

Armenian Water and Sewerage CJSC

**Reconstruction of water supply systems
of town Masis and nearby 4 villages**

ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

TABLE OF CONTENT

1. PROJECT DESCRIPTION.....	1
1.1 Introduction.....	1
1.2 Description of the water supply and wastewater systems of the settlements.....	1
1.3 Current condition of water supply structures	2
1.4 Description of the works proposed under the design	3
2. BASELINE ENVIRONMENTAL DATA	5
2.1. Geography and Climate	5
2.2 Natural Environment	5
3. ENVIRONMENTAL IMPACT AND MITIGATION MEASURES.....	7
3.1 Environmental Impacts.....	7
3.2 Social Impacts	9
3.3 Institutional Framework for Environmental Management	12
4. DELIVERABLES	13
5. ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN.....	14

ANNEXES

Annex 1	Environmental management matrix
Annex 2	Minutes of public discussions
Annex 3	List of participants

The Environmental screening outcome for the project on “Reconstruction of water supply systems of town Masis and nearby four villages” is its attribution to the environmental Category B (according to the WB OP/BP 4.01 Environmental Assessment)

1. PROJECT DESCRIPTION

1.1 Introduction

The project aims at improving water supply to Masis town and nearby villages. The detailed design (hereinafter DD) for the Reconstruction of Water Supply Systems of Masis Town and Nearby Seven Villages was commissioned by AWSC, prepared by SCE-JINJ JV, and paid from the proceeds of the World Bank loan and the RA GoA co-financing. Due to cost implications, three of the seven villages had to be dropped at a later stage of the project preparation. Despite this decision, works to be undertaken for upgrading water supply system serving town Masis and the four nearby villages of Ayntap, Darbnik, Dashtavan, and Hayanistwill contribute to certain improvements for the villages of Marmarashen, Arbat, and Azatashen dropped from the project work plan and will bring about a major positive changes for the entire area of Masis.

The final DD carries measures for the improvement of water supply systems of town Masis and villages Ayntap, Hayanist, Darbnik, and Dashtavan.

1.2 Description of the water supply and wastewater systems of the settlements

Currently water supply to town Masis and 16 villages of the region is carried out through the new pumping station constructed at 12.0km distance from the Araratyan I and II stage pumping station, from 5 flowing artesian wells (3 of them being operational, and 2 of them reserve) with total discharge of about 500l/s.

From the artesian wells water is supplied to a general $\varnothing 1000$ - $\varnothing 1400$ collecting water main through which water is supplied by gravity to the 400m³ capacity reservoir constructed nearby the new pumping station, where chlorination takes place by means of modern equipment of ALLDOS production (see Scheme 1 of the external system).

All of the operating 4 artesian wells are in poor condition, buildings are in emergency situation, all valves need replacement, sanitary zones are missing or in a sad condition.

Water supply to town Masis is presently implemented from Kharberd DRRs, except Kayaran district, water supply to which is implemented from the $\varnothing 500$ pressure pipeline from Masis newly built PS to Norabats DRR.

Town Masis has had a wastewater system, through which the town's wastewater has been collected and transported through the main collector to the wastewater treatment plant operating within the administrative area of town Masis. Currently this system is in deteriorated condition;

the collector coming out the town is clogged; wastewater flows out of different parts of the town and discharged into the drainage system for ground water around the town, polluting groundwater.

Because of frequent breakdowns in the wastewater system, anti-sanitary conditions are generated in different districts of the town.

The wastewater treatment plant of Masis town is technically deteriorated and depreciated.

Water supply to village Ayntap is implemented from Kharberd DRRs, through the water main from Masis PS to Norabats DRRs, and for water supply to “Sharqer” district, by whole sale from “YerevanDjur” CJSC.

Water supply to villages Hayanist, Dashtavan, and Darbnik is implemented from the gravity pipeline of Norabats DRRs.

The villages do not have wastewater systems. The population use dry pit toilets.

1.3 Current condition of water supply structures

External system

- Operating artesian wells’ houses are in emergency condition, fences of sanitary zones are missing, distribution nodes and all valves are in a poor condition, there are no flow meters on the artesian wells.
- DRR of the 400m³ capacity newly built nearby the PS and the PS itself are in a good condition, however the administrative part of the PS building needs some repair works.
- Upward the village Kharberd at 921 m altitude 2x2000m³ capacity DRRs are located, which cover an area of about 1.5 ha, fenced with metal fence and are in a good condition from inside. However their covers are deteriorated and the manholes and SIFs are in a bad condition. The DRRs are partially diked; in some of the open segments of walls concrete is destroyed and reinforcement is corroded; soil-vegetative layer on the DRRs is 15-20cm thick.
- The guard house in inside the sanitary zone area, which is infringement of sanitary zone protection rules.
- The dry chamber of the DRRs does not have door, plaster of internal walls is deteriorated in some places, all valves and pipes are in a bad condition. Before leaving the DRRs’ area there is a half-buried distribution node on the water main. From this distribution node through Ø500 water main water is supplied to Masis town; through Ø200 water main water is supplied to Ayntap, and through another Ø200 water main – to Nor Kyurin, Marmarashen, Jrahovit, Arevabuyr villages. The distribution node does not have door and all valves are in a bad condition.

Internal network

Water supply distribution network of **Masis town** is about 25km, implemented from 50-200mm metallic and polyethylene pipes, around 11.0km long segment of which has been replaced with new pipes. The non-repaired part of the network is in a sad condition and it is impossible to

provide sufficient pressures. The main reason of the network deterioration is of its being implemented of metal pipes.

Within the ADB funded “Water and Sanitation Project” some water lines were reconstructed and constructed, inlet lines of private houses were replaced in villages **Ayntap and Dashtavan**, there are still problems needing solution. The deteriorated cast iron and steel pipes of the network need replacement.

The distribution network water lines in villages **Hayanist, Azatashen and Darbnik** are in a sad condition, which causes frequent breaks and leakage in the network.

1.4 Description of the works proposed under the design

Improvement of external water supply system

Artesian wells

The DD plans repair of 3 operating artesian wells, from where water supply to town Masis and 16 villages is currently implemented, as well as full renovation of 1 reserve artesian well.

It is planned to destroy the №1 artesian well building and to construct a new one instead; to dismantle all valves and fittings inside the well building and install valves of outlet and discharge pipes inside the newly designed well building. It is planned to correct and strengthen the panels of the wall of sanitary zone and to strengthen the metal gate.

In the artesian well № 2renovation of the existing building, dismantling of the outlet chamber, dismantling of all valves and fittings existing in the outlet chamber, destruction of the 1.5m high concrete reservoir constructed in the past for water metering purpose is planned.

In the artesian well № 3renovation of the existing building, dismantling of the outlet chamber, dismantling of all valves and fittings existing in the outlet chamber for their further installation inside, destruction of the concrete reservoir constructed in the past for water metering purpose is planned.

Within the sanitary zones of the artesian wells № 2 and № 3it is planned to dismantle the panels of the existing fences and all support columns, implementing new metal fences, retaining the boundaries of the existing sanitary zone.

To make water metering in all of the mentioned artesian wells construction of water metering chambers is planned within the areas of the sanitary zones.

Masis pump station

Installation of one additional pump near the ones installed in the pump room pumping to Norabats DRRs, which will provide 24-hour pumping of water to Norabats DRR is planned.

Kharberd2x2000m³DRRs

The following is planned: repair of the dry chamber of the DRRs, replacement of pipes and valve nodes. installation of the valves of the water mains supplying town Masis and the villages in the dry chamber, decommissioning the existing distribution node existing in the area, construct a water metering node nearby the dry chamber, installing el. magnetic flow meters on the water mains supplying town Masis and the villages, dismantle the distribution node nearby the DRR's area, the water metering node existing in the area and the over ground half-destroyed valve node, separate the residential house existing within the DRRs sanitary zone area.

Water mains

The DD plans:

- To replace 1.0km long emergency segment of the 500mm water main supplying Masis town from Kharberd DRRs with polyethylene 400mm pipeline;
- To construct about 1.4km long de280 PE water main from Kharberd DRRs to Ayntap;
- To lay about 0.9km long new water main from de225 PE pipes near the inlet line of village Hayanist; the new pipe will be laid in parallel to river bed.

Improvement of water supply system

Town Masis

- Laying of new about 14.0km long de315-de40 polyethylene water lines of the distribution network;
- Reconstruction of inlet lines of 600 private houses in the town by de40, de32, de25 and de20 PE about L=5.94km long pipes and construction of water metering chambers;
- Construction of inlet lines of 39 multi-apartment buildings with PE de110 and de63 pipes of about L=1.25km total length with their buried valve nodes;
- For control of the distribution network construction of 4 water supply 8 water metering wells and 41 buried valves.

Village Ayntap

- Laying of new about 14.4km long de280-de40 polyethylene water lines of the distribution network;
- Reconstruction of inlet lines of 1300 private houses in the town by de40, de32, de25 and de20 PE about L=10.8km long pipes and construction of water metering chambers;
- For control of the distribution network construction of 4 water supply wells and 49 buried valves.

Village Hayanist

- Construction of L=0.9km new main, 1 water supply, 1 outlet, 1 air vent chamber;
- Laying of new about 9.1km long de225-de40 polyethylene water lines of the distribution network;
- Reconstruction of inlet lines of 631 private houses in the town by de32, de25 and de20 PE about L=5.6km long pipes and construction of water metering chambers;

For control of the distribution network construction of water supply chambers and 31 buried valves.

Village Darbnik

- Laying of new about 5.5km long de110-de32 polyethylene water lines of the distribution network;
- Construction of inlet lines of 2 multi-apartment buildings with PE de63 pipes of about L=24.0km total length with their buried valve nodes;
- For control of the distribution network construction of 3 water supply, 2 water metering wells and 16 buried valves.

Village Dashtavan

- Laying of new about 3.8km long de110-de32 polyethylene water lines of the distribution network;
- Reconstruction of inlet lines of 245 private houses in the town by de32, de25 and de20 PE about L=1.3km long pipes and construction of water metering chambers;
- For control of the distribution network construction of 3 water metering wells and 9 buried valves.

Thus, for improvement of water supply systems of town Masis and villages Ayntap, Hayanist, Darbnik and Dashtavan the following works are planned (see Table 1).

Improvement works proposed under the design

Table 1.

Name of community	Water main km	Internal network km	Water supply chamber and valve node, piece	Water metering chamber and valve node piece	Water metering node for private house piece	Inlet line of private house km
Masis	1.0	14.0	45	8	(600+39*)	(5.94+1.25*)
Ayntap	1.4	14.4	53	2	1300	10.8
Hayanist	0.9	9.1	32	3	631	5.6
Dashtavan	-	3.8	9	3	245	1.3
Darbnik	-	5.5	19	2	(304+2*)	(1.97+0.024*)
Total	3.3	46.8	158	18	(3080+41*)	(25.61+1.274*)

**inlet lines of multi-apartment buildings*

2. BASELINE ENVIRONMENTAL DATA

2.1. Geography and Climate

Town Masis and villages Ayntap, Hayanist, Darbnik and Dashtavan are located in north-west part of Ararat marz. These settlements are located at 5 to 7km distance from Yerevan.

The region has dry, continental climate with cold winters and hot summers.

The absolute maximum air temperature is 40°C, and the absolute minimum air temperature is -30° C.

Annual precipitation is 306mm, north and north-eastern winds of 3.0m/sec velocity predominate here. During 20 years winds of 28m/sec velocity are possible. Snow cover thickness reaches 45cm.

Maximum land freezing depth is 70cm.

The residential areas are located at 828-895m altitudes.

From seismo-tectonic point of view, the area is located within the boundaries of Yerevan intermountain depression. According to the RA CC II-6.02-2006, the region is located in III (third) seismic zone. Soil condition coefficient of the area (K0) will be 1.2. The area design seismicity with expression of maximum acceleration coefficient (g) will be 0.48g.

From hydro-geological point of view, the region is water abundant. There are high horizons of underground and pressure waters.

2.2. Natural Environment

From geomorphologic point of view the region is located within lacustrine-cumulative Ararat valley, in its central part. The surface is flat, with slight south-east gradient to rivers Araks and Vedi.

From hydro-geological point of view, the region is water abundant. There are a number of horizons, both upper waters and deep located pressure waters. Underground waters (I horizon) have weak local pressure, level fluctuations are in a range of 0.5-1.m. Because of high groundwater table, some parts of the region are swamped and water logged. To drop the groundwater table an “open” drainage system was established in the region, through canals and pipelines.

In Ararat region brown earths poor in humus, saline-alkaline lands are dominant, in lower floodplains - wetlands and swamps.

The landscape is of semi-desert type. There are desert sectors as well. Semi-desert dead standing plant species dominate here. In lower swamped areas, canes are spread. Common animal species are wild boar, wild cat, and otter. There are many reptiles and insects.

The marz area is located within Yerevan and Geghama floristic regions. Yerevan floristic region includes 140 unique and endangered and 36 endemic species of Armenian flora. Geghama floristic region includes 24 unique and endangered and 20 endemic species. From the species recorded in the Red Book of plants of Armenia, the following species of saline and semi-desert lands occur within the marz's area: Ghenopodiaceae, Alhagipseudoalhagi, Amberboailjiniana, Tamarixoctandra.

Town Masis and the villages do not have cultural, archeological or historical-cultural heritage. The information was obtained as a result of preliminary survey with village heads.

3. ENVIRONMENTAL IMPACT AND MITIGATION MEASURES

Below is the description of the possible positive and adverse impacts on environment and human health, and mitigation measures for the latter during implementation of the project and the operation of water system.

3.1. Environmental Impacts

As a result of the environmental screening it was identified that positive and adverse impacts on environment and human health are possible during the project implementation. Among the possible positive impacts are:

- reducing water loss,
- increasing water consumption efficiency by introducing water metering system,
- providing sustainable water use,
- increasing duration of water supply to population,
- providing high quality of drinking water,
- reduction of water pollution hazard, and
- excluding penetration of infectious disease viruses into drinking water.

The environmental screening identified that in the area of water supply systems improvement no irreversible adverse impact is anticipated on landscapes, flora and fauna.

The possible adverse impacts are mainly related to the construction works, thus they are limited and short-term. Within the framework of the project environmental management and monitoring plan (EMMP)(see Annex 1) was developed, which provides mitigation and preventing measures for adverse impacts.

EMMP is included in the bidding document. It is subject to compulsory implementation by constructor, controlling and supervising units.

Based on the initial assessment, the following adverse environmental and health impacts can be expected during the project implementation:

- air pollution and noise from construction vehicles and machinery,
- noise and vibration,
- soil erosion and sediment transport,
- environment pollution with household and construction waste,
- land and water resources pollution with fuels and lubricants, and
- land and water resources pollution with chlorine.

Air pollution

To prevent air pollution, closed trucks are to be used during transportation of dusty construction material, the construction site is to be regularly watered and kept in humid condition, to exclude dust during wind and operating of machines. In case it is impossible to avoid dust during the works, the workers shall be provided with protective masks.

Noise and vibration

To reduce the adverse impact of noise and vibration, usage of machines/equipment with extra noise is to be avoided; the construction equipment condition is to be checked on a regular basis and not allow the noise exceed the allowable standard.

Construction work should be performed during normal business hours, otherwise, according to the established procedure, install silencers.

The workers working with noisy equipment shall be provided with protective devices(headphones).

Soil erosion and sediment transport

In inclined sites of the water line route implement measures for retaining the inclinations to prevent soil erosion and sediment transport; minimize the time during which trench and pit excavations for regulation and metering nodes are open.

Rehabilitate disturbed surfaces after completion of construction activity, according to the design:

- backfill of land areas;
- recover the asphalt-concrete cover in the streets in a good condition;
- build compacted earth layer in streets with deteriorated asphalt-concrete streets and earth streets.

Environment pollution with construction and household waste

Before starting the construction, the Contractor must gain from the local authorities the appropriate written consent of disposing the construction waste and remaining soil in the allotted landfill site. During the construction the Contractor shall install bins for household waste and regularly remove the household and construction waste to sites allotted for them. After the construction completion the Contractor shall organize disposal of construction waste to the sites

allotted for the purpose of waste accumulation, according to the established order.

Soil and water pollution from machinery servicing

To exclude land and water resources pollution with fuels and lubricants, the latter must be stored and handled on a sealed surface covered with absorbent material, away from water resources, plan use of special tanks for their collection, which will then be removed to special sites envisaged for re-treatment. As a result of machinery works in case of oil and lubricants leakages polluted soil layer should be removed.

Soil and water pollution with chlorine

To exclude land and water resources pollution with chlorine, organize works for washing the water supply distribution network with chlorine, according to technical calculations. Provide appropriate technical means; implement chlorine discharge to surface water body or land area after washing the pipes, according to the Methodical Guidelines for Sanitary Control and Technical Exploitation of Water Pipes. The Methodical Guidelines provide for the safe disinfection of water pipes and dosage calculation for the solution of calcium hypochlorite which is sufficient for avoiding negative impact on the environment. During disinfection of pipes the solution of calcium hypochlorite is added until free chlorine concentration in the water at the end of pipe line is 50% of the given doses. Then, it is necessary to ensure 5-6 hours of chlorine contact and wash pipes until residual chlorine concentration will be 0.3-0.5 mg/l.

Protection of river Hrazdan against pollution

Both rehabilitation of artesian wells and the construction of the new water main for Hayanist village will be implemented in the areas located on both banks of the river Hrazdan. Special attention will be paid to the protection of the waterway and the river banks. This will include close supervision of works to prevent dumping of the construction and household waste into the river bed, prevention of vehicle and machinery servicing and fueling in proximity to the river, water pollution with chlorine due to improper application of disinfection methodology. Earth works will be carried out in the way minimizing erosion of river banks and increase turbidity of the water flow.

3.2. Social Impacts

The implementation of this project will have positive social impacts on the population of the beneficiary communities. It will directly improve the quality of life of the population in Masis town and 6 rural communities of the region (mediated also in 10 communities) by ensuring reliable water supply and efficient use of water resources for about 42 thousand people.

Below table indicates that as a result of project implementation no impact is envisaged on the land and property of the owners, as well as on the crops and trees. The vulnerable groups will not be adversely affected either, the access of the households to their premises will not be limited. No impact on historical and cultural monuments is anticipated.

Social safeguards screening information

#	Impact	Yes	No	Remarks
1	Will the project reduce people's access to their economic resources, like land, pasture, water, public services or other resources that they depend on?		V	
2	Will the project result in resettlement of individuals or families or require the acquisition of land (public or private, temporarily or permanently) for its development?		V	
3	Will the project result in the temporary or permanent loss of crops, fruit trees and Household infrastructure (such as granaries, outside toilets and kitchens, etc)?		V	
4	Will the project require excavation near any historical, archaeological or cultural heritage site?		V	
5	Might the project adversely affect vulnerable people (e.g., elderly poor pensioners, physically challenged, women, particularly head of Households or widows etc) living in the area?		V	

As a result of the project the following positive social impacts are expected:

- Providing regular and stable water supply,
- Improving drinking water quality,
- Reducing risks of spread of water-borne diseases,
- Improving household work conditions for women,
- Enabling water users to track and manage water consumption.

Negative social impacts of the project may arise during construction, which however can be mitigated through correct organization of the construction process.

The negative social impacts are:

Traffic congestion

To reduce disturbance to population because of overloaded roads the Contractor shall correctly organize the construction process, providing a safe area for trucks; waste on the construction site must not be accumulated and burnt, construction in stages, give adequate notice of construction activities must be given to the population, effective road signs, diversions or barricades are to be provided.

Noise disturbance

To prevent nuisance from noise, night work in residential areas is to be limited, and usage of machines/equipment with extra noise is to be avoided; installation of silencers if needed.

Accident prevention

To prevent hazards for workers and the population during the construction, the following must be implemented: install fencing around construction site; control access of unauthorized persons to site; place warning signs in dangerous places; carry out regular examination of equipment by highly qualified staff, as well as make regular safety audits; provide first aid and safety training to Contractor staff.

Water quality assurance

During the construction pipes shall be transported in closed condition from both sides, to exclude presence of different materials and often also animals inside them. After installation they must be washed and disinfected (SNiP2.04.02-84*- Water supply of external network and structures), and only after that connected to the water supply network.

To provide drinking water quality in Masis town and the communities, AWSC will implement planned sampling of water from the artesian wells, checking all the parameters required by the Ministry of Health. Water quality monitoring is carried out also by National Hygiene and Anti-Epidemiological Surveillance Inspectorate according to “Drinking Water: Requirements to the Centralized Water Supply System’s Water Quality”; Quality Control № 2-III-22-1 sanitary rules and norms” (registered on 28.12.2002), document, which establishes the requirements to the drinking water quality, as well as the rules for quality control of water produced and supplied to residential areas through water supply systems.

In general, water of artesian wells meets the requirements to the drinking water quality established by the RA Ministry of Health. However, water disinfecting is required and since it is made by chlorinating, the monitoring of residual chlorine in drinking water is also very important.

Impact on community owned agricultural land

The project includes renovation of some elements of the water supply system as well as reconstruction and construction of new water mains. The preliminary design provided that some segments of water main routes would pass through the privatized land areas, and some parts would pass through community owned agricultural lands. However, under the detailed design, having the purpose of avoiding violation of land areas used for agricultural purposes, it was planned that a segment (0,4km) of the water main feeding village Hayanist (about 0.9km) would pass along the field road of village Darbnik. The other 0,5km long segment of the water main passes along the border of cultivated land plots of Dashtavan village under the community ownership. At the design stage consents of the village mayors of Dashtavan and Darbnik were obtained for laying the pipeline along the identified alignment. Copies of consent letters are attached in the design documents for reconstruction of water supply systems of town Masis and nearby 7 villages (Book 1, General Provisions, Drawing sheets 4-5 and 5-5). Constructors will be fully informed about the terms of the consent letters to adhere two during construction.

3.3. Institutional Framework for Environmental Management

The organizational obligations for the proposed mitigating measures are distributed among the following agencies:

❖ *Agencies responsible for obtaining permits for project implementation*

1. At the **design stage**, prior to commencement of works, the Consultant (SCE and JINJ LLC, JV) obtained the required agreements, consents and permits from the State and local authorities, including:

- Written consent of village administration related to community land allotment during the construction works (for Darbnik and Dashtavan villages);
- Written consent from the local self-governing authorities for the sites allotted for transportation remaining soil and construction wastes,
- Written consent for crossing the infrastructures/communications (gas pipes, electric and telecommunication cable, water pipes) from utility operators.

Upon commencement of construction works, AWSC CJSC shall obtain the following permits and certifications:

- Construction permits
- Architectural and Planning Assignment

2. At the **construction stage** Contractors will be responsible for physical implementation of mitigating measures planned under the EMMP and for obtaining any additional permissions/consents if a need for such documents emerges during construction. This includes, but may not be limited to the obtaining permission from the State Agency for Protection of Historical and Cultural Monuments in case of encountering chance finds in the course of earth works.

❖ *Supervising agencies, which are responsible for controlling the executive units to provide implementation of the EMMP measures by the latter*

- According to the requirements of the national legislation, AWSC CJSC hires a Licensed TSC to provide technical supervision of works, including environmental monitoring. Licensed technical/environmental supervision organizations will implement control of in time, due and reliable implementation of mitigating measures during the construction, prepare regular reports and submit to the Client.
- AWS CJSC/environmental and social impact specialist will be responsible for timely, due and reliable implementation of the works and measures in the order under the

EMMP. The mentioned specialists will regularly visit the construction sites to provide due implementation of the measures aimed at mitigation of work impact. During the visits the possible shortcomings and omissions will be identified in implementation of mitigating measures and infringement by the Contractor during construction will be discovered. AWSC's environmental and social impact specialist oversees performance of the TSC for the purpose of quality assurance, which implies review of TSC's monthly reports and validation of the provided information.

The AWS CJSC has the right also to require and check whether all permits are available and valid, all the measures and monitoring part under the EMMP are implemented during the construction, in accordance with the WB environmental guidelines and the RA environmental and social legislation.

❖ Monitoring agencies, which are responsible for observing the extent and efficiency of EMMP implementation and imposing adjustments as required

- SCWS, through its CMMU, while providing general oversight and support of the MWP implementation, tracks performance of works contractors, including application of the environmental mitigation measures included in EMMPs, which are integral part of civil works contracts.

❖ *State monitoring agencies, which are responsible for observing the extent and efficiency of EMMP implementation and making adjustments as required*

- State Environmental Inspectorate of the Ministry of Nature Protection,
- State Hygiene and Anti-Epidemiological Inspectorate
- The State Agency for Protection of Historical and Cultural Monuments, if needed,
- The RA local self-governance bodies,
- The RA Ministry of Transport and Communication.

4. DELIVERABLES

In the construction phase of the project implementation the selected licensed technical supervision/TSC company shall implement also the environmental control according to the EMMP. The environmental supervisor shall submit a monthly report to AWSC on the result of the visits and made observations until the 5th day of the next month.

The report shall be submitted in Armenian and English and must include explanatory part, photos and tables.

Based on the monthly reports, as well as observations made by it, the AWSC will submit a quarterly report to the State Committee of Water Systems.

The report shall be submitted in Armenian and English and must include explanatory part, photos and tables.

AWSC shall submit the environmental reports to the World Bank according to the conditions provided by the Contract.

5. ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

The EMMP will be based on the results of environmental screening under the investment program and will include appropriate mitigation measures.

EMMP consists of two components:

1. Mitigation measures and institutional responsibilities for implementation;
2. Environmental monitoring.

The **Contractor** should strictly follow the environmental mitigation measures prescribed in the EMMP. The costs foreseen for the implementations of all the measures prescribed in the EMMP are included the total value of the Contract and reflected in the bill of quantities.

Notice on the failure to implement measures prescribed by the Technical Supervision Company (TSC) or the Client would be sent to the **Contractor** in written. After the Notice to Correct, the next recorded violation would trigger charging of liquidated damages in the amount of 0,1% of the total value of the contract. The liquidated damages do not relieve the Contractor from remedying the violation. The recorded violation should be remedied in two working days period. Liquidated damages would be retained from the next Performance Certificate and after the completion of the construction activities the liquidated damages for the recorded violation will be retained from the Retention Money. In case of three liquidated damages the Contract could be terminated unilaterally.

Above described remedies of EMMP violation will be included in the contracts for provision of works concluded by AWSC under the MWP.

The environmental management matrix is presented in Annex 1.

The Minutes of Public discussion on EMMP in the project implementation area is provided in Annex 2, and the list of participants – in Annex 3.

Attachment I: ENVIRONMENTAL MANAGEMENT MATRIX

<i>Expected Impact</i>	<i>Mitigation measures</i>	<i>Monitoring indicator</i>	<i>Monitoring method</i>	<i>Monitoring duration</i>	<i>Executing agency</i>	<i>Supervising agency</i>	<i>Estimated Cost</i>
DESIGN STAGE							
Disruption of the natural and urban landscapes and loss of biodiversity	Selection of routes of water mains and internal network taking into account engineering-geological conditions of the area, minimizing the adverse impact on natural and urban landscapes.	Presence of instructions in design documents	Review of design documents	Upon delivery of draft design documents	Consultant	AWSC, LSGB	
	Instructions provided for washing and disinfecting the water main and the network with chlorine, with reference to formal guidelines.						
Activation of land erosion and landslide process	Selection of routes of water mains taking into account engineering-geological conditions of the area	Sensitivity of design to geological conditions of the project site	Review of design documents	Upon delivery of draft design documents	Consultant	AWSC, CJSC, LSGB	
CONSTRUCTION STAGE							
Costs of implementation of all mitigation measures will be included in the total Contract value and reflected in the bill of quantities							
Construction and household wastes (garbage) accumulation and transportation	On-site collection of waste in the designated locations and timely out-transportation to the destinations of final disposal	Construction sites free of litter and scattered construction waste	Site inspection	During construction works	Contractor	TSC, AWSC, CJSC	

	Obtaining written consent for disposal of construction waste from local self-governing bodies	Presence of waste disposal permission	Inspection of documents at Contractor's office	Before commencement of construction works	Contractor		500AMD/m ³ * included in cost estimates
	Waste disposal to the formally designated locations	Absence of large volumes of the household and construction waste at the construction site Absence of waste on site upon completion of construction	Field visit	During construction Prior to hand over of the completed works	Contractor	TSC, AWSC CJSC	
Generation of dust	Dust emission from transportation of construction materials	Use of closed/covered vehicles for transportation of powdery construction materials	Field visit	During construction	Contractor	TSC, AWSC CJSC	
	Regular watering of construction sites in populated areas	No excessively dusty conditions on-site	Field visit	During construction	Contractor	TSC, AWSC CJSC	10 AMD/m ²

Contamination of soil and water with fuel and lubricants	Storage and application of fuel/ lubricants in the conditions excluding spillage and leakage	Area allocated for storage and application of fuel/lubricants insulated and confined No fuel and/or lubricant spills observed on-site	Field visit	During construction	Contractor	TSC, AWSC CJSC	
	On-site storage and storage and safe disposal of used lubricants and their removal to designated disposal sites or recycling facilities	Presence of containers for storing used lubricants Presence of formal arrangements for disposal or hand over of used lubricants	Field visit, Inspection of documents	During construction	Contractor	TSC, AWSC CJSC	
Noise and vibration	Limiting of construction works to working	No excessive noise out of working hours No complaints from affected communities	Field visit, Consultation with affected communities	During construction	Contractor	TSC, AWSC CJSC	
	Technical condition of construction vehicles and machinery	Absence of excessive noise from engines No complaints from affected communities	Field visit	During construction	Contractor	TSC, AWSC CJSC	

Safety of pedestrians and traffic in and around construction sites	Installation of appropriate road signs and provision of temporary by-pass arrangements as required	No disruption of traffic and no constraint for pedestrian access	Field visit, Consultation with affected households	During construction	Contractor	TSC, AWSC CJSC	
Impact on archaeological monuments	Immediate termination of earth works in case of chance finds and prompt communication to the Agency of Protecting Cultural Heritage	No damaged archaeological items	Field visit	During construction	Contractor	TSC, AWSC CJSC, RAMC	
Landscape degradation and soil erosion	Separate storage of top soil and its restoration upon completion of construction works	Top soil stored in separate piles Top soil re-deposited over the construction site	Field visit	During construction	Contractor	TSC, AWSC CJSC	
	Timely backfilling of excavated trenches	No trenches left open for excessive periods of time	Field visit	During construction	Contractor	TSC, AWSC CJSC	
	Installation of gabions for laying pipelines in the sloped terrain	Presence of gabions	Field visit	During construction	Contractor	TSC, AWSC CJSC	
	Harmonization of construction sites with landscape promptly upon completion of works	Construction site restored to quasi-original condition to the permissive extent	Field visit	Prior to hand over of constructed infrastructure	Contractor	TSC, AWSC CJSC	

Environment pollution with chlorine use for disinfection of newly constructed pipelines	Prevention of release active and highly concentrated disinfectants to nature	Deactivation and delusion of chlorine prior to release of disinfectant to nature	Field visit	During disinfection of pipelines	Contractor	TSC, AWSC CJSC	
HEALTH AND SAFETY OF WORKERS, CONSTRUCTION STAGE							
Costs included in the unit costs of works							
Workers' exposure to dust and noise	Provision of protective gear (masks, ear phones) to workers for the use industry and noisy environment	Workers equipped with- and wearing protective gear	Field visit	During construction	Contractor	TSC, AWSC CJSC	
Maintenance of work site and work camp (if existing)	Provision of water, sanitation, and household waste containers on work site	Satisfactory sanitary conditions	Field visit	During construction	Contractor	TSC, AWSC CJSC	
Safety of construction machinery	Standard technical condition of construction machinery formally certified	Presence of positive expertise reports for operating cranes and other machinery deployed at the construction site	Inspection of documents at Contractor's office	During Construction	Contractor	TSC, AWSC CJSC	
Conduct of excavation works	Demarcation of open trenches and other dig-outs	Open trenches and other dig-outs demarcated	Field visit	During Construction	Contractor	TSC, AWSC CJSC	

Conduct of earth works in sites with asbestos pipes currently in operation	Accurately demarcate location of asbestos pipes and excavate cautiously along the marked area to avoid contact with existing pipes. In case of unintended unearthing of asbestos pipes, immediately backfill the dug-out area, compact soil, and place warning signs.	Respectively marked asbestos pipe location	Field visit	During Construction	Contractor	TSC, AWSC CJSC	
Preparedness for accidents at work site	Provision of the first aid medical kits and fire-fighting equipment	The first aid kits and fire-fighting equipment present on site	Field visit	During Construction	Contractor	TSC, AWSC CJSC	
OPERATION STAGE							
Safety of staff involved in chlorination processes ¹	Continuous control of chlorination stations Training of operators (conducted by HTH tablets providers) Provision of protection and emergency response equipment for operators	No health damage of operators of chlorination stations incurred from exposure to chemicals	Visit to chlorination stations	During operation of the water supply system	AWSC CJSC	SCWM	
Soil and water contamination by water treatment sludge (river, well, spring catchments)	Sludge disposal strictly at the sites formally designated according RA legislation	Sludge safely disposal at approved sites	Visit to treatment station, observation	During operation of water supply system	AWSC	SCWM	

¹ RA Government Decree N-529 Ü dated April 21, 2011 on “Approval of safety rules during production, use, storage and transportation of chlorine”.

Pollution of water sources from domestic sources and domestic animals	Protection of sanitary zones from trespassing	Sanitary zones secure and clean	Visits to sanitary zones	During operation of water supply system	AWSC	SCWM	
---	---	---------------------------------	--------------------------	---	------	------	--

Attachment II: MINUTES OF PUBLIC CONSULTATION MEETINGS

6 June, 2012, Ayntap village

Public awareness raising meetings on “Environmental Management and Monitoring Plan” developed within the framework of “Reconstruction of Water Supply Systems of Masis Town and nearby seven villages” project were held on 6th of June in Ayntap village, Ararat marz, RA.

A. Davtyan, the chief engineer of the design, A. Hovsepyan, the environmental protection specialist (JINJ Ltd), A. Savadyan, the environmental and social impact specialist of “Armenian Water and Sewerage” CJSC Investment projects coordination PMU, N. Gevorgyan, the Safety specialist of AWSC CJSC, S. Hambardzumyan, the head of AWSC CJSC Masis department G. Hovhannisyanyan, the deputy village mayor of Ayntap and 40 representatives of the community (see the list attached) took part in the meeting.

A. Hovsepyan presented the aim of the meeting and the importance of implementation of the environmental management and monitoring plan for health and safety of the local inhabitants.

The mitigation measures included in EMMP were presented in detail, mentioning in particular that certain funds were allotted for implementation of all the activities and the selected contractor should implement all of the measures included in the document.

Afterwards, the chief engineer of the design presented the detailed design, which mainly consisted of improvement works for the internal network.

The inhabitants were interested in the implementation of the design works, as well as in the commencement date of the construction works. Considering the fact, that the main aim of the meeting was the EMMP discussion, it was offered to discuss only the issues connected with the environmental and safety measures.

The inhabitants complained of both water quality and quantity. The inhabitants of the 5th street were especially dissatisfied with the water supply. They noted that they were deprived of water for a week.

Mr. S. Hambardzumyan noted, that the total water amount had reduced in summer. Thus, AWSC CJSC had to purchase additional water to provide the local population with water. A question was raised on why the project included the districts that were already supplied with water and the districts that did not have water for more than 20 years were not included in the project. A rationale explanation was given considering the policy of AWSC CJSC.

Connected to the complaints of the water quality, it was mentioned that Masis town and nearby villages were supplied from artesian wells with high level of mineralization. By all other indicators, however, the water meets the other standards for the drinking water, water quality analyses are regularly implemented by AWSC CJSC laboratories and the water quality is

strongly supervised according to safety standards. Additional samples will be taken by AWSC CJSC for analysis at the addresses of households complaining of water quality.

A. Hovsepyan presented the environment management and monitoring plan developed within the scope of the project and persuaded the inhabitants to follow the implementation of the actions envisaged under the plan (mainly during the construction works) in their own interests. The environmental specialist applied to the inhabitants, mentioning that in order to avoid accidents during construction the residents should strictly follow the safety measures and inform AWSC CJSC, technical supervisors and others on the infringements. The Environmental specialist of AWSC CJSC also noted that the participation of the community in the construction was important and they could direct their complaints to the construction organization, supervisors and AWSC CJSC, via the contacts presented on the information signboard. The Environmental management and monitoring plan, as well as the informational leaflets were presented to the representatives of the municipality, so that the community inhabitants could implement construction supervision activities if needed.



Public awareness raising meeting in Ayntap village

Public awareness raising meetings on “Environmental Management and Monitoring Plan” developed within the framework of “Reconstruction of Water Supply Systems of Masis Town and nearby seven villages” project were held on 11th of June in Hayanist village, Ararat marz, RA.

A. Davtyan, the chief engineer of the design, A. Hovsepyan, the environmental protection specialist (JINJ Ltd), A. Savadyan, the environmental and social impact specialist “Armenian Water and Sewerage” CJSC Investment projects coordination PMU, B. Sarkisyan, the village mayor and 15 representatives of the community (see the list attached) took part in the meeting.

A. Hovsepyan presented the aim of the meeting and the importance of implementation of the environmental management and monitoring plan for health and safety of the local inhabitants.

Afterwards, the chief engineer of the project presented the detailed design, which mainly consisted of improvement works for internal network.

The inhabitants complained of the water supply duration, water quality, also the insufficient amount of the supplied water. The inhabitants complained of water quality and noted that some streets were deprived of water for 20 days. Besides, the inhabitants complained of irregular water supply and absence of a clear water supply schedule. The specialists mentioned that the amount of Hayanist village water has reduced, as the water main supplying the village stretches through other villages, as a result of which a small amount of water is left for Hayanist village. The local inhabitants complained also that the artesian wells of the village went dry, as a result of overuse of water for fish industry in Ararat valley.

A. Hovsepyan presented the environment management and monitoring plan developed within the scope of the project and persuaded the inhabitants to follow the implementation of the actions envisaged under the plan (mainly during the construction works) in their own interests. The Environmental specialist of AWSC CJSC also noted that the participation of the community in the construction was important and they could direct their complaints to the construction organization, supervisors and AWSC CJSC, via the contacts presented on the information signboard.

The Environmental management and monitoring plan, as well as the informational leaflets were presented to the representatives of the municipality, so that the community inhabitants could implement construction supervision activities if needed.



Public awareness raising meeting in Hayanist village

Public awareness raising meetings on “Environmental Management and Monitoring Plan” developed within the framework of “Reconstruction of Water Supply Systems of Masis Town and nearby seven villages” project were held on 4th of July in Darbnik village, Ararat marz, RA.

The meeting was held in an open area, as the rural municipality building was under construction. A. Davtyan, the chief engineer of the design, A. Hovsepyan, the environmental protection specialist (JINJ Ltd), A. Khachatryan, Darbnik village mayor, H. Sargsyan, Ararat marz Aarhus center coordinator and 43 representatives (mainly women; from families migrated from c. Baku) of the community (see the list attached) took part in the meeting.

A. Hovsepyan presented the aim of the meeting and the importance of implementation of the environmental management and monitoring plan for health and safety of the local inhabitants.

The mitigation measures included in EMMP were presented in detail, mentioning in particular that certain funds were allotted for implementation of all the activities and the selected contractor should implement all of the measures included in the document. Afterwards, the chief engineer of the project presented the detailed design, which mainly consisted of improvement works for internal network.

The inhabitants were interested in the implementation of the design works, as well as in the commencement date of the construction works and they got clear answers to their questions.

The inhabitants complained of both the quantity and quality of the supplied water. Some inhabitants thought that during rainfalls wastewaters mixed with drinking water, as the water smelled bad in rainy days, especially when boiled. They complained also that when water was supplied after shut-off due to the schedule, air was coming out of taps instead of water for a long time, as a result of which the meters operated without water. The inhabitants wished the representatives of AWSC CJSC were present at the meeting, so that they could raise their questions directly to the representatives of water supply organization.

With regard to the water quality, it was mentioned, that the reason was the deteriorated network, as a result of which ground waters penetrated into water supply network and spoiled water.

A. Hovsepyan presented the environment management and monitoring plan developed within the scope of the project and persuaded the inhabitants to follow the implementation of the actions envisaged under the plan (mainly during the construction works) in their own interests. She noted that the participation of the community in the construction was important and they could direct their complaints to the construction organization, supervisors and AWSC CJSC, via the contacts presented on the information signboard.

The Environmental management and monitoring plan, as well as the informational leaflets were presented to the representatives of the municipality, so that the community inhabitants could implement construction supervision activities if needed.



Public awareness raising in Darbnik village

Public awareness raising meetings on “Environmental Management and Monitoring Plan” developed within the framework of “Reconstruction of Water Supply Systems of Masis Town and nearby seven villages” project were held on 14th of June in Masis town, Ararat marz, RA.

D. Nazaryan, Masis town mayor, A. Davtyan, the chief engineer of the design, A. Hovsepyan, the environmental protection specialist (JINJ Ltd), A. Savadyan, the environmental and social impact specialist “Armenian Water and Sewerage” CJSC Investment projects coordination PMU, Masis municipality staff, 40 representatives of the community (see the list attached) took part in the meeting.

Masis town mayor began with an opening speech and noted that the community had been developed on swamps and the engineering facilities (specifically, water supply and sanitation pipes) were under continuous adverse impact. The number of breakdowns has grown in recent years, and the water quality does not correspond to the required standards. Mr. Nazaryan exhorted the interested organizations and inhabitants of the community to be more actively involved in public supervision activities under the implemented project.

A. Hovsepyan presented the aim of the meeting and the importance of implementation of the environmental management and monitoring plan for health and safety of the local inhabitants.

Afterwards, the chief engineer of the design presented the detailed design, which mainly consisted of improvement works for external water supply system and the internal network.

The inhabitants complained of the supplied water quality and quantity. They noted that the water supply was implemented irregularly and with breach of schedules.

Though according to official data Masis town is considered to have a 24-hour water supply, in fact the water supply duration is 10-12 hours a day. The water supply duration reduces in summer. The inhabitants complained also, that the Southern part of the railway station district, which included private houses (without water supply) and the new district, with private houses (without water supply and networks) have not been included in the design.

The chief engineer of the design noted, that the private houses of the railway station district were supplied by pumps from the pressure water main from Masis pumping station to Norabats reservoir. Installation of a new pump in the pumping station is designed to be implemented within the scope of the project, which will pump water to Norabats DRR 24 hours. As a result, this district too will be provided with 24-hour water supply.

The inhabitants also complained of the water quality, noting that it tasted nastily and a sediment layer generated with the water viscosity growing after a day storage. The designers hoped that as a result of the project implementation the most part of the complaints would disappear, particularly the ones connected with water supply hours.

Masis town mayor and the inhabitants of Masis town valued also the issue of wastewater removal and they were seriously concerned with the bad state of the sewerage system.

The number of failures has grown in the sewerage system; the wastewater from the town is discharged into the fields and irrigation canals nearby the railway station and the smell of the sewerage spreads throughout the town in evenings. The inhabitants complained also of the bad state of the internal sewerage networks of the residential buildings.

The designers mentioned that the project aimed to recover only the drinking water distribution network and only in the areas served by AWSC CJSC. The internal networks of the residential buildings (both water supply and sewerage) are served by the municipalities and condominiums, so the project does not propose any solutions to these problems.

A. Hovsepyan presented the environment management and monitoring plan developed within the scope of the project and persuaded the inhabitants to follow the implementation of the actions envisaged under the plan (mainly during the construction works) in their own interests. The inhabitants complained of the previous project on improvement of water supply system in Masis town, noting that the Contractor kept a whole street destroyed for 3 months hampering even entry of garbage transporting trucks to buildings, as a result of which the household waste mixed with the construction waste and left on the streets for a long period. The inhabitants noted, that even after completion of the construction, the garbage was not removed from the streets. The environmental specialist of AWSC CJSC mentioned, that EMMP explanatory meetings would be held for the Contractors, before starting the construction works, during which the AWSC CJSC, as a Client, would consider the environmental problems raised during the public hearings.

The specialist of the Masis town municipality responsible for the issues related to utilities spoke about the waste management, mentioning that excavation of all trenches at the same time along the entire length of the street really makes barriers for the garbage transportation trucks and creates extra problems in the town, especially in summer. The Contractor should be instructed once again on this issue during the explanatory meeting on EMMP. The environmental specialist of AWSC CJSC added that the inhabitants in their turn should realize that they should not discharge their household waste into the construction waste. The environmental specialist applied to the inhabitants, mentioning that in order to avoid accidents during construction the residents should strictly follow the safety measures and inform AWSC CJSC, technical supervisors and others on the infringements. The Environmental specialist of AWSC CJSC also noted that the participation of the community in the construction was important and they could direct their complaints to the construction organization, supervisors and AWSC CJSC, via the contacts presented on the information signboard.

The Environmental management and monitoring plan, as well as the informational leaflets were presented to the representatives of the municipality, so that the community inhabitants could implement construction supervision activities if needed.



Public awareness raising meeting in Masis town

4 July, 2012, Dashtavan village

Public awareness raising meetings on “Environmental Management and Monitoring Plan” developed within the framework of “Reconstruction of Water Supply Systems of Masis Town and nearby seven villages” project were held on 4th of July in Dashtavan village, Ararat marz, RA.

A. Davtyan: the chief engineer of the design, A. Hovsepyan, the environmental protection specialist (JINJ Ltd), S. Khachatryan, Dashtavan village mayor, H. Sargsyan, Ararat marz Aarhus center coordinator and 24 representatives of the community (see the list attached) took part in the meeting.

A. Hovsepyan presented the aim of the meeting and the importance of implementation of the environmental management and monitoring plan for health and safety of the local inhabitants.

The mitigation measures included in EMMP were presented in detail, mentioning in particular that certain funds were allotted for implementation of all the activities and the selected contractor should implement all of the measures included in the document.

Afterwards, the chief engineer of the project presented the detailed design, which mainly consisted of improvement works for the internal network.

The inhabitants were interested in the implementation of the design works, as well as in the commencement date of the construction works and they got clear answers to their questions.

A. Hovsepyan presented the environment management and monitoring plan developed within the scope of the project and persuaded the inhabitants to follow the implementation of the actions envisaged under the plan (mainly during the construction works) in their own interests. She noted that the participation of the community in the construction was important and they could direct their complaints to the construction organization, supervisors and AWSC CJSC, via the contacts presented on the information signboard. The municipality head and the inhabitants raised a lot of questions on water supply and JINJ staff tried to answer to them.

The first question was on the water quality, as the water smelled bad and the viscosity grewed in case of water storage (“becomes like soapy water” as they noted).

With regard to the water quality, it was mentioned, that the reason was the deteriorated network, as a result of which ground waters penetrated into water supply network and spoiled water.

The municipality head complained that the 400m long water pipeline of the 4th street that had been constructed by AWSC CJSC, was not connected to the water supply system, and the inhabitants did not have water for a month.

The specialists of JINJ Ltd mentioned that the answer to the question was beyond their responsibility and expressed their regret that the representatives of AWSC CJSC were not present at the meeting, as they could answer to the question.

The inhabitants raised also question of washing and disinfecting of the pipes after installation of a new pipeline, or replacement of the existing pipes. . As a rule, the Contractors do not wash the pipes and the water is supplied to the inhabitants immediately after it is connected to the system,

and the water for washing is charged from the inhabitants (the water taps are left open, until the contaminated water becomes clean). As a result, clogging and contamination of water filters takes place. The chief engineer of the design explained, that there was a special standard for washing and disinfection of pipes, as well as for the wastewater generated as a result of washing and disinfection. Besides, the process is described in details in the technical specifications of the design and the contractor is obliged to implement the activities. The environmental specialist mentioned that the EMMP also envisages special activities for washing and disinfection of pipes, and it would be advisable, if the inhabitants also supervised the implementation of these activities.

The Environmental management and monitoring plan, as well as the informational leaflets were presented to the representatives of the municipality, so that the community inhabitants could implement construction supervision activities if needed.



Public awareness raising meeting in Dashtavan village

Attachment III: LIST OF PARTICIPANTS OF PUBLIC CONSULTATION MEETINGS

Մասիս քաղաքի, Այնթափ գյուղի և տարածաշրջանի բնակավայրերի ջրագծերի վերակառուցում

Շրջակա միջավայրի կառավարման ու մոնիտորինգի պլանի հասարական իրազեկման

Մասնակիցների ցուցակ

06. հունիսի 2012թ.

գ. Այնթապ

ՀՀ	Անուն Ազգանուն	Հեռախոս	Ստորագրություն
1	Նեղոսյան Հարություն Սարգսյան	099399286	[Signature]
2	Մարտիրոս Կարևե Կրուսիկ		[Signature]
3	Սեդրակյան Ռազմիկ		[Signature]
4	Թումանյան Գեորգի		[Signature]
5	Մարտիրոսյան Նիկոլ		[Signature]
6	Մկրտչյան Արմեն Գրիգոր		[Signature]
7	Նարեկյան Լևոն		[Signature]
8	Քեչումյան Արզակ		[Signature]
9	Մարտիրոսյան Գեորգի		[Signature]
10	Կարամյան Մարտիրոս		[Signature]
11	Մարտիրոսյան Նիկոլ		[Signature]

12	Նեղոսյան Արզակ	099 710 726	[Signature]
13	Խոսրոսյան Գեորգի	077 77 41 41	[Signature]
14	Կարամյան Գեորգի	093 6992 77	[Signature]
15	Մարտիրոսյան Մարտիրոս	093 634886	[Signature]
16	Քեչումյան Արզակ	093 99 63 28	[Signature]
17	Մարտիրոսյան Լևոն	093 79 89 47	[Signature]
18	Խոսրոսյան Գեորգի		[Signature]
19	Մարտիրոսյան Գեորգի	093 517 896	[Signature]
20	Մարտիրոսյան Ռազմիկ	077 242532	[Signature]
21	Մարտիրոսյան Ռազմիկ	094 245452	[Signature]
22	Մարտիրոսյան Ռազմիկ		[Signature]
23	Մարտիրոսյան Ռազմիկ	094 75 00 92	[Signature]
24	Մարտիրոսյան Ռազմիկ	093 66-9827	[Signature]
25	Մարտիրոսյան Ռազմիկ	091-50-90-40	[Signature]
26	Մարտիրոսյան Ռազմիկ	091 75 05 87	[Signature]
27	Մարտիրոսյան Ռազմիկ		[Signature]
28	Մարտիրոսյան Ռազմիկ		[Signature]

29 Ասորգաբան Եղևուտիկ
 30 Չիչիբեդյան Կնուտ
 31

Մասիս քաղաքի, Այնթափ գյուղի և տարածաշրջանի բնակավայրերի ջրագծերի վերակառուցում
 Շրջակա միջավայրի կառավարման ու մոնիտորինգի պլանի հասարական իրազեկման
 Մասնակիցների ցուցակ
 11. հունիսի 2012թ.
 գ. Հայասիստ

ՀՀ	Անուն Ազգանուն	Հեռախոս	Ստորագրություն
1	Կարոյան Արևիկ		<i>[Signature]</i>
2	Գևորգյան Վարդան		<i>[Signature]</i>
3	Իսախանյան Վահագն		<i>[Signature]</i>
4	Խաչատրյան Դավիթ		<i>[Signature]</i>
5	Գրիգորյան Վահագն		<i>[Signature]</i>
6	Մանգուսյան Գևորգ	<i>[Signature]</i>	
7	Վարդանյան Բարսեղ		<i>[Signature]</i>
8	Գազարյան Լուսինե		<i>[Signature]</i>
9	Խաչատրյան Ռազմիկ		<i>[Signature]</i>
10	Խաչատրյան Էմմա	077 36 63 94	<i>[Signature]</i>
11	Արթուր Բաբայանյան	(088) 24 03 40	<i>[Signature]</i>

12	Աստուխյան Խոփանման	097-78-12-22	Կառվ
13	Մարտիրոսյան Անուշ	097-37-83-29	Կառվ
14	Պարսադյան Մկրտչյան		Կառվ
15	Հովհաննիսյան Կրկն	091559702	Կառվ
16	Սարգսյան Կնյա		
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			

Մասիս քաղաքի, Այնթափ գյուղի և տարածաշրջանի բնակավայրերի ջրագծերի վերակառուցում

Շրջակա միջավայրի կառավարման ու մոնիտորինգի պլանի հասարական իրազեկման

Մասնակիցների ցուցակ

14. հունիսի 2012թ.

ք. Մասիս

ՀՀ	Անուն Ազգանուն	Հեռախոս	Ստորագրություն
1	Պարսադյան Լուսինե	4-55-77	Կառվ
2	Մարտիրոսյան Մայր	4-49-96	Կառվ
3	Պարսադյան Գրիգոր	4-28-85	Կառվ
4	Խոփանմանյան Առասանա	4-13-31	Կառվ
5	Պարսադյան Լուսինե	4-49-41	Կառվ
6	Պարսադյան Զարգար	4-15-65	Կառվ
7	Պարսադյան Զարգար	4-44-85	Կառվ
8	Սարգսյան Կնյա	4-49-22	Կառվ
9	Սարգսյան Արթուր	4-48-58	Ս.Ս. Սարգսյան
10	Սարգսյան Զարգար	4-06-96	Կառվ
11	Գրիգորյան Նարեկ	4-09-10	Կառվ

12	Генеральный директор	4-24-68	Март
13	Директор, Удмуртия	4-04-10	Удмуртия
14	Директор, Удмуртия	4-04-10	Удмуртия
15	Директор, Удмуртия	094-51-55-31	Кад
16	Директор, Ижевск	4-22-02	Ижевск
17	Директор, Ижевск	4-56-78	Ижевск
18	Директор, Ижевск	4-26-50	Ижевск
19	Директор, Ижевск	4-41-79	Ижевск
20	Директор, Ижевск	055599980	Ижевск
21	Директор, Ижевск	091-30-20-00	Ижевск
22	Директор, Ижевск	4-39-19	Ижевск
23	Директор, Ижевск	4-27-40	Ижевск
24	Директор, Ижевск	4-20-20	Ижевск
25	Директор, Ижевск	4-31-11	Ижевск
26	Директор, Ижевск	4-08-43	Ижевск
27	Директор, Ижевск	6-37-43	Ижевск
28	Директор, Ижевск	094-11-16-30	Ижевск
29	Директор, Ижевск	094-138-531	Ижевск

30	Директор, Ижевск	093 11 02 72	Ижевск
31	Директор, Ижевск	4-22-46	Ижевск
32	Директор, Ижевск	22 14 02 57	Ижевск
33	Директор, Ижевск	4-22-45	Ижевск
34	Директор, Ижевск	4 29-30	Ижевск
35	Директор, Ижевск	4-25-55	Ижевск
36	Директор, Ижевск	4-16-50	Ижевск
37	Директор, Ижевск	4-33-70	Ижевск
38	Директор, Ижевск	4-29-30	Ижевск
39	Директор, Ижевск	4-22-97	Ижевск
40	Директор, Ижевск	4-03-61	Ижевск
41			
42			
43			
44			
45			
46			

Մասին բաղադրի և հարակից յոթ գյուղերի ջրամատակարարման համակարգերի վերակառուցման
Շրջակա միջավայրի կառավարման և մոնիտորինգի պլանի հասարական իրազեկման

Մասնակիցների ցուցակ

04. հուլիսի 2012թ.
գ. Դարբնիկ

ՀՀ	Անուն Ազգանուն	Կազմակերպություն	Հեռախոս	Ստորագրություն
1	Սարգսյան Համես			<i>[Signature]</i>
2	Եղանի Եվան			<i>[Signature]</i>
3	Սարգսյան Իջա			<i>[Signature]</i>
4	Գրիգորյան Սարգ			<i>[Signature]</i>
5	Արմենյան Սարգսյան			<i>[Signature]</i>
6	Բաբայան Քարա			<i>[Signature]</i>
7	Բարսեղյան Քարա			<i>[Signature]</i>
8	Մանուկյան Իրա			<i>[Signature]</i>
9	Կիրակոսյան Գեորգ			<i>[Signature]</i>
10	Բաբայան Իգնատ			<i>[Signature]</i>
11	Արմենյան Վան			<i>[Signature]</i>

12	Լուսինյան Երան			<i>[Signature]</i>
13	Գրիգորյան Զուհար			<i>[Signature]</i>
14	Գրիգորյան Իրա			<i>[Signature]</i>
15	Բաբայան Եվան			<i>[Signature]</i>
16	Արմենյան Գրիգոր			<i>[Signature]</i>
17	Կիրակոսյան Իրա			<i>[Signature]</i>
18	Արմենյան Կար			<i>[Signature]</i>
19	Գրիգորյան Իրա			<i>[Signature]</i>
20	Գրիգորյան Եվան			<i>[Signature]</i>
21	Մանուկյան Զար			<i>[Signature]</i>
22	Կիրակոսյան Կար			<i>[Signature]</i>
23	Արմենյան Իրա			<i>[Signature]</i>
24	Կարապետյան Կար			<i>[Signature]</i>
25	Արմենյան Գրիգոր			<i>[Signature]</i>
26	Մանուկյան Գրիգոր			<i>[Signature]</i>
27	Մանուկյան Կար			<i>[Signature]</i>
28	Արմենյան Կար	Ստորագրություն Զարգուհի Գրիգորյան 093-06-09-07		<i>[Signature]</i>
29	Գրիգորյան Կար	Ստորագրություն Կար 05500950	Հեռախոս 42 18 19 80	<i>[Signature]</i>

12	Խաչատրյան Նարեկ			ԽԽ
13	Մանգո Սեյդա			ՍԵ
14	Վրթան Վարդան			ՎՎ
15	Շրվազյան Շրվազ			ՇՇ
16	Ֆարսյան Բաղդասար			ՖԲ
17	Վարդանյան Զորա			ՎՎ
18	Կարապետյան Շիրազ			ԿՇ
19	Բախչաթյան Զարգիշ			ԶԶ
20	Յուզբաջյան Փրկաշատ			ՅՓ
21	Պարտիզյան Փոփո			ՊՓ
22	Խաչատրյան Մուսիկ			ՄՄ
23	Խաչատրյան Արևիկ			ՄՄ
24	Մանգոյան Մանգո			ՄՄ
25				
26				
27				
28				
29				