

# Environmental Management Plan

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Semestral Report  
January 2012

## ARM: Water Supply and Sanitation Project – Improvement of Water and Sanitation Systems of Town Tashir and Villages Metsavan and Sarchapet

Prepared by Armenian Water and Sewerage Company for the Republic of Armenia and the Asian Development Bank.

## APPENDIX

**CONTRACT No. WSSP ISB 1-28**

***Part D –Special conditions of the contract***

### **SUB-PROJECT XXI – TOWN TASHIR AND VILLAGES METSAVAN AND SARCHAPET**

#### **PACKAGE XXI.1 – IMPROVEMENT OF WATER AND SANITATION SYSTEMS OF TOWN TASHIR AND VILLAGES METSAVAN AND SARCHAPET**

#### **ENVIRONMENTAL MANAGEMENT PLAN**



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**LIST OF ABBREVIATIONS**

RA	MNP - Republic of Armenia Ministry of Nature Protection
RA	MH - Republic of Armenia Ministry of Health
RA	MTG - Republic of Armenia Ministry for Territorial Governance
RA	MC - Republic of Armenia Ministry of Culture
LSGA	– Local Self-governing authorities
EIA	- Environmental Impact Assessment
AWSC/ADB PMU	-“Armwatersewerage” /Asian Development Bank Project Management Unit
EMP	Environmental Management Plan
IEE	Initial Environmental Examination
DD	Detailed design

***According to the ADB Environmental policy (November 2002), the sub-project is ranked to Category B, which does not require a full/large scale EIA. The sub-project does not require also Conclusion of Environmental Expert Examination, in accordance with the RA legislation - RA Law on Environmental Expert Examination (20 November 1995) and RA Government's Decision on limit sizes of planned activities subject to Environmental Expert Examination (N-193, 30 March 1999).***

## **1. INTRODUCTION**

This report has been developed for the sub-project on improvement of water supply system of Tashir town and villages Metsavan and Sarchapet. The sub-project design was implemented by JINJ Ltd and HGSN joint venture. Rehabilitation of water supply system includes reconstruction and repair of water supply distribution networks, construction of pressure regulation and water metering nodes, sewerage lines and observation chambers, construction of DRRs, reconstruction of non-operating pumping station and storage reservoir.

Adverse environmental impacts can be both in the course of construction implementation and during further operation of water supply systems. The impacts during construction can be cutting of vegetation, land erosion, air pollution, as well as land and water resources pollution with lubricants, chlorine, household and construction waste.

One of the essential positive environmental impacts is water resources protection, water loss reduction and sustainable use, as well as prevention of environment pollution with household wastewater and epidemics.

Social and economic impact of water systems improvement are mainly positive - excluding mixing of drinking, irrigation, and sewerage water, reduction of water pollution hazard, preventing, excluding penetration of infectious disease viruses into drinking water; increasing duration of water supply to population, providing sustainable water use, reasonable water consumption.

Below the description of possible adverse impacts during various stage of the project implementation is provided, as well as the proposed mitigating measures.

- *Design stage*

Design works have been implemented by JINJ Ltd. and HGSN Ltd. joint venture, which was selected as Consultant for ADB funded “Water supply and sanitation project”. The design documents include items on climatic conditions, relief, soil types, hydrology, vegetation types and the requirements for obtaining the required permits from the Ministry of Nature Protection, other ministries and from the community leader. The documents include also appropriate environmental and social parts. The design package includes also the Environmental Management Plan (EMP) of this package. The project Consultant shall

follow the corresponding provisions of RA environmental and social legislation, as well as ADB's guidelines and strategies, mentioned in the Contract.

- *Construction stage*

In general, during the construction stage the Contractor must follow the measures provided in the EMP, such as to reduce to minimum the noise and dust from the construction site.

- *Operation stage*

The operation must be implemented in accordance with the operation rules and standards.

To reduce adverse environmental impacts during the construction and operation stages, EMP has been developed, which represents the list of the required measures (Appendix A).

## **2 SCOPE OF WORK**

### **2.1. Description of the existing water supply system**

**Town Tashir.** The water supply of the town is implemented by means of two systems - Bazum (Katnaghbyur) and Aksyutin:

Bazum (Katnaghbyur) gravity system, which starts at the Bazum mountain chain, at Urasar mountain, at the elevation of 2000-2400m. from here about 40l/s flow by gravity and without disinfection, supplied towards the Tashir town and rural settlements.

Aksyutin system starts from the spring-intakes and a water collecting gallery located on the left riverbank in the Dzoraget gorge. The total flow from the spring-intakes and the water collecting gallery is 470 l/s, which is collected into the common Water Collecting Chamber, located at the elevation of 1441m. Then by means of the hydro pump 36-44l/s disinfected water amount is supplied to 4 independent water mains.

The water distribution network of the town has been constructed some 40 years ago and it is in a deteriorated state (except for. 71km long water lines constructed along two pavements of Kirov street ) due to a lack of capital repairs done over the time. Leaks in the network are estimated at 86%. The distribution network is not sectorised. The majority of the town population is supplied based on a 6-hours intermittent graphic, 3 hours in the morning and 3 hours in the evening, but the residents whose houses are located in the higher level within the town get 24-hour water supply directly from the Bazum-Tashir transmission main (e.g. Sayat-Nova, Gaydar, Dprotsakanneri streets and Kirov lower part) without the use of the regulatory volume.

**Village Metsavan.** Water supply to the village is carried out from Sevaberd (Hovdara) spring intakes at 2114m by gravity. From spring intakes water reaches the pressure reducing chamber, from which two water mains emerge (cast iron, asbestos-cement and steel) for supplying villages Dashtadem and Metsavan.

This system does not have a centralized chlorination station, however disinfecting of a part of the water supplied to the village is made in the existing DRR by means of chlorine capsules.

Since the DRR's elevation is not dictating to the whole area of the village, water supply to the higher located district is not implemented from the mentioned system.

There are 8 local springs with 3.0l/s total flow in the village, from which only one is used for drinking purpose (about 0.3l/s) by the population of the higher located district, and the other springs are used for household needs and watering of animals.

The water distribution network of the village has been constructed some 40 years ago from cast iron and steel pipes. It is in a deteriorated state. However, recently the village administration constructed 3.2km long water lines in the different parts of the village.

The DD planned construction of new water line only for providing water supply to the private houses adjacent to the water main feeding village Metsavan and along Kamo street. It is planned also construction of a valve node at the beginning part of the main feeding the village.

**Village Sarchapet.** During Soviet times water supply to the village was carried out from Sevaberd (Hovdara) springs. It is not served by AWSC currently.

The 5.5km long Ø150mm steel water main feeding the village was emerging from the distribution node at the beginning part of the village. Water from the mentioned main was supplied by gravity to the pumping station at the beginning part of village Sarchapet and then pumped to the distribution network. For improvement of water supply regime a 1x100m<sup>3</sup> DRR at 1742m was constructed. The latter needs repair.

The system is in deteriorated condition because of not operating for many years. Currently water supply is implemented by artesian wells drilled by population and local springs without disinfecting. The population carries water from artesian wells and the flows of local springs are used for household needs and cattle watering.

The DD plans construction of a new water main from the Norashen connection node to the pumping station at the beginning part of village Sarchapet; reconstruction of the existing PS and storage reservoir and construction of 1x300m<sup>3</sup> DRR, as well as a new pressure pipeline from the PS to the DRR.

### **Wastewater system**

Town Tashir has sewerage systems but does not have wastewater treatment plants. In the main sewerage collector and inter-district wastewater network there are numerous clogged parts, some observation chambers need repair and replacement of manholes.

Villages Metsavan and Sarchapet have not sewerage system and the population use pit toilets.

## 2.2. Description of the proposed rehabilitation works

The purpose of this project is to rehabilitate Tashir town's and Metsavan and Sarchapet villages' drinking water supply system and provide the town's population with safe drinking water, improve water distribution and metering systems. It is planned also to repair the emergency parts of the wastewater system.

Population number in Tashir as of January 1, 2010 is 12 300. Considering population growth rate (with 0.8% annual growth rate), the estimated population number of the site for 2 025 will be 13 862.

The housing stock in the town is 3327 1-2-storey private houses and 40 multi-apartment blocks with 1200 apartments

The water demand rate, taking into account the losses, was assumed equal to 210 l/day per capita.

Average hourly flow of maximum daily demand of the whole town is  $Q_{av.h}=43.8$  l/sec.

For improvement of Tashir town's water supply system, this detailed design plans:

- Replacement of IJHC 300-240 centrifugal pump with hydro turbine in Aksyutin pumping station.
- Construction of distribution network's water lines with about 9.8km length, from de40-de250mm polyethylene pipes.
- Full reconstruction of 450 of private houses' inlet lines and installation of water metering nodes.
- Replacement of 6 multi-apartment blocks' and 4 public buildings' inlet lines with their valve nodes.
- Repair of emergency segments of de200-de250 sewerage pipelines with 255.0m length.

### Works planned in town Tashir

Table 1.

Planned works (construction, reconstruction, repair)							
Town	Water lines L,km	Private house connections	Buried valve nodes	Regulating and water metering nodes	Pressure regulation chambers	Sewerage lines L,km	Sewerage observation chambers
Tashir	9.8	450	24	2	3	0.255	10



According to the agreement gained between the Consultant and Tashir municipality, asphalt concrete cover rehabilitation works are planned in Getapnya, Jahukyan, Pushkin, Demirchyan and Shahumyan streets (about 800m<sup>2</sup>). After backfill of the trenches in all other streets the cover will be soil.

Population number in Metsavan as of 09.09. 2010 is 7300. Considering population growth rate (with 0.8% annual growth rate), the estimated population number of the site for 2025 will be 8227.

The water demand rate, taking into account the losses, was assumed equal to 200 l/day per capita.

Average hourly flow of maximum daily demand of the whole town is  $Q_{av.h}=24.8$  l/sec.

The capacity of the existing operating DRR is  $W=250.0\text{m}^3$ , which is does not satisfy the demand, however this DD does not plan construction of new DRR.

This detailed design plans:

- Construction of water lines with about 1.5km length, from de110-de90 polyethylene pipes
- construction of distribution valve node at the beginning of the village.

Population number in Sarchapet as of 01.01. 2010 is 3152. Considering population growth rate (with 0.8% annual growth rate), the estimated population number of the site for 2025 will be 3552.

The water demand rate, taking into account the losses, was assumed equal to 200 l/day per capita.

Average hourly flow of maximum daily demand of the whole town is  $Q_{av.h}=10.7$  l/sec.

The capacity of the existing operating DRR is  $W=100.0\text{m}^3$ , which is does not satisfy the demand,

This detailed design plans:

- Construction of about 6.5km long de160mm polyethylene water main.
- Construction of about 1.5km long de160mm polyethylene pressure water main.
- Reconstruction of the existing pumping station and storage reservoir.
- Construction of 1x300m<sup>3</sup> capacity DRR.

### **3. ENVIRONMENTAL BASELINE CONDITIONS**

#### **3.1. The geographical location and climate of the settlements**

The settlements are located within the territory of the Lori Marz in its northern part, at 174km (Tashir), 180km (Metsavan) and 185km (Sarchapet) distances from Yerevan.

From landscape point of view the area is located in Tashir river basin. River Tashir – a tributary of river Debed flows through town Tashir.

The Lori marz involves the whole basin of river Debed and has mountainous relief. It is notable for its relatively wet climate. In mid and higher altitude zones the climate is temperate, with long and cold winters. There is a stable snow cover each year. Summers are warm, relatively humid.

The region under study is characterized by dry continental climate.

Absolute maximum air temperature is +34°C.

Absolute minimum air temperature is -34°C.

Annual precipitation is 722mm.

South-western (in winter) and northern (in summer) winds with are predominant in the area, once in 20 years winds with 29m/sec velocity are possible. Wind pressure – 45kg/m<sup>2</sup>. Snow cover pressure – 70kg/m<sup>2</sup>. Maximum land freezing depth – 71cm.

From hydro-geological point of view, the area is included in the region of fracture waters of various eruptive rocks. The area is water abundant.

Tashir town area main soils are:

- a. filler soils
- b. pebble-gravel soils
- c. basalts.

From seismotectonic point of view the area is located within the folded zone of Armenia. According to the tectonic map of Armenia, a tectonic fault passes north-west to south-east direction along Tashir river bed. The area is considered one of the seismically active zones of the Republic. According to the RA CC II-6.02.2006 the region and the area are included in the II (second) seismic zone, with 0.3g background acceleration.

Among dangerous physical-geological processes are extensive surface washing by surface waters, erosion volcanic weathering and destruction.

#### **3.2. Biodiversity**

In the geological structure of the area the groups of volcanic rocks of Upper Eocene age take part: andesite-basalts covered by layers of Quaternary age alluvial, eluvial, deluvial-proluvial, deluvial formations - clay, sand, fragmental soils.

Underground waters are related to both volcanic and alluvial rocks, belong to fractural cavity, porous-cavity, partially terrain water types. Groundwaters linked to volcanic rocks, according to the published literature, are located at 10.0-15.0m depth, and those linked to alluvial rocks – at 3.0-8m depths that can generate significant flow.

The area is notable for its rich and special biodiversity, high value of geological and landscape complexes and their separate components, unique natural and historical-cultural monuments, health and recreation resources.

“Gyulagarak” (the protection object of the reserve is relict Pinus forests covering 2586 ha area), “Margahovit” (the protection object of the reserve is forest animals, covering 5000 ha area), and “Mrtavardeni” (the protection object of the reserve is relict roses, covering 1000 ha area) reserves are located within the marz area.. The reserves are located at rather big distances from the project area.

### **Flora**

Town Tashir and villages Metsavan and Sarchapet are located within Lori floristic region that is notable for a series of peculiarities. First of all the plant community characteristic for the region is notable. At the same time, along with steppe, valley formations, tragacanth plants here also forests are represented with dominating Quercus and Fagus. There are also wild Pyrus, Malus, Prunus, as well as bushes of Rosa on cliffs. In the field of Lori there are crop plants and valley-steppe communities, in north-east – Juniperus forests. In the higher-mountainous zone there are sub-Alpine and Alpine valley communities.

In general, there occur 6 endemic species in Lori floristic region, there are also around 50 rare and endangered species.

### **Fauna**

In the regions under study the animal species are diverse. Among mammals are wolf, fox, rabbit, jackal, hedgehog, squirrel, etc. Among birds are Accipiter gentilis, wild duck, Perdix perdix, Alauda arvensis, Coturnix coturnix, Dendrocopos, etc. Among reptiles is Caucasian grass snake. There are many insects (grasshopper, cricket, grig, etc.) here. There are various fish species in small lakes of Lori plateau.

## **4. ENVIRONMENTAL AND SOCIAL IMPACT**

Among the positive impacts as a result of rehabilitation of water supply and wastewater networks the following ones on communities' social condition and health are anticipated:

- water resources protection and sustainable use,
- excluding mixing of drinking, irrigation and sewerage water,
- preventing, excluding penetration of infectious disease viruses into drinking water;
- reduction of drinking water pollution hazard,
- providing high drinking water quality,
- improvement of health condition of population;
- water loss reduction,
- increasing duration of water supply to population,
- introduction of water metering system
- increasing water consumption efficiency,.
- excluding environment pollution with wastewater,
- excluding epidemics.

Initial environmental examination (IEE) has identified that in the area of water supply and wastewater systems improvement in project settlements no adverse impact is anticipated in the landscapes, flora and fauna.

Possible adverse impacts are mainly related to the construction and are limited and short-term.

To prevent them mitigation measures have been planned and environmental management and monitoring plan has been developed; the constructor, supervising authorities shall follow the plan.

EMP and monitoring plan are environmental assessment document and are included in working drawings.

Based on the initial assessment, the following adverse impacts can be expected:

- Air pollution,
- Noise,
- Traffic congestion,
- Soil erosion and sediment transport,
- Environment pollution with household and construction waste,
- Land and water resources pollution with fuels and lubricants,
- Land and water resources pollution with chlorine.
- Urban area pollution with household wastewater.

The sub-project implementation will also have positive social results. It will immediately improve the life quality of the project-involved sites and the surrounding environment by providing sustainable and reliable water supply and safe use of water resources for about 12 thousand people.

## **5. MEASURES TO MITIGATE FOR ENVIRONMENTAL AND SOCIAL IMPACTS**

Adverse impacts on the environment and human health while implementing construction works for improvement of the settlements' water supply internal network are possible during the construction of: (i) rehabilitation of DRRs, (ii) trenches for water lines and (ii) pits for regulating and water metering nodes.

**To prevent soil erosion and sediment transport**, the following is to be implemented: 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

At works near Tashir river bed areas, particularly in coastal streets, the inclinations should be retained to prevent soil erosion and sediment transport.

Rehabilitate disturbed surfaces as soon as possible after completion of construction activity.

To exclude **land and water resources pollution with fuels and lubricants**, the latter must be stored on a sealed surface, away from water resources, plan use of special tanks for their collection, which will then be removed to special sites envisaged for re-treatment.

To prevent **environment pollution with construction and household waste**, remove construction waste to corresponding landfill of the community, having in advance a contract agreement with the community heads or landfill operators.

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 regime planned under the design.

To exclude **environment pollution with household wastewater**, rehabilitation works are to be done from one observation chamber to another\, removing in advance the wastewater in the chambers.

**Water quality change** – Environmental monitoring plan must include also control over water quality and residual chlorine level.

To reduce **dust during the construction works**, the construction site and roads are to be regularly watered, and to prevent **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.

To reduce **disturbance to population because of overloaded roads** safe area for trucks is to be provided; waste on the construction site must not be accumulated and burnt, construction

should be implemented in stages, adequate notice of construction activities must be given to the population, effective road signs, diversions or barricades are to be provided.

**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 construction staff.

Provide community participation in subproject design, which will minimize disruption to community social activities.

Drinking water quality change: Environmental monitoring plan must include also control over water quality and residual chlorine level.

To provide drinking water quality in the settlements, AWSC will implement planned sampling of water from “Aksyutin”, “Bazum” and “Sevaberd” spring intakes checking all the parameters required by the Ministry of Health. Water quality monitoring is carried out also by State Hygienic and Epidemiological Surveillance Inspectorate, according to "Drinking Water. Requirements to the Centralized Water Supply System's Water Quality"; Quality Control № 2-III-A"2-1 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 area through water supply systems.

Since disinfecting is done by chlorine, also residual chlorine level monitoring must be done.

## **6. ENVIRONMENTAL MANAGEMENT**

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

- ***Executive agencies, which are responsible for implementation of the measure.***

1. For this special task the executive agency (JINJ Ltd. and HGSN Ltd. joint venture) must provide in the design stage obtaining of all the required agreements and permits from corresponding state and local authorities, before tendering the construction works;

- Conclusion of environmental expert examination (if needed);
- Decision of town and village administrations related to land allotment during the construction works (if needed);
- Agreement of the State Agency for Protection of Historical and Cultural Monuments, if impact is envisaged by the design.

2. The executive agencies in the construction stage (construction contractors) will be responsible for physical implementation of mitigating measures planned under the EMP, as well as for obtaining of all permits and agreements required during the construction implementation. Those are:

- Agreements from the local self-governing authorities for the sites allotted for transportation of wastes and construction garbage,
- Agreement of the State Agency for Protection of Historical and Cultural Monuments, if unexpectedly historical and cultural or archaeological monuments are discovered during the construction implementation.

3. Before commencement of the construction, the following permits and certificates must be obtained from ADB/PMU, if needed:

- Cadastre certificate on the land allotment;
- Water use permit, if needed.

- ***Controlling agencies, which are responsible for controlling the executive units to provide implementation of the EMP measures by the latter***

1. AWS CJSC/ADP PIU environmental specialists will be responsible for in time, due and reliable implementation of the works and measures in the order under the EMP. 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 gaps will be identified through the check list and the infringements in implementation of mitigating measures will be discovered.

The AWS CJSC/ADP PIU has the right also to require and check whether all permits are available and valid, all the measures and monitoring part under the EMP are implemented

during the construction, in accordance with ADB guidelines and the RA environmental and social legislation.

2. JINJ Ltd. and HGSN Ltd. joint venture will also implement control of implementation of mitigating measures during the construction. The environmental specialist shall make visits to control the EMP implementation.

- ***State monitoring agencies, which are responsible for observing the extent and efficiency of EMP implementation and making corrections in the project, if needed.***

The state monitoring agencies are as follows:

- State Environmental Agency of the Ministry of Nature Protection,
- State Epidemiological Agency of the Ministry of Health,
- 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.

The amounts envisaged for implementation of environmental measures included in the EMP are included in the detailed design.

Implementation of mitigating measures for environmental impacts will be controlled regularly through visits to the construction sites. With the help of the specially developed check list the gaps and drawbacks will be discovered.

In case of not implementing or infringing the implementation of the mitigating measures, after warning, the next payment will be terminated until the infringement is completely eliminated.



**Appendix A****ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN**

<b>Works and possible impacts</b>	<b>Proposed mitigating measures</b>	<b>Monitoring</b>	<b>Responsible bodies</b>
<b>Construction</b>			
<p><i>1. Air pollution, noise, traffic congestion</i></p> <ul style="list-style-type: none"> <li>– Dust and noise during the construction works</li> <li>– Disturbance to population because of overloaded roads</li> </ul>	<ul style="list-style-type: none"> <li>- Install fencing around construction site</li> <li>- regularly water the construction site and roads,</li> <li>- limit night work in residential areas,</li> <li>- Avoid usage of machines/equipment with extra noise; installation of silencers if needed,</li> <li>- Provide safe area for trucks,</li> <li>- Do not accumulate and burn waste on the construction site,</li> <li>- Carry out construction in stages, give adequate notice of construction activities to the population,</li> <li>- Provide effective road signs, diversions or barricades,</li> <li>- Provide community participation in subproject design, which will minimize disruption to community social activities</li> </ul>	Daily site inspection	Constructor, Consultant, PIU
<p><i>2. Environmental pollution</i></p> <ul style="list-style-type: none"> <li>– Soil erosion and sediment transport</li> <li>– Environment pollution with construction waste</li> <li>– Land and water resources pollution with fuels and lubricants</li> <li>– Land and water resources pollution with chlorine</li> </ul>	<ul style="list-style-type: none"> <li>- In inclined sites of the water line route implement measures for retaining the inclinations to prevent soil erosion and sediment transport,</li> <li>- Minimize the time during which trench and pit excavations for regulation and metering nodes are open</li> <li>- Rehabilitate disturbed surfaces as soon as possible after completion of construction activity, according to the design</li> <li>- Store oil, fuels and lubricants on a sealed surface, away from water resources,</li> <li>- Remove construction waste to corresponding landfill of the community, having in advance a contract agreement with the community heads or landfill operators,</li> <li>- Organize works for washing the water supply distribution network with chlorine, according to technical calculations. Provide appropriate technical means.</li> <li>- Implementation of chlorine discharge to surface water body or land area after washing the pipes, according to the regime planned under the design.</li> </ul>	Daily inspection of construction contract and maintenance	Constructor, Consultant, PIU

<b>Works and possible impacts</b>	<b>Proposed mitigating measures</b>	<b>Monitoring</b>	<b>Responsible bodies</b>
<i>Health and Safety</i> – Hazards for Workers and the population	<ul style="list-style-type: none"> <li>- Install fencing around construction site</li> <li>- Control access of unauthorized persons to site</li> <li>- Place warning signs in dangerous places</li> <li>- Carry out regular examination of equipment by highly qualified staff, as well as make regular safety audits,</li> <li>- Provide first aid and safety training to construction staff</li> </ul>	Daily inspection throughout construction stage. Monthly inspection of accident reports and complaints register	Constructor, Consultant, PIU, Population

**Appendix B****Field visits checklist**

<b><u>Ընդհանուր տեղեկատվություն</u></b> <b><u>General information</u></b>	Ամիս/ ամսաթիվ D/M/Y			
	Ենթաօրագիր / Subproject			
	Տեղակայում/ Location			
	Շինարարական կազմակերպություն Constriction contractor			
	Մարզ/Marz			
<b><u>Նախագծում</u></b> <b><u>Design</u></b>				
<b>Անհրաժեշտ թույլտվություններ</b> <b>Required permissions</b>	բնապահպանական փորձ. եզրակացություն/ EEC	Այո Yes	Ոչ No	Ո/Կ N/A
	հողահատկացման գրավոր համաձայնություն /written consent on land acquisition	Այո Yes	Ոչ No	Ո/Կ N/A
	պատմամշակութային փորձաքննության եզրակացություն / assessment of impact on cultural heritage	Այո Yes	Ոչ No	Ո/Կ N/A
<b><u>Շինարարություն</u></b> <b><u>Constriction</u></b>				
<b>Անհրաժեշտ թույլտվություններ</b> <b>Required permissions</b>	շին. թափոնների տեղադրման գրավոր համաձայնություն /written consent on disposal of construction waste	Այո Yes	Ոչ No	Ո/Կ N/A
	անսպասելիորեն հայտնաբերման դեպքում պատմ- մշակ. համաձայնություն/ written consent in case of sudden discovery of cultural heritage	Այո Yes	Ոչ No	Ո/Կ N/A
<b><u>Հասարակության իրազեկում</u></b> <b><u>Public awereness</u></b>				
	շին. աշխատանքների վերաբերյալ բնակչության համապատասխան իրազեկում համաձայն նախագծին/ awareness of population regarding construction works according to the project design	Այո Yes	Ոչ No	Ո/Կ N/A
	համայնքի մասնակցություն շինարարական աշխատանքների համաձայն նախագծին/ community's participation in construction works according to the project design	Այո Yes	Ոչ No	Ո/Կ N/A

<b><u>Անվտանգություն</u></b> <b><u>Safety</u></b>				
<b>Բանվորների անվտանգություն</b> <b>Safety of workers</b>	բանվորների անվտանգության հանդերձանքի առկայություն /ականջակալներ, շնչադիմակ/ availability of safety uniforms (earflaps,mask)	Այո Yes	Ոչ No	Ո/Կ N/A
	շինարարության մեջ ներառված տեխնիկական միջոցների պարբերական զննումներ՝ անվտանգությունը ապահովելու նպատակով / regular study of equipment used for construction for safety matter	Այո Yes	Ոչ No	Ո/Կ N/A
<b>Բնակչության անվտանգություն</b> <b>Safety of population</b>	երթևեկության սահմանափակման կամ խախտման ժամանակ համապատասխան ճանապարհային նշանների կամ պատնեշների տեղադրում, շրջանցի կազմակերպում / Installation of road signs or fences, organization of a bypass during interrupted or limited traffic	Այո Yes	Ոչ No	Ո/Կ N/A
<b><u>Շինարարության իրականացման ժամանակ կառավարման միջոցառումներ</u></b> <b><u>Management measures during construction</u></b>				
<b>Շին. հրապարակի/տեղանքի շահագործում</b> <b>Operation on area/construction site</b>	Շին հրապարակի/տեղանքի պարբերաբար ջրում/ regular sprinkling to area/construction site	Այո Yes	Ոչ No	Ո/Կ N/A
	Մեքենաների համար ապահով տարածքի առկայություն շին. հրապարակում/ availability of safe place at the construction site for vehicles	Այո Yes	Ոչ No	Ո/Կ N/A
	Յուղերի և քսուկների համապատասխան պահեստների առկայություն շին. հրապարակում/ availability of storage for oils and lubricants at the appropriate part of the construction site	Այո Yes	Ոչ No	Ո/Կ N/A
<b><u>Օդի ժամանակավոր աղտոտում</u></b> <b><u>Temporary air pollution/dust</u></b>				
	շինանյութ տեղափոխող բեռնատարների վրա ծածկի օգտագործում/ use of cover for the vehicle transporting construction waste	Այո Yes	Ոչ No	Ո/Կ N/A
	շինարարության տարածքի խոնավեցում ջրի շիթով/ moisturing of the construction site by water	Այո Yes	Ոչ No	Ո/Կ N/A

<b><u>Յողի էրոզիա</u></b> <b><u>Soil erosion</u></b>				
	զառիվար տեղերում հողի էրոզիայի կանխարգելման միջոցառումների իրականացում ըստ նախագծի/ soil erosion prevention measures at the slope places according to the project design	Այո Yes	Ոչ No	Ո/Կ N/A
	փոսորակների ժամանակին հետլիցք/ timely coverage of holes by soil	Այո Yes	Ոչ No	Ո/Կ N/A
	շին. աշխատանքների ավարտից հետո վնասված մակերեսների վերանորոգում ըստ նախագծի/ repair of damaged surface after completion of construction works	Այո Yes	Ոչ No	Ո/Կ N/A
<b><u>Ջրի աղտոտում</u></b> <b><u>Water pollution</u></b>				
	ջրի աղտոտում քսանյութերով և վառելանյութերով/ water pollution caused by fuel and lubricants	Այո Yes	Ոչ No	Ո/Կ N/A
	խողովակների լվացումից հետո քլորի արտահոսք համապատասխան նախագծով նախատեսված ռեժիմի/Leakage of chlorine after wash up of the pipes according to the scheduled regime.	Այո Yes	Ոչ No	Ո/Կ N/A
<b><u>Աղմուկ բնակավայրերի տարածքին մոտ</u></b> <b><u>Noise close to settlements</u></b>				
	աշխատանքների իրականացում սահմանված աշխատանքային ժամերին, հակառակ դեպքում սահմանված կարգով/ implementation of the works during working hours, otherwise in projected manner	Այո Yes	Ոչ No	Ո/Կ N/A
<b><u>Շինարարական և կենցաղային թափոնների տեղադրում</u></b> <b><u>Construction waste disposal</u></b>				
	շինարարական և կենցաղային աղբի տեղափոխում և տեղադրում համայնքի համապատասխան աղբավայրում/transportation and disposal of construction and consumer waste in appropriate community landfill	Այո Yes	Ոչ No	Ո/Կ N/A
<b><u>Շահագործում</u></b> <b><u>Operation</u></b>				

Խմելու ջրի աղտոտում Drinking water pollution	Մնացորդային քլորի քանակի համապատասխանում խմելու որակի ջրի նորմերին/Correspondence of balance quantity of residual chlorine to the quality of potable water	Այո Yes	Ոչ No	Ո/Կ N/A
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