands are observed on the left side. The presented territories are free.

Section 1 is performed on pk28+00, near the emergency discharge well.

Following sanitary-ecological conditions very observed in the corridor of the mentioned section of the irrigation canal:

- Bushes and herbaceous plants are presented on the slopes of the canal. In order to raise the water level stone-rock is laid in some sections;
- Pk0+00. Concrete lining of the distribution well is damaged. The slopes are heavily eroded. Significant amount of stones and rocks is accumulated on the bottom. The lock gates of Dzlevijvari and Zeda Ru irrigation system are amortized and inactive;
- Pk28+20. Distribution well and discharge canal. Concrete walls of the well are damaged, which is why there is a big risk of adjacent agricultural land flooding in case of rise of water level. Two shields of the well are inactive. The well is filled with plant waste and stones and rocks. The slopes are covered with bushes. Emergency canal is basically absent;
- Pk0+00, pk2+10, pk5+50, pk7+10, pk8+50 and pk28+20. Technical condition of 6 bridges located over the canal is not satisfactory. The supports of the bridges are damaged. Canal slopes in these areas are eroded. Bottom of the canal is filled with collapsed material;
- Pk8+50, pk12+20, pk28+00. Household waste observed with the total amount of $\approx 2-3 \text{ m}^3$;
- Pk8+80. Concrete blocks are packed in the canal creating water intake for the population. 10-12 m long section of the right slope is eroded;
- From pk12+20 to pk28+00. The service road adjacent to the canal is practically absent, complicating approach to the canal.

Section 2. (pk28+00-pk37+50)

The corridor of the section 2 of the canal to be rehabilitated runs on the territory of the village Pkhvenisi, in the agricultural and rural lands and there is no road along it.

Pk36+85. The canal crosses the paved road of Gori-Tskhinvali highway and pipes of gas and water via piping bridge.

Pk37+20. The canal crosses inner road of the village Pkhvenisi and runs in the rural and agricultural lands.

Following sanitary-ecological conditions were recorded on this section:

- A large amount of trees and plants are presented on the slopes of the canal;
- Some sections of the canal slopes are eroded;
- Household wastes are dumped in the canal, the bottom is filled with stones and ricks;
- The piping bridge of Gori-Tskhinvali road is damaged and filled with wastes. Asphalt coating of the road is damaged;
- Pk35+00-pk36+85. Household plots are located on the both sides of the canal. Agricultural buildings of various purposes (sheds of domestic animals, fence) are arranged on the berms of the canal. Liquid wastes are being discharged into the canal;
- Pk36+60. In order to raise the water level tin sheets are placed in the canal. A small HPP and mill were operating here (both are inefficacious);
- Pk37+00. A barn made of construction blocks is arranged on the right berm of the canal. Liquid waste from the barn are being discharged into the canal;
- Pk37+00-pk37+50. Household plot fences are arranged on the both sides of the canal;
- Pk37+30. A toilet is arranged on the right berm of the canal.

Section 3. (pk37+50-pk72+00)

The corridor of the 3rd section runs on the territories of agricultural lands and household plots of the village Shindisi. There is no road along the canal. Certain areas of the canal may be accessed with the ground road. The section ends at the crossing with the railway line.

Following sanitary-ecological conditions were recorded on this section:

- A large amount of trees and plants is presented on the slopes;
- At some areas of the canal the slope is eroded and collapsing;
- The bottom is filled with stones and rocks. Small amounts of metal and household waste was recorded;
- Pk37+80-pk38+00. Shed for domestic animals and other agricultural buildings are arranged on the left berm of the canal. Liquid waste is being discharged into the canal;
- Pk38+00. On the left side of the canal arbitrarily arranged water level raiser and discharger are present;
- Pk43+00-pk36+00. The canal runs within the household plots. There is a high risk of canal contamination with household waste on this section;
- Pk36+00-pk72-00. The canal runs within the agricultural lands, away from the densely populated area. In this zone the canal crosses the corridor of transmission lines in several places;
- Pk66+80-pk67+50. Ground road is located on the left side of the canal and transmission line is presented along it. Subgrade of the road is damaged;
- Pk67+50. The canal crosses paved road of Shindisi-Kelktseuli. On the crossing the canal slopes are eroded. The bottom is filled with ricks, vegetation and household waste;
- Pk71+00. The canal crosses the ground road. On the crossing point the canal slopes are eroded and collapsed. The bottom is filled with ricks;
- Pk71+20. Distributor of the village Variani. Concrete lining of the distributor is collapsed. Silt and vegetation waste cover the canal. The outlet is inactive. The distributor represents

a trapezoidal open canal with damaged concrete slabs;

- Pk71+20. Household waste with the amount of $\approx 4 \text{ m}^3$ is observed on the left side of the canal;
- Pk71+20-pk72+00. Ground road runs along the canal from the left. The road subgrade is damaged;
- Pk72+00. The canal crosses the railway via tunnel. The tunnel is filled with stone-gravel.

Section 4 (pk72+00-pk115+80)

The corridor of the 4th section is fully located on the agricultural lands of the village Sakasheti, away from the residential areas. No household plots are presented on the territory.

Following sanitary-ecological conditions were recorded on this section:

- Mostly grass and bush vegetation is presented on the slopes of the canal. In some places trees grow on the berms;
- Canal slopes are eroded and the collapsed material is accumulated on the bottom. In some sections stone and gravel are accumulated;
- Pk72+50. Variani distribution well. The concrete lining of the well is damaged. Lock shields are not present. It is filled with vegetation waste, breakstone and material collapsed from the railway subgrade;
- Pk99+70. Recently arranged distribution canal purpose of which is to supply refugee settlement with irrigation water. Currently inactive;
- Pk99+80 and pk102+10. Distribution wells. Concrete lining of the wells is damaged. They are filled with sediments. Locking shields are amortized and looted. The surroundings represent agricultural lands (mainly corn fields);
- Pk115+80. Distribution well at the entrance of the village Sakasheti. The well is filled with sediments and household waste. Locking shield is amortized. A mill was located near the distributor, but currently it is inefficient. The amount of household waste on the left side of the canal is $\approx 1.5 \text{ m}^3$.

Section 5. (pk115+80-pk128+20)

The corridor of the 5th section runs in the zone of densely populated area, mainly in adjacent household plots.

Pk118+00-pk122+00. The main canal is a trapezoidal canal faced with concrete slabs.

Pk119+00. The canal crosses the central highway of Sakasheti.

Pk119+00-pk120+00. The central highway of Sakasheti runs along the right side of the canal.

Pk120+00-pk122+00. The canal is bounded by the household plots from both sides. Access to the canal is complicated.

Pk122+00. The canal crosses central highway of the village Sakasheni.

Pk122+00-pk126+00. The main canal represents an oval concrete canal.

Pk122+00-pk128+20. Ground road runs along the canal from the left side. Household plots and agricultural lands are presented on the right.

Pk126+00-pk128+20. The main canal represents a ground canal.

Following sanitary-ecological conditions were recorded on this section:

- The concrete lining of the canal is damaged, therefore creating risk of flooding and waterlogging of the adjacent household plots;
- Well-developed plants are growing on the berms of the canal and their roots are damaging the concrete lining;
- The bottom of the canal is filled with household and vegetation waste;
- On several section facts of industrial-fecal wastewater discharge have been recorded;
- Pk119+00-pk120+00. A concrete fence is arranged on the left berm. Vine alley is cultivated on both sides of the berm;
- Pk120+00-pk122+00. Metal fences and different agricultural buildings (including shelters for domestic animals) are constructed on both berms. Boards are placed across the canal. Metal pipes are placed in the canal, which are being used to discharge industrial-fecal and other liquid waste into the canal. On this section the risk of contamination of the canal with liquid and solid household waste is very high;
- Pk120+20. House extension (hanger type) is constructed on the right berm;
- Pk120+40. The existing distributor is damaged. Inlet is filled with waste. Locking shield is inactive;
- Pk121+20. Ruins of the 17th century stone church are recorded on the right berm of the canal;
- Pk122+00. Canal crossing with the road. Canal slopes are eroded. Bottom is filled with silt, vegetation and household waste;
- Pk122+10. Trading booth is arranged on the concrete tile placed over the canal. Currently inactive;
- Pk122+10-pk126+00. Fences, walls of three residential houses and other buildings (including sheds for livestock) are arranged on the right berm. Boards and metal pipes are placed over the canal. Metal pipes are placed in the canal, which are being used to discharge industrial-fecal and other liquid waste into the canal. On some sections vine alleys are cultivated on both sides of the canal. Fully developed tree-plants are growing on the left berm (including walnut, willow and poplar);
- Pk124+50. Shaft well of drinking water is arranged on the left side (8-10 m away from canal axis, relatively on the low level);
- Pk126+00. A transformer stands on the left berm. The risk of canal contamination with oil products is high;
- Pk126+00-128+20. Agricultural lands are located adjacent to the canal. Metal fences are installed on the berms. The canal is filled with marsh vegetation and household waste.

Section 6. (pk128+20-pk150+00)

The corridor of the 6th section runs on the agricultural lands of the villages Sakasheti and Sasireti, on a significant distance from the populated zone. The canal is of trapezoidal shape with concrete lining.

Following sanitary-ecological conditions were recorded on this section:

- Mostly grass and bush vegetation is presented on the slopes of the canal;
- At some places the slopes are eroded and the bottom of the canal is filled with collapsed

material;

- Pk131+00. Household wastes with the amount of $\approx 1,5-2,0 \text{ m}^3$ are recorded on the left side of the canal;
- Pk144+00. Left side of the emergency discharge canal. The discharge canal feeds the Sasireti Lake. The locking shield is in working condition, the technical condition of the canal is satisfactory.

Section 7. (pk150+00-pk159+00)

The corridor of the 7th section is located within the densely populated area of the village Sasireti, mostly next to the household plots. A ground road runs along the canal on the left side.

Pk150+00-pk155+00. The main canal is of trapezoidal shape with lining concrete tile.

Pk153+80. The canal crosses the central highway of the village Sasireti.

Pk155+00-pk159+00. The main canal represents a ground canal.

Following sanitary-ecological conditions were recorded on this section:

- The concrete lining of the canal is damaged, creating a high risk of flooding and waterlogging of the adjacent household plots;
- Fully developed plants grow on the berms of the canal. The roots of the plants are damaging the concrete lining;
- The bottom of the canal is filled with household and vegetation waste;
- In several sections facts of industrial-fecal wastewater discharge have been recorded;
- The existing distribution shields are looted and inactive. Inlets of the distributors are filled with waste;
- Gas pipeline is located adjacent to the canal, thus making access to the canal difficult;
- Fences and walls of 5 residential houses and agricultural buildings of different purpose (including sheds for domestic animals) are arranged on the right berm of the canal. Boards and metal pipes are placed over the canal. Metal pipes are also placed inside the canal through which the industrial-fecal and other forms of liquid wastewater are being discharged into the canal. In certain section vine alleys are cultivated on both sides.

Section 8. (pk159+00-pk271+02)

From pk159+00 to pk180+00 the canal runs in on the agricultural lands, away from the densely populated zone. A ground road is located along the left side of the canal.

From pk180+00 the canal turns left and runs on the agricultural lands adjacent to populated zone of the village Ruisi on the north. A ground road is located along the left side of the canal. Separate sections of the canal may be approached via paved road of the village Ruisi.

From pk248+00 the canal turns right and runs on the agricultural lands of the village Ruisi, away from the densely populated area.

From pk256+00 the canal crosses the main highway of Tbilisi-Kutaisi and a canal lined with concrete tiles runs within the village Urbnisi, after what the canal joins the river Mtkvari. Ground road is located along the left side of the canal.

Following sanitary-ecological conditions were recorded on this section of the irrigation canal:

- Grass and bush vegetation is presented on the slopes of the canal. Trees grow on some sections;
- Slopes of the canal are eroded and the bottom is filled with collapsed material;
- Pk159+00-pk180+00. Ground generated after clearing works of the canal is stored on the

	<p>left berm;</p> <ul style="list-style-type: none"> • Pk178+00. Distribution well. Pipeline of the inefficient pump station on the left side. Bottom of the well is filled with stones and gravels; • Pk180+00-pk198+20. The canal is bounded by agricultural lands from both sides. Fence is arranged on the berm; • Pk199+70. The canal crosses the ground road which connects the village Ruisi with the cemetery and a church on the north; • Pk199+70. A transformer is arranged on the left side of the canal. Risk of canal contamination with oil products is high; • Pk252+30. A household land is located on the right side of the canal. A toilet and a shed for domestic animals are arranged on the berm. Liquid waste is being discharged into the canal; • Pk256+80. Household waste with a total amount of 4-5 m³ is recorded on the right side of the canal; • Pk257+00. Unauthorized intake. The concrete lining of the right slope of the canal is destroyed. Breakstone is placed in the canal in order to raise the water level.
10	<p>Locations and distance for the closest existing licensed material sourcing, especially aggregates, water, stones:</p>
	<p>During the implementation of the rehabilitation sub-project, the construction materials (inert materials, concrete mixture, reinforced concrete structures, etc.) can be provided from the nearest industries, namely: at present inert material crushing-storing plants (6-7 plants) owned by different private and legal entities operate in Liakhvi gorge. One of these plants is located in the headrace of the headwork of the irrigation system, which is the closest point to the territory of planned activities.</p> <p>Concrete mixture can be supplied from concrete plants located on the territories of Gori and Kareli; reinforced concrete structures may be imported only from the industries located in Gori or Tbilisi.</p> <p>Technical water must be supplied from the river Liakhvi, while the drinking water will be delivered from the water supply sources of the nearest populated areas.</p>
11	<p>Legislation:</p>
	<p>Law of Georgia on “Licenses and Permits” – this law arranges 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.</p> <p><i>As the sub-project envisages only restoration and rehabilitation of existing facilities and structures and construction of new structures is not considered, no license or permit is required.</i></p> <p>Law of Georgia on “Environmental Impact Permit” – the law enlists all activities subjected to the compulsory ecological expertise (article 4, paragraph 2).</p> <p><i>According to this law, rehabilitation of Zeda Ru irrigation scheme is not subjected to the environmental expertise and therefore do not require Environmental Impact Assessment.</i></p> <p>Law of Georgia on “Water” – this law covers issues related to water protection, research and use. According to article 4, the objective of the law is to protect the water objects and ensure rational use of water.</p> <p><i>The sub-project implementation 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 sub-</i></p>

project considers cleaning of the canals that will result in decreased water pollution, which meets the legal requirement.

Law of Georgia on “Soil Protection” – one of the main objectives of this law is to ensure integrity, increase productivity and maintain the soil cover. It prohibits use of fertile soil for non-agricultural purposes, action which will worsen soil properties, soil pollution and etc.

Implementation of irrigation scheme rehabilitation sub-project creates risks of fertile soil layer damage and soil quality deterioration. These risks must be addressed and avoided during the construction phase. Also, poor maintenance of canals during operation may cause waterlogging of territories adjacent to the canals and development of erosion processes. Such type of damage to soil would be in conflict with the legal requirements and must be avoided by proper operation and maintenance of the rehabilitated canals.

Law of Georgia on “Ambient Air Protection” – The purpose of the law is to ensure protection of the ambient air from pollutants (including hazardous substances, as well as distribution of noise and vibration) and to regulate legal issues related to protection of the ambient air.

Implementation of the sub-project will cause noise and emissions from the construction machinery. Although this impact will be limited in time and scale, the noise and emissions’ levels must be kept to the minimum by application of good construction practice.

The Civil Code of Georgia – regulates private civic relations, determines property, family and neighborhood rights and inheritance rules.

On some sections of the irrigation system (mainly on sections passing through settlements), on the main canal’s right of way, there are various facilities of private owners, and land is used for agricultural purpose. Right of way for the canal is not respected, no service roads exist and consequently it is impossible to conduct rehabilitation works. These issues must be handled in accordance with the Civil Code of Georgia and with the World Bank OP/BP 4.12 Involuntary Resettlement.

Law of Georgia on “Registration of Rights for Real Estate” – 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 should 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 Pressing Public Need” – defines conditions and rules for expropriation in the name of pressing public need.

Enforcement of this law along with the World Bank’s OP/BP 4.12 Involuntary Resettlement may become necessary if the sub-project implementation requires resettlement.

Law of Georgia on “Calculating Costs and Compensating Damage Due to Use of Agricultural Lands for Non-agricultural Means” – this law regulates rules for paying compensation (land replacement cost) to the state or private land owner 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 (mainly on sections passing through settlements), some private land plots may be damaged. Damage done must be compensated in compliance with the requirements of the law, as well as in conformity with the Resettlement Policy Framework (RPF) and a Resettlement Action Plan (RAP), if needed and prepared for this sub-project.

12	Public Disclosure:
	<p>Prior to the commencement of rehabilitation works, public discussions on the present EMP will be carried out in administrative buildings of Kareli and Gori municipalities. The meetings will be held in every settlement under the influence of the sub-project, including villages Shindisi, Pkhvenisi, Variani, Sakasheti, Sasireti, Ruisi and Urbnisi. Advertisements regarding public discussions will be published in local newspapers and in public places of the villages and the hard copies of the present draft EMP will be made available at the local municipal offices.</p>

SECTION 2: ENVIRONMENTAL MANAGEMENT PLAN

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
General	Notification	<ul style="list-style-type: none"> (a) Notification of public about the works using media (local newspaper) and/or publicly accessible sites (distribution of notifications at public places of villages within the project impact zone) (b) All legally required permits, agreements, licenses, and clearances acquired for the project activities (c) The Contractor formally agrees that all works will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment.
	Worker Safety	<ul style="list-style-type: none"> (a) Workers' PPE will comply with international good practice (hardhats, masks, safety glasses, harnesses and safety boots, tec.) (b) First aide medical kits and fire extinguishers available at work site (c) Contact information for emergency services (medical, fire) posted on the information board at work site
Pollution Management	Air Quality	<ul style="list-style-type: none"> (a) Construction machinery and equipment maintained in adequate working condition on regular basis (b) Spoils storage piles compacted (c) Dust sources watered to minimize discomfort to nearby residents (d) Materials and wastes are transported under a covered hood of a truck (e) Vehicle speed under control to lessen suspension of road dust (f) Implementation of safety norms during loading-unloading of waste materials
	Noise	<ul style="list-style-type: none"> (a) Reduction of noise propagation to the settlements by limiting working hours (implementation of noisy work during daytime) (b) Ensure technical functionality of machinery and equipment (c) Engine covers of generators, air compressors, and other powered mechanical equipment closed during operation, and equipment placed as far away from residential areas as possible
	Soil quality	<ul style="list-style-type: none"> (a) Ensure technical functionality of machinery and equipment. In case of oil/lubricant leakage detection, maintenance works must be conducted as soon as possible. Damaged machinery should not be allowed to the construction site. (b) Removal of fertile soil layer (especially at construction sites) and storage for further restoration works. Stockpiles of fertile soil layer must be protected from wind, atmospheric precipitations and drainage water, therefore it must be distanced from surface water objects/irrigation canal at least by 50 m; the height of the stockpile should not exceed 2 m; slopes of the stockpiles must be properly inclined (45°); water abstraction canals must be arranged on the territory if necessary (c) Implementation of construction works strictly within the construction sites' borders in order to prevent possible pollution or damage of adjacent territories (d) Selection of traffic routes for machinery (restriction of movement outside the route borders) in order to minimize possibility of adjacent territories' damage (e) Localization of spill and immediate treatment of polluted area; (f) In case of serious pollution, polluted ground and soil must be removed and taken for further remediation by the contractor holding corresponding permit
	Waste	<ul style="list-style-type: none"> (a) Final disposition of the waste at Kareli and Gori municipal household and construction waste landfills; this issue must be agreed with local government (b) Sites for temporary storage of waste allocated to prevent scattered dumping of waste on and around the work site (c) Reuse and recycle construction waste whenever feasible (except asbestos) (d) Negotiations with licensed companies, as available, for removal and recycling of used tires and filters of construction vehicles and machinery (e) No open air burning of waste on and off the work site

Erosion Control		<ul style="list-style-type: none"> (a) Slope protection provided through bank compaction, rip-rapping on critical sections, or vegetative stabilization (b) Removal of fertile soil layer and temporary storage for further restoration works, in compliance with corresponding rules (c) Excess material used for restoration of degraded areas
Handling Chance Finds		<ul style="list-style-type: none"> (a) In case of chance finds during earth works - all activity taken on hold, a State entity in charge of cultural heritage preservation notified in written, and work resumed upon formal permission received from the above entity
Protection of Water Bodies	Turbidity	<ul style="list-style-type: none"> (a) Sediment traps set up along rivers and/or gabions along banks to filter out eroded sediments (b) Erosion control measures applied as provided above
	Pollution	<ul style="list-style-type: none"> (a) Vehicle and machinery servicing prohibited in the immediate proximity to water bodies (b) Servicing and fueling of vehicles and machinery limited to an allocated site with non-permeable floor and capacity to contain spills if occurred (c) Arrangements made with licensed companies, as available, for removal and recycling/deactivation of used oils and sand/gravel saturated with oil products
Protection of Biodiversity	Protection of the vegetation	<ul style="list-style-type: none"> (a) In case a specimen entered into the Red List of Georgia shall be removed (visual inspection detected presence of walnut trees within the sub-project corridor), extraction should be undertaken in compliance with requirements of article 24, paragraph 6 of the Law of Georgia on Red List and Red Book of Georgia (b) Selection of traffic routes for machinery (restriction of movement outside the route borders) in order to minimize damage of vegetation on the adjacent territories (c) Mechanical equipment should be considered more preferable for vegetation cleaning
	Protection of the animal wildlife	<ul style="list-style-type: none"> (a) Selection of optimal transport movement speed in order to minimize possibility of negative direct impact (collision) on animals (b) Canal must be inspected before launch of cleaning and other types of works, in order to identify animals fallen into it and prevent impact on them (c) Minimal use of directed light at the construction camp for minimization of light propagation (d) Restoration of the adjacent territories after the end of construction works (e) Additionally: proper waste management. Efficient implementation of mitigation measures for water, soil and ambient air quality and other mitigations measures
Visual-landscape Changes		<ul style="list-style-type: none"> (a) Protection of sanitary-environmental conditions in the canal corridor. Proper waste management.
Management of Social Issues	Physical and economic resettlement	<ul style="list-style-type: none"> (a) Physical and economic resettlement of the population from the canal's right of way must be conducted according to the Resettlement Action Plan developed in compliance with the environmental and social policy of the World Bank
	Impact on transport infrastructure, restriction of free movement	<ul style="list-style-type: none"> (a) Selection of optimal, bypass access roads (b) Restriction of the machinery movement on the public roads to the maximum extent possible (c) Maximum restriction of caterpillar machinery movement (d) Provision of population with the information about time and period of works (if necessary) (e) Maximum rehabilitation of damaged road sections, to make it accessible for the population (f) If needed, regulation of traffic by the special personnel.

<p>Nuisance to Local Communities</p>		<ul style="list-style-type: none"> (a) Project works are scheduled beyond irrigation season to the extent possible in order to avoid/minimize service disruption (b) Work site is properly marked and fenced as appropriate (c) No temporary storage of construction materials and waste occurs within cultivated land plots or any type of private property (d) Areas for temporary storage of construction materials and waste allocated so that free movement of traffic and pedestrians is not hindered
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SECTION 3: ENVIRONMENTAL MONITORING PLAN

№	What (Parameter is subjected to the monitoring?)	Where (Is the parameter subjected to the monitoring?)	How (Is the parameter subjected to the monitoring?)	When (define frequency and repeatability)	Why (Is the parameter subjected to the monitoring?)	Cost (if not considered by the project)	Who (Is responsible for implementation of the monitoring?)
CONSTRUCTION PHASE							
1.	PERSONNEL'S WORKING CONDITIONS AND SAFETY: - Workers are supplied with and actually wear uniforms and personal safety gear; - Workers operating complex machinery are trained and licensed; - There are first medical aid kit at the construction camp and at work site; - Contact information for emergency services (medical, fire) is posted on the information board at construction camp and at work site	Construction camp Construction site	Visual observation and interviews with personnel	Recurrent	Prevent damage to health and avoid work-related accidents	Included into the total contract cost	HSE officer of the works contractor
2.	AIR POLLUTION: - Construction vehicles and machinery are in good technical condition that excludes excessive emissions; - Idling of engines disallowed; - Construction materials and waste are transported under cover; - Service roads are sprinkled in hot and dry weather to decrease dust emission.	Work sites (especially ones adjacent to the populated areas)	Visual observation	Recurrent	To minimize disturbance of public and animal wildlife by the dust propagation	No additional costs required	Works contractor though an environmental officer

3.	<p>NOISE:</p> <ul style="list-style-type: none"> - Observe working hours, especially during works within settlements; - Ensure good technical condition of construction vehicles and machinery excluding excessive noise from engines. 	All work sites	Visual observation	Recurrent	Minimize nuisance to local communities and possible disruption of wildlife	No additional costs required	Works contractor
4.	<p>SOIL PROTECTION:</p> <ul style="list-style-type: none"> - Conduct works within the delineated corridor, without spreading over an excessive area around; - Stockpile construction materials and waste in the allocated sites, without spreading over an excessive area around; - For the arrangement of work site, preparation of areas of storage, or earth works, remove fertile topsoil layer and store it separately aside for the use for reinstatement; - Conduct servicing of vehicles and machinery at the service centers if feasible, or in the allocated sites with non- permeable flooring and containment walls. 	All work sites	Visual observation	Recurrent	Avoid pollution of soil and deterioration of its physical and chemical characteristics	No additional cost required	Works contractor through an environmental officer
5.	<p>WASTE MANAGEMENT:</p> <ul style="list-style-type: none"> - Timely permission obtained and agreements concluded with the waste company under the Ministry of Regional Development and Infrastructure and the local municipalities for the final disposal of waste at Kareli and Gori municipal 	<p>Construction camp;</p> <p>Work site</p> <p>Temporary and permanent waste disposal sites</p>	Visual observation	Recurrent	Avoid pollution and deterioration of aesthetic appearance of the work sites and area around them	Costs of waste transportation to the locations of final disposal should be included by works contractor in the bill of quantities	Works contractor

	household and construction waste landfills; - Sites for temporary storage of waste allocated to prevent scattered dumping of waste on and around the work site; - Construction waste is reused or recycled, as feasible (except asbestos-containing materials); - Licensed companies contracted, as available, for removal and recycling of used tires, filters and oils of construction vehicles and machinery; - No open air burning of waste on and off the construction camp and work site allowed.	Transport corridors for waste					
6.	EROSION CONTROL: - If earth works undertaken affect steep slopes, then compaction, terracing, rip-rapping, and/or vegetative stabilization techniques are applied as feasible	Work site with steep slopes	Visual observation	During earth works	Avoid or minimize erosion	Included into the general contract cost	Contractor in agreement with supervising engineer
7.	HANDLING OF CHANCE FINDS: - If chance finds are encountered, take all works on hold, contact Ministry of Culture and Monument Protection, and do not resume works until written permission from the Ministry	Earth work sites	Visual observation; Inspection of correspondence	In case of chance finds	Avoid loss of cultural heritage	Additional cost to be covered from the LMID Project proceeds or the State budget – subject to agreement	Works contractor. Ministry of Agriculture, Ministry of Culture and Monument Protection

8.	<p>PROTECTION OF WATER BODIES:</p> <ul style="list-style-type: none"> - Disallow storage of waste and construction materials near the natural water bodies; - Disallow washing of vehicles and machinery within the river bed or in its immediate proximity; - If servicing of vehicles and machinery is done on-site, arrange special location with non-permeable floor and containment walls; - Establish strict control over workers and personnel to avoid littering of river beds. 	Parts of work sites in the proximity to the natural water bodies	Visual inspection	Recurrent	Avoid deterioration of water quality and disruption of aquatic life in the natural water bodies.	No additional cost	Works contractor through an environmental officer
9.	<p>PROTECTION OF VEGETATIVE COVER:</p> <ul style="list-style-type: none"> - Observe operation of construction machinery to ensure that no unnecessary damage is made to trees and other vegetation; - Disallow uncontrolled movement of construction vehicles and machinery and confine their movement to the existing or provided service roads. - Upon completion of works, undertake final clearing of work sites and their reinstatement to the quazi-original condition to the extent feasible. 	<p>Construction camp</p> <p>All work sites</p>	Visual observation	<p>Recurrent</p> <p>Upon completion of works in each work site</p>	Prevent excessive damage of vegetative cover	No additional cost	Works contractor
10.	<p>MANAGING NUISANCE TO LOCAL COMMUNITIES:</p> <ul style="list-style-type: none"> - Delineate and fence, as appropriate, construction camp and work sites; - Install posters with the name and 	Work sites in the vicinity of settlements and the area around them	Visual observation	Recurrent	Prevent disruption of economic and social life of the sub-project affected communities	No additional cost	Works contractor

	<p>contact information of the work contractor in those parts of work sites that are close to settlements and well visible for people;</p> <ul style="list-style-type: none"> - Explain to local communities duration and scope of planned works; - Avoid or minimize disruption of local traffic and blocking of access as a result of improper storage of construction materials and waste, and the movement of construction vehicles and machinery; - Disallow idling of machine engines, observe working hours, and sprinkle work sites in dry weather. 						
OPERATION PPHASE							
1.	<p>WATER SUPPLY TO USERS:</p> <ul style="list-style-type: none"> - All hydraulic structures and canals of the scheme are maintained in good operating condition; - Water intake is maintained at the designed volume at all times. 	<p>Entire scheme</p> <p>Water intake point</p>	<p>Visual inspection</p> <p>Inspection of water flow measurement records</p>	<p>During water supply season</p>	<ul style="list-style-type: none"> - Prevent congestion of canals, water overflow and waterlogging of areas in proximity to the scheme - Protect river ecosystem and aquatic life 	<p>Operation and maintenance costs included into the annual budgets of UASCG</p>	<p>UASCG</p>
2.	<p>MANAGEMENT OF IRRIGATION WATER QUALITY:</p> <ul style="list-style-type: none"> - Any discharges into irrigation canals are timely identified and terminated; - Dumping of agricultural and household waste into canals timely identified and terminated; 	<p>Along irrigation canals, especially in the vicinity of settlements</p>	<p>Visual inspection</p>	<p>Recurrent</p>	<p>Prevention of water contamination and congestion of canals</p>	<p>Costs of erosion control to be included into annual operation and maintenance budget of UASCG</p>	<p>UASCG and water user associations</p>

	- Possible erosion of canals' banks and nearby slopes timely identified and managed						
3.	IRRIGATION OF SERVICE AREAS: - Water supplied to farms used efficiently, without excess; - Surplus water drained from irrigated fields to avoid water logging;	Service area	Visual inspection Interviews with water users	Recurrent	Service area does not affected with erosion and water logging	Oversight on the water use to be included into annual budgets of water user associations in the sub-project area	Water user associations
4.	INCREASED USE OF PESTICIDES - Pesticides are applied in the farms of improved irrigation service areas safely and in a rational manner; - IPM practices are used to the extent possible.	Service area of target irrigation schemes	Water and soil quality monitoring data of the Environment Protection Agency Data on the occurrence of trace amounts of pesticides in food products from the National Food Agency	Recurrent	- Prevention soil and water pollution; - Ensuring quality and safety of agricultural produce	2,000 GEL from the ILMD Project proceeds State funding or payments to private extension service providers	PPMD through consultant for schemes completed before ILMD Project closing date; National providers of extension services

Annex



Distribution well. pk0+00



Main canal. From pk0+00



Main canal and landfill to its left. pk12+20



Distribution well. pk28+00



pk28+10



pk36+60



Animal shed on the berm of the canal pk37+00



Toilet on the berm of the canal. pk37+30



Shed of domestic animals. pk37+80-pk38+00



pk67+40



Distributor of the v. Variani. pk71+20



Crossing with the railway. pk72+00



Variani distribution well. pk72+50



Distribution well. pk102+10



Main canal. pk104+00



Distribution well. pk115+80



Main canal. pk120+00



Ruins of church on the right berm. pk121+20



Main canal. pk122+00



pk123+00



Landfill. pk131+00



Main canal. pk140+00



Main canal. pk153+40



Main canal. pk154+20



Main canal. pk176+00



Main canal. pk199+70



Toilet on the berm of the main canal. pk252+30



Main canal. pk257+00

Ministry of Agriculture of Georgia

United Amelioration Systems Company of Georgia

Rehabilitation of Main canal, Arashenda Branch, secondary and tertiary distribution canals of Zeda Ru Irrigation Scheme

Minutes of public consultation on Environment Management Plan

Place of meeting: Building of Municipality Governance of the Village Shindisi

Date: 24.03.2015

The meeting was convened by Shida Kartli Regional Director of the UASCG and representatives of regional service of United Amelioration Systems Company of Georgia.

Attendee of the meeting:

Irakli Napetvaridze- Shida Kartli Regional Director of United Amelioration Systems Company of Georgia

Gia Tsverava-Deputy Head of Gori Municipality Governance

Eka Skhirtladze –Specialist of International Projects Service of United Amelioration Systems Company of Georgia.

Ketevan Katsadze –Specialist of PR Service of United Amelioration Systems Company of Georgia

George Bjhalava – Representative of “GAMMA” Ltd

Gabriel Mazmishvili-Director of Design Company “GEO”, the author of the detailed design

Local representatives of United Amelioration Systems Company of Georgia and farmers also attended the meeting. (See app.)

Irakli Napetvaridze greeted the audience and introduced them the aim of the visit. He said that the meeting was convened for the purpose to discuss Environment Management Plan for the design of “Rehabilitation of main canal, Arashenda branch, and secondary and tertiary distribution canals of Zeda Ru irrigation scheme” which would be implemented under the World Bank funding.

Eka Skhirtladze made a brief review of the project and asked the author of the document, representative of “GAMA” Ltd –George Bjhalava to discuss important aspects of Environment Management Plan.

George Bjhalava made a brief review of Environment Management Plan and spoke about number of important issues; arrangement of construction infrastructure; waste management, liabilities of Construction Company towards population.

Number of violations, sanitary-environmental conditions that were detected on the adjacent territory of the beneficiary villages were registered and mentioned in the document.

Irakli Napetvaridze and Gia Tsverava addressed the farmers to participate in waste management. Tsverava said that installation of trash containers in the villages of Gori municipality is planned.

Irakli Napetvaridze said that the Government would be very strict towards any violation and certain fines would be imposed on violators.

G. Bjhalava also spoke about legislation framework, that regulates waste management, rational use of water, protection of soil and atmospheric air, periodic monitoring which would be implemented by different agencies;

Irakli Napetvaridze said that those farmers who owned registered land plots would have benefits in the payment of service fee (payment by installments) and promoted farmers to register land plots.

Farmers said that there were number of problems in land registration and asked representatives of the municipality to assist them in the aforementioned issue.

Question: Is it possible to engage locals in construction-rehabilitation of the scheme?

Answer: it'll depend on the decision of the construction company (winner of the tender).

Question: will rehabilitation cause increase of water service fee?

Answer: No increase of water service fee is envisaged at this stage.

Several questions were raised with respect to payment terms and coincidence of rehabilitation with irrigation season;

Environment Management Plan was published on the official webpage of United Amelioration Systems Company of Georgia. Printed version of the document was available for any interested person in the regional office of the Company. Locals were informed about public discussion via posted announcements in the villages (announcements were posted on March 18, of the current year).



საქართველოს იურიჯაციისა და მიწის ბაზრის განვითარების პროექტი (GILMIP)
 ვარემოზე გეოქოქიმელების მართვის გეგმის საჯარო განხილვა
 გედა რუს საინჟინერო სისტემების რეაბილიტაცია

თარიღი:

#	სახელი და გვარი	მოქალაქე/ორგანიზაცია	მისამართი	საკონტაქტო ინფორმაცია (მობ. ტელეფონი)	ხელმოწერა
1	გიორგი შერვაშიძე	საქართველოს იურიჯაციის განყოფილება		599 43 35 54	
2	ანდრეი ვეშტაძე	საქართველოს იურიჯაციის განყოფილება		599-98-05-82	
3	გიორგი ვატიშვილი	საქართველოს იურიჯაციის განყოფილება		598-38-78-87	
4	ანდრეი შავაძე	საქართველოს იურიჯაციის განყოფილება		591-41-74-73	
5	ვიქტორი ტონაძე	საქართველოს იურიჯაციის განყოფილება		599-85-30-68	
6	ხადგე ხოცოყვანიძე	საქართველოს იურიჯაციის განყოფილება		599-85-44-21	
7	თამარ ვაჭანაძე	საქართველოს იურიჯაციის განყოფილება		577-50-50-43	
8	სანდრო ჯორჯაძე	საქართველოს იურიჯაციის განყოფილება		551-137-167	
9	გიორგი ლომიძე	საქართველოს იურიჯაციის განყოფილება	სოფ. ხაშვი	599 360 346	
10	მის ინფორმაცია	საქართველოს იურიჯაციის განყოფილება	სოფ. ხაშვი	595 603 940	
11	მის ინფორმაცია	საქართველოს იურიჯაციის განყოფილება	სოფ. ხაშვი	557 139 150	
12	მის ინფორმაცია	საქართველოს იურიჯაციის განყოფილება	სოფ. ხაშვი	599 566 244	
13	მის ინფორმაცია	საქართველოს იურიჯაციის განყოფილება	სოფ. ხაშვი	598 368 468	
14	მის ინფორმაცია	საქართველოს იურიჯაციის განყოფილება	სოფ. ხაშვი	557-21-0277	
15	მის ინფორმაცია	საქართველოს იურიჯაციის განყოფილება	სოფ. ხაშვი	599-78-80-57	
16	მის ინფორმაცია	საქართველოს იურიჯაციის განყოფილება	სოფ. ხაშვი	599 48-45-49	
17	მის ინფორმაცია	საქართველოს იურიჯაციის განყოფილება	სოფ. ხაშვი		

18	Զոմեթոս սեզոնային	ՅՅԼ. Լ.Ղ.115				
19	Զոմեթոս ծխախոտային	ՅՅԼ. 13115				
20	Ընդհանուր 1356 ուժ	ՅՅԼ 13115				
21	Ընդհանուր ժողով	ՍՊԿՍԿ - Կոնյուկտ Լճային - Կոնյուկտ Լճային - Կոնյուկտ	Կ.Կ.Զո	577080180		
22	Կոնյուկտ շեղանկային	Կոնյուկտ - Կոնյուկտ Լճային - Կոնյուկտ	Կ.Կ.Զո	577080161		
23	Կոնյուկտ շեղանկային	Կոնյուկտ - Կոնյուկտ Լճային - Կոնյուկտ	Կ.Կ.Զո	577080204		
24	Կոնյուկտ շեղանկային	Կոնյուկտ - Կոնյուկտ Լճային - Կոնյուկտ	Կ.Կ.Զո	577080159		
25	Կոնյուկտ շեղանկային	Կոնյուկտ - Կոնյուկտ Լճային - Կոնյուկտ	Կ.Կ.Զո	599436358		
26	Կոնյուկտ շեղանկային	Կոնյուկտ - Կոնյուկտ Լճային - Կոնյուկտ	Կ.Կ.Զո	591516904		
27	Կոնյուկտ շեղանկային	Կոնյուկտ - Կոնյուկտ Լճային - Կոնյուկտ	Կ.Կ.Զո	591011404		
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