

Initial Environmental Examination

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UZB: Second Tashkent Province Water Supply Development Project

Prepared by the Communal Services Agency of the Republic of Uzbekistan
“KOMMUNKHIZMAT” for the Asian Development Bank.

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To: Mr. Yong Ye
Director
Urban Development and Water Division
Central and West Asia Department
Asian Development Bank

Subject: **Second Tashkent Water Supply Development Project –
Initial Environmental Examination
Land Acquisition and Resettlement Plan**

Dear Mr. Yong Ye,

We hereby endorse the Initial Environmental Examination (IEE) and (ii) Land Acquisition and Resettlement Plan (LARP) prepared for the Second Tashkent Water Supply Development Project. The IEE and LARP have been discussed and reviewed by “Kommunhizmat” Agency to be available to the project affected people. The Russian versions will be posted on the website of the Ministry of Housing and Communal Services of Uzbekistan.

Further hereby we submit the IEE and LARP to ADB for disclosure on the ADB website.

Sincerely Yours,

A handwritten signature in blue ink, appearing to read 'Zamzamboy Tadjibaev'.

Zamzamboy Tadjibaev
Director General

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LIST OF ABBREVIATIONS

ADB	–	Asian Development Bank
CPS	–	Country's Partnership Strategy
CSA	–	Communal Services Agency
CWR	–	Clean Water Reservoir
DMA	–	District metering Areas
EA	–	Executing Agency
EH	–	Exposed Household
EIA	–	Environmental Impact Assessment
EMP	–	Environmental Management Plan
EMR	–	Environmental Monitoring Report
EMU	–	Environmental Monitoring Unit
FAM	–	Facility Administration Memorandum
FGD	–	Focus Group Discussions
GOU	–	Government of Uzbekistan
GRM	–	Grievance Redress Mechanism
HH	–	Household
ICB	–	International Contract Bidding
IEA	–	Initial Environmental Assessment
IEE	–	Initial Environmental Examination
IRTM	–	Interregional Trunk Main
LAR	–	Land Acquisition and Resettlement
NCB	–	National Contract Bidding
NRW	–	Non-revenue water
NWSDP	–	National Water Supply Development Program
OCC	–	Operational Control Center
O&M	–	Operation and Maintenance
PCU	–	Project Coordination Unit
PIA	–	Project Implementation Assistance
PIU	–	Project Implementation Unit
PLC	–	Programmable Logic Controllers
PMC	–	Project Management Consultant
PPMU	–	Program Preparation and Management Unit
PPTA	–	Project Preparatory Technical Assistance
WDC	–	Pumping Station Main
PVC	–	Polyvinylchloride
REA	–	Rapid Environmental Assessment (ADB checklist)
SCADA	–	Supervisory Control and Data Acquisition
SES	–	Sanitary and Epidemiological Services
SNPC	–	State Nature Protection Committee
TA	–	Technical Assistance
TPS	–	Tashkent Province "Suvokova"
TPWSDP	–	Tashkent Province Water Supply Development Project
WDC	–	Water Distribution Unit
WSS	–	Water Supply and Sanitation
WT	–	Water towers
WTP	–	Water Treatment Plant
WWTP	–	Waste Water Treatment Plant

GLOSSARY

Glavgosexpertisa	State Department responsible for Conducting Environmental Expertise Under SNPC
Khokim	Governor of administrative unit
Khokimiyat	Regional government authority
KMK	National acronym for Construction norms and regulations
Makhalla	A community of neighbors, which is based on full independence and self-governance.
OVOS	National acronym for EIA assessment process
PZVOS	National acronym for Concept Statement on Environmental Impact
SanR&N	Sanitary - epidemiological norms and regulations
Som	Local currency
SNiP	Set of basic regulatory requirements and regulations governing the design and construction in all sectors of national economy of Uzbekistan
Uzbekenergo	Managerial body in the electric power and coal industries, which are major structural components of the national economy
Uzhydromet	State governing body specially authorized for the solution of tasks in the field of hydrometeorology in the Republic of Uzbekistan and in its activities it is accountable to Cabinet of Ministers
ZEP	National acronym for Statement on Environmental Consequences
ZVOS	National acronym for Statement on Environmental impact

WEIGHTS AND MEASURES

LPCPD – liters per capita per day

NOTE

In this report, "\$" refers to US dollars.

EXECUTIVE SUMMARY

The project has been designed to address the water supply shortage, quality and operational and maintenance issues in two districts of Tashkent province of the Republic of Uzbekistan. Alternative technical options were analyzed and the optimum design solution for regional water supply system was identified based on the efficiency of the investment and operational expenditures and reduction of social and environmental impacts.

The Government of Uzbekistan (GOU) has received Technical Assistance (TA) from the Asian Development Bank (ADB) for the preparation of the Second Tashkent Province Water Supply Development Project (STPWSDP) which will involve rehabilitation, improvement and construction of water supply facilities and provide a stable and safe water supply in Yangiyul and Chinaz districts of Tashkent province of the Republic of Uzbekistan.

The Project is in line with priorities set by both ADB and the GOU, namely with the ADB Country Operation Business Plan Uzbekistan 2012-2014 and the Country's partnership Strategy (CPS) Uzbekistan 2012-2016 as well as with the Development Strategy, road Map and Investment Program for the Water Supply and Sanitation Sector of the Republic of Uzbekistan until 2020.

The main water source for the project area will be ground water intake VU-1 located in Yangiyul district. This ground water intake will supply with water Yangiyul and Chinaz district in volume in 60,000 m³/day. The availability of this water volume for extraction is confirmed by Hydrogeological expedition under the State Committee on Geology and Mineral Resources.

The VU-1 will be headwork for the supply of the rural and urban in upper area of Chinaz and Yangiyul districts. Under the Project 64.5 km of transmission main, 27.27 km of distribution network and 22 WDCs will be constructed/rehabilitated. The summary of planned works is presented in below table:

#	WDC System	Type of activity	Planning activities
Yangiyul District			
1	VU-1 wellfield	Reconstruction	Demolition: existing building of laboratory Construction: drilling 12 wells (50 meter), I lift pump stations, collector lines, clean water reservoir 1 x 2000m ³ , administrative building, sanitation facility 50 m ³ Reconstruction of clean water reservoir 1 x 2000m ³ II lift pump station, 2 guardhouses, service connections in-site power supply networks, transformer substation, external power supply, external power supply facilities protection perimeter fencing and land improvement
2	WDC VU-3	Reconstruction	Reconstruction: clean water reservoirs 2 x 2000m ³ , chlorination plant pump station, guardhouse, service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks resurfacing, landscaping, protection perimeter fencing
3	WDC Khalkabad	Reconstruction	Reconstruction: clean water reservoirs 2 x 500m ³ , pump station, service connections, in-site power supply networks, transformer substation, external power supply, resurfacing, landscaping, protection perimeter fencing Construction: clean water reservoir 1 x 500 m ³ , guardhouse chlorination plant, sanitation facility,

			security lighting networks, control-measuring units and automation networks
4	WDC VK-9 (Nurabad)	New construction	Construction: clean water reservoirs 2 x 500m ³ , pump station including chlorination plant, guardhouse, sanitation facility, service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks, resurfacing, landscaping, protection perimeter fencing
5	WDC Bobur	New construction	Construction: clean water reservoirs 2 x 300m ³ , pump station including chlorination plant, guardhouse, sanitation facility, service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks, land improvement, landscaping, sanitary perimeter fencing, construction of access road
6	WDC Shuralisay	New construction	Construction: clean water reservoirs 2 x 300m ³ , pump station including chlorination plant, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks, service connections, guardhouse, sanitation facility, land improvement, landscaping, sanitary perimeter fencing, construction of access road
7	WDC Okhunboboev	New construction	Construction: clean water reservoirs 2 x 100m ³ , pump station including chlorination plant, service connections, in-site power supply networks, transformer, substation, external power supply, security lighting networks, control-measuring units and automation networks, guardhouse, sanitation facility, land improvement, landscaping, sanitary perimeter fencing, construction of access road
8	WDC Boz-Suv	New construction	Construction: clean water reservoirs 2 x 500m ³ , pump station including chlorination plant, service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks, guardhouse, sanitation facility, land improvement, landscaping, sanitary perimeter fencing, construction of access road
9	Water Tower Galaba and Water Tower Kanalbuyi	New construction	Construction: water towers 2 x 50 m ³ , boosting pump station, service connections, power supply networks, land improvement, landscaping, sanitary perimeter fencing, construction of access road
10	Water Tower Yangirabad	New construction	Construction: water towers 2 x 50 m ³ , boosting pump station, service connections, power supply networks, land improvement, landscaping, sanitary perimeter fencing, construction of access road
11	Water Tower Dustlik	New construction	Construction: water towers 2 x 50 m ³ , boosting pump station, service connections, power supply networks, land improvement, landscaping, sanitary perimeter fencing, construction of access road
12	WDC Chinor	Reconstruction	Construction: clean water reservoir 1 x 1000m ³ , chlorination unit, Reconstruction: service connections, in-site power supply networks, transformer substation, external power supply, guardhouse security lighting networks, control-measuring units and automation networks, resurfacing, landscaping, protection perimeter fencing

13	Transmission trunk	11.3 km	
14	Network		
Chinaz district			
1	WDC Eshonobod	Reconstruction	Demolition: existing metallic reservoirs 3 x 65 m ³ Construction: pump station including chlorination plant, clean water reservoirs 2 x 300m ³ , sanitation facility Reconstruction: service connections, in-site power supply networks, transformer substation, external power supply, guardhouse security lighting networks, control-measuring units and automation networks, resurfacing, landscaping, protection perimeter fencing
2	WDC Sutbulok	Reconstruction	Construction: chlorination plant, guardhouse sanitation facility Reconstruction: clean water reservoirs 2 x 1000m ³ pump station, service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks resurfacing, landscaping, protection perimeter, fencing
3	WDC Madaniyat	Reconstruction	Construction: chlorination plant, guardhouse sanitation facility Reconstruction: clean water reservoirs 2 x 500m ³ , pump station, service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks resurfacing, landscaping, protection perimeter fencing
4	WDC Amir Timur	New construction	Construction: clean water reservoirs 2 x 1200m ³ pump station including chlorination plant guardhouse sanitation facility, service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks, land improvement, planting of landscaping, sanitary perimeter fencing, construction of access road
5	WDC Gayrat	New construction	Construction: clean water reservoirs 2 x 500m ³ , pump station including chlorination plant, service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks, guardhouse sanitation facility, land improvement, planting of landscaping, sanitary perimeter fencing, construction of access road
6	WDC Yangiobod	Reconstruction	Construction: chlorination plant, sanitation facility Reconstruction: clean water reservoirs 2 x 500m ³ , pump station, service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks guardhouse, resurfacing, landscaping, protection perimeter fencing
7	WDC Kutarma	Reconstruction	Demolition: reinforced-concrete reservoirs 2 x 500 m ³ Construction:

			pump station including chlorination plant, clean water reservoirs 2 x 700m ³ , sanitation facility Reconstruction: service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks Guardhouse, resurfacing, landscaping, protection perimeter fencing
8	WDC Yallama	Reconstruction	Construction: clean water reservoir 1 x 500m ³ , chlorination plant sanitation facility Reconstruction: clean water reservoirs 2 x 500m ³ pump station, in-site power supply networks, transformer substation, external power supply security lighting networks, control-measuring units and automation networks, guardhouse service connections, resurfacing, landscaping, protection perimeter fencing
9	WDC Chinaz	New construction	Demolition: building of laboratory Construction: clean water reservoirs 2 x 1700m ³ , pump station including chlorination plant, administrative building, service connections in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks, guardhouse, sanitation facility land improvement, planting of landscaping, sanitary perimeter fencing, construction of access road
10	Water Tower Uzumzor	New construction	Construction: water towers 2 x 50 m ³ , boosting pump station service connections, power supply networks, land improvement, planting of landscaping, sanitary perimeter fencing, construction of access road
11	Transmission trunk, km	64.5	
12	Network, km	27.27	

In addition to the water supply works, construction of 4030 households (HH) septic tanks will be undertaken within this phase of the project. The HH septic tanks will be installed in 11 settlements of the project area. The rest households will be supplied with septic tanks under the next phase (Phase III) of the Project.

Categorization of reviewed project as per ADB's requirements was done based on REA. It was defined that the Project belongs to category B, as a project with site-specific impacts, few of which are irreversible, and where in most cases mitigation measures can be designed. The Project requires an initial environmental examination (IEE), which will be based on data from the feasibility study, preliminary design, site visits and interviews with technical experts, as well as primary and secondary data including thus the feedback received during the public disclosure process.

In accordance with national legislation the Project belongs to Category 3 with respect to its environmental impact (low impact risk)¹. Prior to commencing construction such project requires conduction of an Environmental Impact Assessment and receiving of Environmental Appraisal from the State Committee on Ecology and Environment Protection of the Uzbekistan.

¹ Appendix 2 of the Cabinet Ministers' Decree (CMD) of the RUz No. 491, dated from 2001 with amendments made in CMD # 152 dated from 2009.

The main water sources in the project area are ground water. There are number of ground water wellfields which serve as sources for drinking water supply. In Yangiyul district they are: wellfield VU-1; Central Yangiyul wellfield; Niyozbosh Wellfield and pumping station; Gulbakhor wellfield and pumping; Nov wellfield & pumping station, and number of wells scattered within the rayon for the supply of villages. In Chinaz district they are: Almazar, Chinaz, New Chinaz, and number of wells scattered within the rayon for the supply of villages or mahallas.

For technical decision three options of water supply were assessed. Results of hydrogeological survey showed that more suitable on the current stage is option when only VU-1 ground water wellfield will be used as the main water sources for Yangiyul and Chinaz districts. Chemical analysis of water quality from another two wellfields (Almazar and Chinaz) showed exceeding national standards for drinking water on hardness and mineralization.

Baseline survey of the project area showed that air quality in the project area complies with national standards. Analysis of water quality taken from the water streams located next to the project area showed that water quality in water course close to WDC "Kutarma" exceeds norms. For the WDCs "Uzumzor" and "Yangiobod" water quality complies with standards.

The project area is significantly influenced by anthropogenic factor. The list of representatives of fauna of reviewed district is limited those type of animals, who could adapt to the life in anthropogenic conditions. The vegetation is represented by artificial planting of trees, bushes, fruit and vegetable crops. Non-fruit trees such as poplars, mulberry and willow grow usually along with roads and edge of fields. There is plenty of fruits trees growing in the orchards in the project area: apricots, apples, cheery, peaches and etc. Mainly cotton and wheat are cultivated on the agriculture lands. In whole it could be stated, that the reviewed districts are characterized as an area with those fauna species found their niche and adapted to the environment, where dominate place is occupied by human and one's business activity.

Records of diseases typically related to insufficient water supply and sanitation over the period 2014 to 2016 from the the Ministry of Health (MOH) showed that incidence of hepatitis A and acute intestinal diseases is much higher among children under 14.

Anticipated environmental impacts from the Project were reviewed at pre-construction, construction and operation stages. Identified impacts which are likely to occur during the construction stage are related to construction and rehabilitation of the trunk main, WDCs and distribution networks. These impacts consist mainly of: interferences with normal road traffic, temporary occurrence of noise, increase locally of airborne particulate, disturbance to access to private and public sites during construction of pipeworks, possible accidental spills of oils, or other liquid compounds potentially polluting soils and water, visual impacts. Feasibility conceptual design were established and reviewed in order to minimize impacts on existing infrastructure and other sites of natural and cultural importance. Mitigation measures include development of Traffic Management, Waste Management Plans and minimization of noise, dust and other type of emissions. The sites with potential high risk of noise and air pollution and negative impacts on surrounded living houses and schools were identified and relevant mitigation measures were included in EMP.

The Project involves also dismantling of obsolete components of the existing WTPs as well as old building and pump stations. The majority of transformers produced prior 1986 year and there is a possibility that oil contained PCB was used for such equipment. Particular measures will have to be applied for the removal and disposal of hazardous materials, such as PCBs containing oil from old transformers as well as asbestos-based materials. Proposed mitigation measures include initial examination of the transformer's old oil for PCBs content and implementation the special procedure on handling and disposal of such materials.

Recycling of material in other sectors of the civil works is recommended. The project involves demolishing of existing WDCs including old buildings and constructions, therefore there is a possibility of presence of asbestos materials (in roofing slate). Therefore, Prior to commencement of rehabilitation works at the WDCs, EO with International or National Environmental Specialist of PMC will conduct vision observation of old buildings and facilities on presence of asbestos materials. In case of presence such materials, will developed by Contractor a detailed "Waste Asbestos-Containing Material Management Plan" is to be developed by Contractors (Appendix 8).

Contractor will have to develop Asbestos Management Plan as recommended into attachment to this report.

Extensive pumping of ground water from wellfield may impact on water level in Chirchik river and it may lead to depletion of ground water reserve. A hydrogeological assessment provided by the State Committee on Geology and Mineral Resources establishes a maximal amount of water which could be withdrawn from wellfield without impact on water balance between ground and surface water.

In accordance with the assessment, up to 90 thousand m³/day could be withdrawn from wellfield VU-1 without adverse impact on Chirchik river's flow and depletion of ground water reserve. Required amount of water for drinking water supply of two project districts is 60 thousand m³/day. Therefore, pumping water within approved amount will not adversely impact on Chirchik water quality and quantity.

Major environmental impacts likely to occur in the long term are identified as a substantial increase of release of wastewater particularly from the domestic users, in a milieu not equipped with the required sewerage infrastructure.

Improved and extended water supply service will lead to increasing waste water. It may create problems due to low capacity or absence in some cases of sewage system in the project districts and lead to pollution of ground water, spread of diseases and other social problems. 4030 Household (HH) septic tanks will be installed in 11 settlements of Chinaz district under the current project. It will help to avoid pollution of the local ground water wells, located close to project area and Chirchik river itself.

Under the next phase of this project (Phase III), construction of HH septic tanks are planned in the rest 60 settlements and some of the urban areas which will be defined after study of the current situation.

The environmental monitoring plan (EMP) proposed in the IEE contains a set of measures to be implemented by the Contractors awarded civil works contracts. These measures will have to be clearly detailed in the Bills of Quantities (BOQ) included in the tender documents for civil works under both International Competitive Biddings (ICB) and National Competitive Biddings (NCB).

The EMP includes provisions for (i) monitoring of environmental indicators of air, water, noise at selected monitoring sites and with a proposed time lag, and (ii) supervision of implementation of environmental requirements during three stages of the project cycle.

Being directly accountable to the Cabinet of Ministers, Uzbekistan Agency "Communkhizmat" (CSA) is a central government body with overall responsibility to improve water supply and wastewater services nationwide. The CSA will be Executive Agency for the project.

The Implementing Agency (IA) will be the Tashkent province "Suvoqova". Executive Agency (EA) and Project Coordination Unit (PCU) PCU will be supported by a Project Management Consultant (PMC).

Responsibility for the supervision of the EMP implementation and relative reporting as indicated in the EMP will lay with the Project Coordination Unit (PCU) through its environmental specialist supported by the Project Management Consultant's (PMC) international and national environmental specialist. Contractors will be responsible for implementing mitigation measures at the construction sites.

To fulfill ADB requirement on information disclosure, number of meetings with stakeholders were conducted in the project areas in order to introduce meetings participants with the planning project, discuss possible impacts and mitigation measures. These topics were discussed with representatives of the district level Committee on Ecology and Environment Protection, district Khokimiyats and makhallas, MHCS, land cadaster committee, Ministry of Culture, Uzhydromet.

During 4 public consultations conducted in the Project districts information about the project, main findings of environmental and social assessment (in part of land acquisition and resettlement) impact assessment, GRM were presented to representatives of almost all settlements included into the project. Most part of participants were represented by Rural Citizens Assemble (RCA) leaders, citizens, representatives of district branches of Goskompriroda, land cadaster, sanitarian epidemiological station, women committee, schools, hospitals and etc. Total around 85 participants attended the public consultations.

In general terms, the implementation of the Project will imply some negative and positive impacts, for which mitigation measures have been identified. Main negative impacts occurring during the construction period are typical impacts arising during the execution of civil works, and pipe laying. These impacts are temporary and can be easily mitigated by means of adopting appropriate measures by contractors. Special provision will be included in the BOQs for civil works in accordance with the EMP.

A major impact identified to occur in the long term will be due to the anticipated supplementary amounts of wastewater produced from the various categories of consumers. This impact can be mitigated by installation of septic tanks in rural area of the project area and implementation of the approved state program on development and modernization of water supply and sewage system in Tashkent province.

The positive impacts are related essentially to the provision of safe water supply on a 24 hours basis which is anticipated to induce less occurrence of typically waterborne disease, better individual sanitation practices and overall improved health, to the beneficiary population.

1. INTRODUCTION

1. Currently, the existing water supply system of Tashkent province is in unsatisfactory condition and needs restoration and expansion. Tashkent province is the main administrative and economic center of the country. According to reports, at present less than half the population of the area receive proper water supply services, and many of them suffer from a high incidence of water off. Since the Tashkent province has a high potential for urbanization growth and the province is faced with vital problems of water supply, the government has earmarked an improvement of provincial water supply services as a priority.

2. The Government of Uzbekistan has received Technical Assistance (TA) from the Asian Development Bank (ADB) for the preparation of the Tashkent Province Water Supply Development Project (TPWSDP) which will involve rehabilitation, improvement and construction of water supply facilities and provide a stable and safe water supply in Tashkent province of the Republic of Uzbekistan.

3. The Project is in line with priorities set by both ADB and the GOU, namely with the ADB Country Operation Business Plan Uzbekistan 2012-2014 and the Country's partnership Strategy (CPS) Uzbekistan 2012-2016 as well as with the Development Strategy, road Map and Investment Program for the Water Supply and Sanitation Sector of the Republic of Uzbekistan until 2020.

4. The following regulatory documents are relevant to the implementation of the Project:

- Decree of the President of the Republic of Uzbekistan dated 6 March 2015 # PP-2313 "About the program of development and modernization of engineering communications and road infrastructure for the years 2015-2019";
- Decree of the President of the Republic of Uzbekistan dated August 6, 2013 # PP-2020 "About the measures on development of road-transport, engineering-communication and social infrastructure in the Tashkent province in 2013-2015" and the Decree of the President of the Republic of Uzbekistan dated 6 March 2015 # PP-2313 "About the program of development and modernization of engineering communications and road infrastructure for the years 2015-2019" includes the "*Reconstruction of water intake facilities for drinking water supply of Chinaz, Zangjota, Tashkent districts and part of Yangiyul district*" in the list of priority infrastructure projects.
- Decree of the President of Uzbekistan No.2910 dated 20.04.2017 "About drinking water supply and sewerage systems comprehensive development and modernization program during the period of 2017 - 2021".
- Instruction of the President of Uzbekistan No. P-4647 dated 18 May 2016. "About measures on further extension of financial cooperation with Asian Development Bank and other international financial institutions", and related Action Plan which includes "Reconstruction and construction of water supply and sewerage systems of cities and districts of Tashkent province; feasibility study for Phase II, Water Supply".

5. The main purpose of this Project is to reconstruct the transmission main as well as of the distribution system and to construct or reconstruct systems of distribution of water to rural settlements within the two administrative districts: Yangiyul and Chinaz districts, previously served by old the regional water supply system, with continuous and safe water supply.

6. The Project is expected to be implemented within a period of five years starting from January 2019. Preparation and planning activities will be carried out during 2018. Physical works will start in January 2019 and are expected to be completed as of December 2023, the liability and insurance period extending through 2024.

7. The project will have two outputs:

- (i) **Output 1: Improved water supply services within the Districts of Yangiyul and Chinaz of Tashkent Province.** Output 1 will consist of rehabilitation of ground water wellfield VU-1 and brining its capacity to 60,000 m³/day to supply potable water daily, rehabilitation and construction of 22 WDCs, construction of 64.5 km length of water transmission mains, 533.91 km of distribution pipeworks, and about 36,697 household water supply connections.
- (ii) **Output 2: TPS utility and system management improved.** The TPS will sustainably operate and maintain all components of the water supply system including the system management of the WTP and distribution system. It will control non-revenue water, provide customer services and tariff collection, procure and manage outsourced works and services, control and monitor its finances, ensure environmental compliance and conduction public awareness program including organizing educational center.

2. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK AND STANDARDS

8. This section discusses the national and local legal and institutional framework within which the environmental assessment is carried out. It also identifies project-relevant international environmental agreements to which the country is a party.

2.1. Institutional set up of water supply and environmental sectors

2.1.1. Institutional set up of water supply sector

9. This section provides brief information on institutions responsible for water supply sector management and involved in this process. In accordance with President Resolution (PR) No. 2900 of 18th April 2017² the Ministry of Housing and Communal Services (MHCS) of the RoUz is government agency and it is accountable to Cabinet Ministries of Uzbekistan.

10. As per the PR No. 2900, the following have been determined to be the main tasks and areas of operations of the MHCS of Ruz (in terms of water supply and sewerage):

- Develop and arrange high-quality performance of the programs for development, upgrading and reconstruction of water supply and sewerage facilities and heat supply systems in linkage to human settlements layouts and master plans, as well as ensure operations coordination and management of the of organizations in this field;
- Introduce resource-saving and energy-saving technologies and equipment into the housing and utilities system, incl. equip the housing and utilities facilities with modern accounting and measuring devices, and apply widely the modern and high-quality domestic building materials and products that ensure cost reduction of construction and erection work;

² 'On Arranging the Operations of the Ministry of Housing and Communal Services of the Republic of Uzbekistan', Resolution of the RoUz President No. 2900 of 18th April 2017

- As agreed with the RUz Ministry of Finance, form a tariff policy for provision of water supply, sewerage, and heat supply services and implementation of integrated activities on strengthening the economic sustainability of housing and utilities organizations.

11. “Communkhizmat” Agency is a specially authorized body for the development and implementation of investment projects with the participation of international financial and economic institutions, as well as foreign government financial organizations (in the sphere of housing and communal services.) The agency is a structural subdivision of the MHCS and it is accountable to MHCS.

12. Among other subdivisions, **Communkhizmat Agency (CSA) and the SUE** [State Unitary Enterprise], **'Engineering Company for Water Supply and Sewerage Facilities Construction'** with its regional branches were included into the structure of the RUz MHCS. The provisions determining the tasks and areas of operations of both of these organizations are under development.

13. Moreover, the PR No. 2900 of 18th April 2017³ **established the State Inspectorate for Drinking Water Use Control** under the RUz Cabinet of Ministers (Uzdavinspektsiya). It was determined by one of the main tasks of Uzdavinspektsiya to conduct surveys and inspections of all categories of water supply and sewerage facilities as well as to address matters related to water intake wells, regardless of the forms of ownership, in terms of matters within its competence.

³ 'On Arranging the Operations of the State Inspectorate for Drinking Water Use Control under the RUz Cabinet of Ministers', RUz PR No. 2899 of 18th April 2017

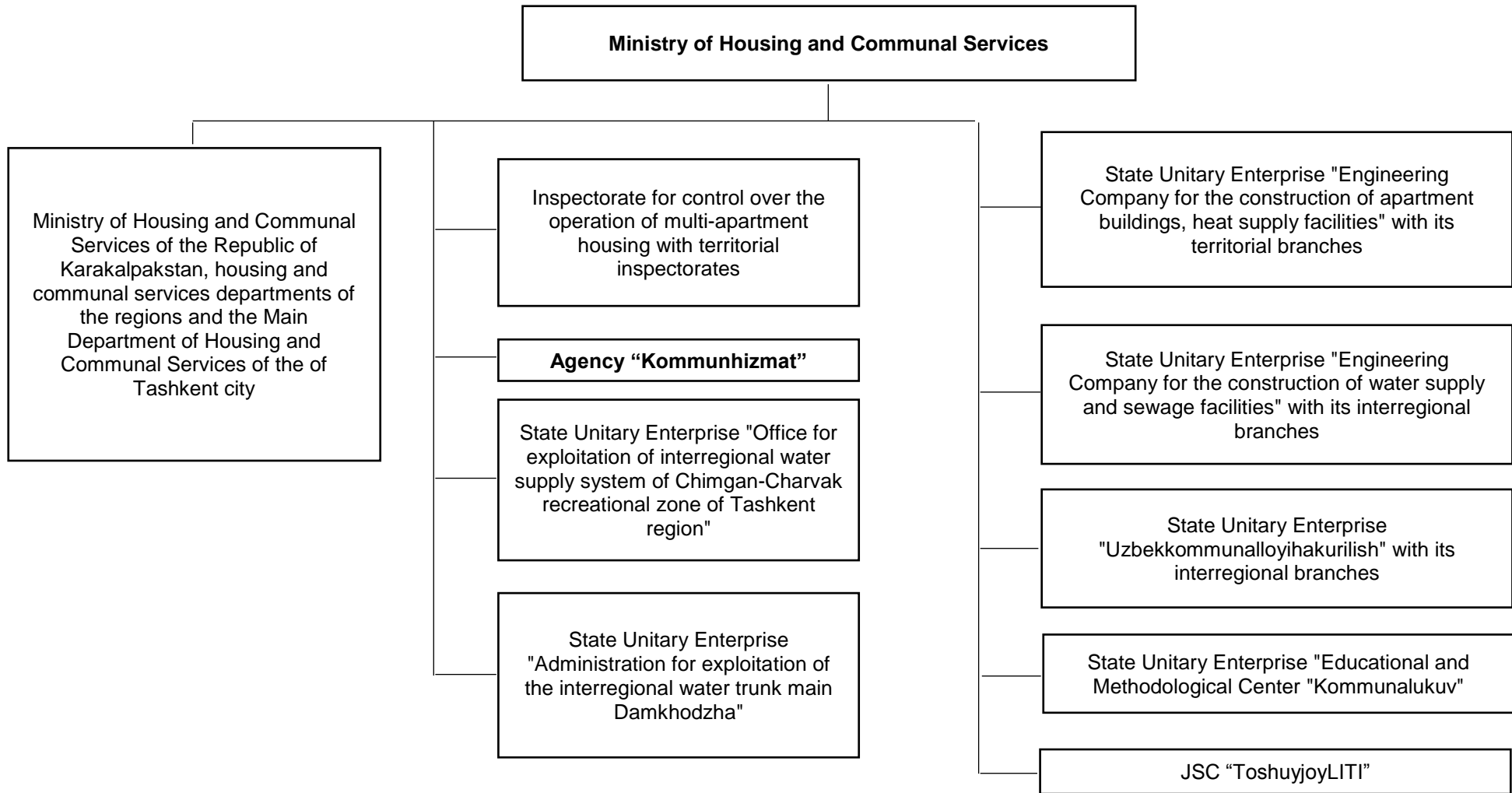


Figure 1: Organizational Structure of Ministry of Housing and Communal Services (MHCS) of the Republic of Uzbekistan

14. Moreover, according to the PR No. 2954 of 4th May 2017⁴, ***the State Committee for Geology and Mineral Resources, State Committee for Ecology and Environmental Protection of the Republic of Uzbekistan, State Inspectorate for Drinking Water Use Control, Sanoatgeokontekhnazorat State Inspectorate for Supervision of Subsurface Resources Geological Investigation, Safe Work in Industry, Mining, Utilities and Household Sector***, and local bodies of state authority constitute the authorized state bodies for ensuring proper control and accounting of rational underground water use.

2.1.2. Institutional set up of environmental protection

15. The State Committee for Ecology and Environmental protection (Goskompriroda) is the body of state administration in the sphere of ecology, environmental protection, rational use and reproduction of natural resources. The committee is accountable to the Cabinet of Ministers of the Republic of Uzbekistan.

16. The activity of the committee is regulated by President Resolution No. 5024 'On Improving the System of State Management in the sphere of Ecology and Environmental Protection' of 21th April 2017.

17. The followings are main tasks of the Goskompriroda:

- state management in the sphere of ecology, environmental protection, rational use and reproduction of natural resources;
- state environmental control over compliance with legislation in the field of land use and its protection, mineral resources, waters, forests, protected natural areas, flora and fauna, protection of atmospheric air;
- coordination of works on ecology and environmental protection, ensuring inter-agency cooperation in the development and implementation of a single environmental and resource-saving policies;
- keeping the state cadastre in the sphere of ecology and environmental protection, as well as state registration of nurseries for the breeding and maintenance of wild animals, wild plants, zoological and botanical collections;
- organization of ecological education, propaganda and education, as well as retraining and advanced training of specialists in the field of ecology and environmental protection;
- prevention of offenses in the sphere of environmental protection, rational use of natural resources and waste management;
- ensuring close interaction with the public and institutions of civil society in matters of ecology and environmental protection, citizens' rights to a favorable environment.

18. The structure of Goskompriroda takes the form of a central body in Tashkent with regional branches and agencies providing scientific and technical support. Regional environmental authorities are structured similarly to the Goskompriroda.

19. Other state bodies of the Republic of Uzbekistan dealing with environment-related issues are:

- Ministry of Water Resources;
- State Committee for Geology and Mineral Resources (or Goskomgeologia);
- Centre of Hydro-meteorological Service (or Uzhydromet);

⁴ 'On Measures to Regulate the Control and Accounting of Rational Underground Water Reserves Use for 2017-2021', RoUz PR No. 2954 of 4th May 2017

- Ministry of Health (or MoH RUz);
- State Inspectorate for Exploration Supervision, Operations Safety Supervision of Industry, Mining and Utilities Sector (or Sanoatgeokontekhnazorat).

20. **Ministry of Water Resources** is responsible for water allocation among different users within Republic of Uzbekistan. Based on forecast and limits provided by Interstate Commission for Water Coordination (ICWC), water is allocated among users with the priority given to drinking water supply sector.⁵

21. **State Committee for Geology and Mineral Resources:** (i) carries out, together with Geological Survey Services of the neighboring countries, work on identifying and studying the focal points of radioactive and toxic pollution within transboundary territories, prepare geological maps and atlases reflecting specially hazardous zones and sections; (ii) in accordance with the procedure established by legislation, exercises control over protection of geological and mineralogical facilities as well as underground water from pollution and depletion.

22. **Uzhydromet** establishes and maintains the State Hydrometeorological Fund of Data, the State Fund of data on environment pollution, state accounting of surface waters; systematic observations of air, soil, surface water, as well as formation and development of disastrous hydrometeorological phenomena.

23. **Ministry of Health of RUz** – develops and approves sanitary regulations, rules, and hygienic standards, carries out state sanitary supervision over their observance as well as methodological supervision of the work of sanitary and epidemiological services, regardless of their departmental subordination.

24. **Sanoatgeokontekhnazorat** (State Inspectorate for Supervision of Subsurface Resources Geological Investigation, Safe Work in Industry, Mining, Utilities and Household Sector) – works together with the State Committee for Ecology and Environment protection of the Republic of Uzbekistan and carries out control in the field of geological investigation, use and protection of subsurface resources.

2.2. Policy and Legal Framework

2.2.1 ADB Safeguards Policy

25. Environmental and social safeguards are a cornerstone of ADB's support to inclusive economic growth and environmental sustainable growth. ADB Safeguards Statement Policy (SPS) adopted in 2009 governs the environmental and social safeguards of ADB's operations. The objectives of the SPS are to avoid, or when avoidance is not possible, to minimize and mitigate adverse project impacts on the environment and affected people, and to help borrowers strengthen their safeguard systems and develop the capacity to manage environmental and social risks.

26. SPS builds upon the three previous safeguard policies on the environment, involuntary resettlement, and indigenous peoples, and brings them into a consolidated policy framework that enhances effectiveness and relevance. The SPS applies to all ADB-supported projects. ADB works with borrowers to put policy principles and requirements into practice through project review and supervision, and capacity development support. The SPS also provides a

⁵ Law of RUz "On water and water use" (1993), chapter 8, para 25

platform for participation by affected people and other stakeholders in project design and implementation.⁶

27. The objectives of ADB's safeguards are to:

- (i) avoid adverse impacts of projects on the environment and affected people, where possible;
- (ii) minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is not possible; and
- (iii) help borrowers/clients to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.

28. ADB will not finance projects that do not comply with its safeguard policy statement, nor will it finance projects that do not comply with the host country's social and environmental laws and regulations, including those laws implementing host country obligations under international law.

29. Based on preliminary review projects are assigned to one of the following four categories:

Category A. A proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment is required.

Category B. A proposed project is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination is required.

Category C. A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed.

30. ADB pays special attention to processes of information disclosure, and consultations and participation during the project preparation and implementation phases. ADB publishes final or updated environmental impact assessments and/or initial environmental examinations on its own website. ADB is committed to working with borrowers/clients to put meaningful consultation processes into practice. Consultations process with communities, groups, affected people starts at the earliest stages of the project preparation and continues through all process of environmental assessment.

31. ADB requires that the borrower/client establish and maintain a grievance redress mechanism to receive and facilitate resolution of affected peoples' concerns and grievances about the borrower's/client's social and environmental performance at project level.

32. Categorization of reviewed project was done based on REA. It was defined that the Project belongs to category B, as a project with site-specific impacts, few of which are irreversible, and where in most cases mitigation measures can be designed. The Project requires an initial environmental examination (IEE), which will be based on data from the feasibility study, preliminary design, site visits and interviews with technical experts, as well

⁶ www.adb.org/site/safeguards/overview

as primary and secondary data including thus the feedback received during the public disclosure process.

2.2.2 National Environmental Regulatory Framework

33. Legal Framework in the field of Nature Protection and Management established in RUz, provides to the citizens the rights and duties specified in the country's Constitution. Specific articles that address environment protection issues within the Constitution are:

- Article 50. All citizens shall protect the environment
- Article 51. All citizens shall be obliged to pay taxes and local fees established by law
- Article 54. Any property shall not inflict harm to the environment
- Article 55. Land, subsoil, flora, fauna, and other natural resources are protected by the state and considered as resources of national wealth subject to sustainable use.

34. Uzbekistan has enacted several supporting laws and statutes for environmental management, and is party to several international and regional environmental agreements and conventions. The key national environmental law is the Law on Nature Protection (1992). A brief description of this law and the other supporting laws related to environmental protection is presented below.

35. The law "**On nature protection**" (1992) states legal, economic, and organizational bases for the conservation of the environment and the rational use of natural resources. Its purpose is to ensure balanced relations between man and nature, to protect the environmental system and to guarantee the rights of the population of a clean environment. Article 25 of this law states that State Environmental Expertise (SEE) is a mandatory measure for environmental protection, preceded to decision-making process. In addition, article 25 says that the implementation of the project without a positive conclusion of SEE is prohibited.

36. Law "**On Atmospheric Air Protection**" (1996, amended on 10.10.2006). It describes regulations on atmosphere protection and its objectives. It specifies standards, quality and deleterious effect norms, requirements on fuels and lubricants, production and operation of vehicles and other transport means and equipment, ozone layer protection requirements, obligations of enterprises, institutions and organizations toward atmospheric protection, and compensations for damages from atmospheric pollutions.

37. Law "**On water and water use**" (1993). It regulates the water relations, rational use of water by the population and economy. The law regulates the protection of waters from pollution and depletion, and prevention and liquidation of harmful effects of water, improvement of water bodies and the protection of the rights of enterprises and institutions, organizations and dehqan farms and individuals in the field of water relations.

38. **Land Code** of the Republic of Uzbekistan (1998). It aims to regulate land relations in order to ensure that present and future generations have science-based, sustainable use and conservation of land, breeding and improvement of soil fertility, conservation and improvement of the environment and creating conditions for equitable development of all forms of management, the protection of individuals and legal entities' right for land, as well as strengthening the rule of law in this area.

39. **Law "On Wastes"** (2002, as amended on 2011). It addresses waste management, exclusive of emissions and air and water pollution, and confers authority to the SNPC concerning inspections, coordination, ecological expertise and establishing certain parameters with regard to the locations where waste may be processed. Enterprises are

responsible for their waste, but, if they recycle, they may be provided with assistance from the state budget, the National Fund for Nature Protection or voluntary payments. The principal objective of this law is to prevent negative effects of solid wastes on people's lives and health, as well as on the environment, reduce wastes generations, and encourage rational use of waste reduction techniques in household activities.

40. **Law "On Protected Natural Reserves"** (2004) - The purpose of this Law is to regulate relations in term of organization, protection and use of protected natural territories. The main tasks of this Law are the preservation of typical, unique, valuable natural objects and complexes, the genetic fund of plants and animals, the prevention of the negative impact of human activities on nature, the study of natural processes, the monitoring of the environment, the improvement of environmental education.

41. **Law "On environmental control"** (2013) - The purpose of this Law is to regulate relations in the field of environmental control. The main objectives of environmental control are: (i) prevention, detection and suppression of violation of the requirements of legislation in the field of environmental protection and rational use of natural resources;(ii) monitoring the state of the environment, identifying situations that can lead to environmental pollution, irrational use of natural resources, create a threat to life and health of citizens; (iii) determination of compliance with the environmental requirements of the planned or ongoing economic and other activities; (iv) ensuring compliance with the rights and legitimate interests of legal entities and individuals, performing their duties in the field of environmental protection and rational use of natural resources.

42. **Law "On Protection and Usage Objects of Archeological Heritage"** (2009) – regulates relations in the field of protection and usage of objective of archeological heritages, defines ownership rights of such objectives, responsible entities and provides a procedure of archeological investigation of the objectives of archeological heritage.

43. Other laws and standards applicable for the current project are:

- Decree of Cabinet Ministries of RUz on the procedure of issuing permits for special water use and consumption No. 171 of 14.06.2013;
- State Standard - Water quality. O'z DST 951:2011 – Sources of centralized household water supply. Hygienic, technical requirements and classification code;
- State Standard - Drinking water. O'z DST 950:2011 – Drinking water. Hygienic requirements and quality control;
- State standard O'z DSt 1057:2004 "Vehicles. Safety requirements for technical conditions" and O'z DSt 1058:2004 "Vehicles. Technical inspection. Method of control";
- SanR&N RUz No.0179-04 Hygienic norms. List of Maximum Allowable Concentrations (MACs) of pollutants in ambient air of communities in the Republic of Uzbekistan including Annex 1;
- SanR&N RUz No. 0158-04 Sanitarian Rules and Norms on collection, transportation and disposal of wastes contained asbestos in Uzbekistan;
- SanR&N RUz No. 0267-09 Admissible noise level into the living area, both inside and outside the buildings;
- SanR&N RUz №0120-01 Sanitarian Norms of allowed level of noise at the construction sites;
- SanR&N RUz No 0088-99 Sanitarian requirements for development and approval of maximum allowed discharges (MAD) of pollutants discharged into the water bodies with waste waters;
- KMK (Construction norms and rules) 2.04.02-97 "Water Supply. External network and facilities".

2.2.3 National EIA requirements

44. The national EIA procedure is regulated by **Law on Environmental Expertise** and The Regulation on State Environmental Expertise (SEE) approved by Cabinet of Ministry Decree No.491 dated from 31 December 2001 with amendments in 2005 and 2009. The regulation defines the legal requirements for EIA in Uzbekistan. SEE is a review process conducted by the Center for SEE (*Glavgosecoexpertiza*) under *Goskompriroda* at either the national or the regional level, depending on the project category.

45. *Goskompriroda* on state environmental expertise is a uniform system of State Environmental Expertise, methodological guidance of which implemented by *Glavgosecoexpertise*.

46. Pursuant to Section 10 of the Regulation on SEE, the developer must conduct the EIA assessment process ('OVOS' is the national acronym) in a staged approach, providing the *Glavgosecoexpertiza/Gosecoexpertisa* with OVOS documents for review at three distinct stages of the Project. Section 11 of the Regulation on SEE outlines the information that should be within the documentation at each of these stages. The three OVOS stages and their required deliverables are summarized as follows:

47. **Stage I:** *The 'Concept Statement on Environmental Impact'* ('PZVOS' is the national acronym), to be conducted at the planning stage of the proposed project prior to development funds being allocated.

48. **Stage II:** *The 'Statement on Environmental Impact'* ('ZVOS' is the national acronym), to be completed where it was identified by the *Glavgosecoexpertiza/Gosecoexpertise* at Stage I that additional investigations or analyses were necessary. The Statement must be submitted to the *Glavgosecoexpertiza/Gosecoexpertise* before approval of the project's feasibility study, and therefore before construction.

49. **Stage III:** *The 'Statement on Environmental Consequences'* ('ZEP' is the national acronym) represents the final stage in the SEE process and is to be conducted before the project is commissioned. The report details the modifications to the project design that have been made from the *Glavgosecoexpertiza/Gosecoexpertise* review at the first two stages of the EIA process, the comments received through the public consultation, the environmental norms applicable to the project and environmental monitoring requirements associated with the project and principal conclusions.

50. SEE approval (*Glavgosecoexpertiza/Gosecoexpertise* opinion) is a mandatory document for project financing by Uzbek banks and other lenders (Section 18) at Stages I and II and for project commissioning at Stage III of the national EIA procedure.

51. All economic activities subject to SEE are classified into one of four categories:

- Categories I and II — "high and medium risks of environmental impact" (SEE is conducted by the national SNPC within 30 days, all EIA materials are required);
- Category III — "low risk of impact" (SER is conducted by regional branches of SNPC within 20 days, all EIA materials are required); and
- Category IV – "low impact" (SEE is conducted by regional branches of SNPC within ten days, only a draft EIA is required).

52. As per national legislation the Project belongs to Category 3 with respect to their environmental impact (low impact risk)⁷. Prior to commencing construction such project requires the conduct of the Environmental Impact Assessment and Environmental Appraisal from the State Committee on Ecology and Environment Protection at the provincial level. At the stage of this report preparation, national EIA was developing by a national design institute under MCHS - “Uzbekkomunalloyihaqurilish”. In accordance to national legislation⁸, the EIA is part of Feasibility Study. An Environmental clearance for this project will be received upon submission of whole set of national Feasibility study to relevant agencies. Particularly, Environmental Clearance will be issued by Tashkent Province’s branch of State Committee on Ecology and Environment Protection.

53. GAP analysis between ADB safeguards requirements and Uzbek environmental legislation is presented in Table 1.

⁷ Appendix 2 of the Cabinet Ministers’ Decree (CMD) of the RUz No. 491, dated from 2001 with amendments made in CMD # 152 dated from 2009.

⁸ Resolution of Cabinet Ministries of the Republic of Uzbekistan # 3550 dated from February 20, 2018

Table 1: Gap analysis between ADB safeguards requirements and Uzbek national environmental legislation

Aspect	Asian Development Bank	National Uzbek Regulations	Harmonized Framework
Environmental Policy and Regulations	ADB's SPS (2009) sets out the policy objectives, scope and triggers, and principles for three key safeguard areas: <ul style="list-style-type: none"> i. Environmental safeguards, ii. Involuntary resettlement safeguards, and iii. Indigenous peoples safeguards 	Environmental assessment and permitting procedure in Uzbekistan is set out in the following laws and regulations: <ul style="list-style-type: none"> i. The Law on Nature Protection (1992); ii. The Law on Environmental Expertise (2000), and iii. Resolution of Cabinet Ministries (RCM) # 491 (2001) (with amendments # 152 (2005) on "Regulation on Environmental Expertise" (2001) 	
Screening	ADB carry out project screening and categorization at the earliest stage of project preparation when sufficient information is available for this purpose using REA checklist. Categorization into Category A, B, C, FI	The category of the project is defined in accordance with Appendix 1 to RCM # 491 (152). The Appendix provides a list of activities divided on 4 categories (para 62 of this IEE).	The Project is Categorized in to 'Category B' (ADB classification) and category 3 (national legislation)
Scoping	Avoid, minimize, mitigate and/or offset for adverse impacts and enhancement of positive impacts through environmental planning and management	The environmental assessment should evaluate: (i) compliance of proposing project with environmental requirements, (ii) level of risk related to project implementation on people's health and environment, and (iii) efficiency of developed measures to mitigate identified impacts.	Conduct a process of Environmental Assessment that will consider in an integrated manner the potential environmental (including labor, health, and safety) risks and impacts of the project.
	EA takes into account potential impacts (direct, indirect and cumulative) and risks on physical, biological, resettlement, socio-economic (including health and safety), and physical cultural resources	Environmental assessment considers the project's potential impacts on the physical, biological, socio-economic and cultural resources, including cumulative impacts.	The Environmental Assessment will take into account natural environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, indigenous peoples, and physical cultural resources
Alternatives	Examination of financially and technically feasible alternatives to the project location, design, technology and components, their potential environmental and social impacts Consider no project alternative.	For the ZVOS, consideration of alternatives is required. Alternatives that may be assessed include alternatives in; processing, technical design, location of the facility, architectural and planning options. Another mandatory requirement is consideration of the zero option.	Assessment of alternatives will include the location and design.

Aspect	Asian Development Bank	National Uzbek Regulations	Harmonized Framework
EIA Report	<p>Guidelines and Table of Contents are provided for EIA report in SPS (2009): (i) Executive Summary, (ii) Policy, Legal and Administrative Framework, (iii) Description of the Project, (iv) Description of the Environment, (v) Anticipated Environmental Impacts and Mitigation Measures, (vi) Analysis of Alternatives, (vii) Information disclosure, Consultations, and Participation, (viii) Grievance Redress Mechanism, (ix) Environmental Management Plan, and (x) Conclusion and Recommendation.</p> <p>EMP will include proposed mitigation measures, monitoring and reporting requirements, institutional arrangements, schedules, cost estimates and performance indicators</p>	<p>The RCM # 491 defines activities which are needed to undertaken under ZVOS preparation. Description of undertaken activities needs to included into the ZVOS report. The RCM requires conduction of the followings: (i) assessment of existing environmental conditions and socio-economic conditions, (ii) project description, (iii) anticipating discharges, emissions, wastes, their impact on environment and way disposal, (iv) collection, storage and disposal of wastes (v) analyst of alternatives, (vi) institution, technical and technological mitigation measures, (vii) analyze of emergency risk, probability of occurrence and emergency containment measures, (viii) forecast of changes in environment after project commences operation.</p> <p>The complexity of the report depends on category of the project.</p>	<p>The IEE and EMP reports will follow the table of contents proposed in ADB's SPS (2009).</p>
Public Consultations	<p>Carry out meaningful consultation with affected people and facilitate their informed participation Ensuring women's participation in consultation. Involving stakeholders, project- affected people and concerned NGOs early in the project preparation and ensure that their views and concerns are made known and understood by decision makers and taken into account The consultation process and its results are to be documented and reflected in the environmental assessment report</p>	<p>Public meetings are held if required at the time of the ZVOS (second stage). But this requirement is not mandatory. The need for public consultations is identified at the time of the PZVOS. Participants at public meetings include the author of the PZVOS, the project developer and stakeholders. Public consultation meetings have to be announced in the media.</p> <p>If Public Consultation have been conducted, the results of the public meetings are formalized by the minutes and verified by the signatures of the attendees. The minutes of the public meeting or the shorthand records shall be attached to the materials of draft IEE. As a result of the public meetings, the people have an opportunity to state their proposals, to influence on the decision</p>	<p>Consultations will be carried out with the stakeholders, affected people, NGOs. Questions and concerns raised during public consultations held in Feasibility stage is considered.</p> <p>Rural Citizen Assembly level consultations will be held with the affected people with inviting the main stakeholders.</p> <p>All questions and concerns raised during public consultation will be included in IEE. Signed list of participants, photos from meetings will be attached to this IEE.</p>

Aspect	Asian Development Bank	National Uzbek Regulations	Harmonized Framework
		making and if required to appeal for their reconsideration	
Public Disclosure	Draft IEE will be published in ADB website	National environmental legislation does not require publishing PZVOS (ZVOS).	IEE report (English and Russian) will be published in ADB and AIPAC websites. The copies of the IEE report will be made available with the district hokimiyats and Andijan branch of State Committee on Ecology and Environment Protection.
Monitoring and Reporting	The borrow/client has to monitor and measure the progress of implementation of the EMP and prepare periodic monitoring reports that describe progress with implementation of the EMP and compliance issues and corrective actions if any	Monitoring of implementation of mitigation measures developed under IEE is responsibility of design company developed Feasibility Study (author's supervision). External monitoring could be conducted by Representatives of State Nature Protection. There are no requirements on submission report during construction period in national environmental legislation	Environmental Monitoring Plan will be developed under this IEE to monitor implementation of EMP requirements. The IEE also includes requirements on preparation of semi-annual Environmental Monitoring Reports and their submission to ADB for further disclosure on ADB and AIPAC's websites.
Grievance Redress Mechanism	The GRM has to be established to receive and facilities resolution of affected peoples' concerns, complaints, and grievances about the project/s environmental performance.	A grievance redress procedure in Uzbekistan is also regulated by the national legislation of Republic of Uzbekistan, in particular by the law "On Citizens' Applications" and the "Law on the order of submission of appeals of physical and legal entities" ((#378, 03 December 2014)	The GRM for this project will be developed on ADB requirements with taking into account national requirements

54. The Table 1a presents approvals and permissions from national agencies which are needed to be received prior commencement of civil works and the project operation.

Table 1a: List of necessary approvals and permissions

#	Name of the document	Time of receiving permission	Responsible entity
1	Environmental Clearance (Positive Conclusion of Environmental Expertise)	Prior commencement of the construction works	TPS
2	Permission/license for using existing borrow pits or opening new ones	Prior commencement of the construction works	Contractor
3	Permission on cutting trees and bushes	Prior commencement of the construction works	Contractor
4	Statement on Environmental Consequences (Permission on waste water, emissions discharge, disposal wastes)	Prior commencement of operation of VU-1	TPS
5	Permission on special water use for ground water on VU-1	Prior commencement of VU-1 ground water wellfield	TPS

2.2.4 International Environmental Legislation

55. It is important that the Project meets international lending requirements. The following international guidelines are relevant to the Project and will be considered during the EIA process:

- ADB's Safeguards Policy Statement (June 2009);
- ADB's Operations Manual Bank Policies: Safeguard Policy Statement (March 2010);
- ADB's Environmental Assessment Guidelines (2003);
- IFC General Environmental, Health and Safety Guidelines (April 2007);
- WHO, Guidelines for Drinking-water Quality (2014).

International conventions

56. Under international cooperation in the field of environment protection, Republic of Uzbekistan signed number of International Conventions, which should be undertaken by State Committee for Ecology and Environment Protection of the RUz. Those potentially applicable to the Project, and for which Uzbekistan is signatory, are outlined in Table 2.

Table 2: Key applicable international conventions and protocols

Convention or protocol	Overview	Relevance to project
UN Framework Convention on Climate Change (2007)	The Kyoto Protocol (a Protocol to the UN UNFCCC) aims to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.	The Project will not lead to increasing emission to atmosphere.
Kyoto Protocol (1997), ratified in 1999		
Paris Agreement on Climate Change (2016)	Paris Agreement provides an opportunity for countries to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius and	

Convention Concerning the Protection of World Cultural and Natural Heritage (2004).	<p>to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.</p> <p>The Convention Concerning the Protection of World Cultural and Natural Heritage is the precursor to the establishment of UNESCO World Heritage Sites as a place (i.e. natural or built environment) that is listed by the UNESCO as of special cultural or physical significance.</p>	<p>The Project will have no interaction with these. As such, requirements under the convention will not be triggered.</p>
The Stockholm Convention on Persistent Organic Pollutants (2004)	<p>The Convention is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment.</p>	<p>The project will comply with national and international standards for hazardous wastes (chemicals) generation and management. Special Asbestos management plan is developed under the IEE. Disposal of PCBs will be done in accordance with "“Guidebook on Environmental Sound PCB Management in Electrical Equipment” (prepared under Moldova POPs Stockpiles Sustainable Management and Destruction project)".</p>

3. DESCRIPTION OF THE PROJECT

3.1. Existing situation

57. The project will cover two of 16 administrative districts of Tashkent province, namely: Yangiyul and Chinaz. These two districts are situated on administrative territory of the Tashkent province (Figure 2).

58. Yangiyul town and other settlements within the **Yangiyul district** rely for their water supply exclusively on groundwater from the:

- wellfield VU-1;
- Central Yangiyul wellfield;
- Nyezboosh Wellfield and pumping station;
- Gulbakhor wellfield and pumping;
- Nov wellfield & pumping station, and
- number of wells scattered within the rayon for the supply of villages or mahallas.



Figure 2: Project districts Yangiyul and Chinaz

59. The wellfields described above except VU-1, produce groundwater for the supply of Yangiyul and surrounding settlements which are not included under the TPWSDP. Phase II.

60. Along with wellfields' ground water, people use other drinking water sources which supply different parts of the districts: single and cluster ground water wells, tanked water. In addition, for non-drinking purposes (cleaning and laundry) people use water from hand pumps and surface canals.



Figure 2a: Cans for drinking water



Figure 2b: Tanked water

61. In accordance with data provided by Tashkent Province Suvoqova (TPS), 16,7% of Yangiyul district's population use shallow boreholes and hand pumps as water supply sources. 6.1% of population use tanked water for drinking purposes. 100% population of Yangiyul city is connected to centralized water supply, and within Yangiyul district 72% of population is connected to centralized water supply system.

62. The main distribution system in **Chinaz district** consists of 304.5 km of distribution pipework of which 146 need to be replaced. The transmission main within the district is 38.7 km long. There are 6,832 customers of which 4,220 within the city of Chinaz and 2,612 customers in extra-urban settlements.

63. The main water sources in Chinaz district are wellfields consisted of groups of underground wells and standing wells:

- a groundwater wellfield “Almazar” commissioned in 1977 with 6 production wells of which 3 in operation an producing 5,200 m³/d; there is also a 2nd stage pump station equipped with 3 pumps which was initially boosting water up to settlements in the North of the district via a 400 mm feeder line and the WDC Eshonabad and Sutbulak, now abandoned; there is no chlorination equipment; at the present stage the water from the wellfield is boosted alternatively up to Sutchilar, via the existing DN 400 main and to Dustlik center;
- a groundwater well field “Chinaz”, “South of Chinaz city”, commissioned in 1962 with 5 production wells but only 3 in service, which is the main source of water supply to the Chinaz Rayon center;
- a groundwater wellfield in Yangi Chinaz commissioned in 1977 with two 180 m deep production wells having a reported capacity of 860 m³/d, also supplying Chinaz center;
- a number of other small wellfields particularly in the eastern part of the Rayon area.

64. It is reported that the groundwater from wellfields Chinaz and Yangi Chinaz is characterized by relatively high salt content. It is similarly reported that other wells produce groundwater characterized by high dissolved mineral content. More detail information based on results of hydrogeological survey conducted under this PPTA is presented in the next chapters.

65. 63,3% of population of Chinaz districts is covered by centralized water supply. 31,7 % use shallow boreholes and hand pumps and 5 % of population use tanked water.⁹

66. Data on current and forecasted population of districts are provided in the following table.

Table 3: Existing and projected population growth in the project districts

District	2016	2020	2025	2030	2035	2040
Yangiyul	256.920	268.727	282.529	293.818	304.667	314.641
Chinaz	125.653	129.883	134.525	137.791	140.694	143.044

Source: Institute of Microeconomic Research under Cabinet of Ministries of Uzbekistan, 2016

67. Next chapter present information on facilities included in the project.

68. **The wellfield VU-1** located in the eastern bank of the Chirchik River occupies territory in 4 ha. The VU-1 was commissioned in 1982 and it includes 27 production wells. The design capacity of the water intake is 130 thousand m³/day. The current production is 2.3 thousand m³/day. The wellfield includes an alignment of wells parallel to the Chirchik river course over a length of 3,5 km. Distance between wells varies from 100 to 350 m.

69. Depth of wells is between 56 to 65 m. Wells exploit groundwater taking place within undifferentiated alluvial deposits of a recent sequence of upper-quaternary essentially gravelly deposits. In places, conglomerate layers confine locally the aquifer down to depths up to about 60 m.

⁹ Data is provided Chinaz and Yangiyul branches of Suvoqova

70. During the development of the wellfield between 1981 and 1983, pumping tests were carried out in 6 test wells producing a yield of 66,700 m³/d (772 l/s). Based on these results the potential of the wellfield was estimated at 141,700 m³/d. As the construction of production wells progressed, the tested capacity of the first 17 wells was of 69,100 m³/d (800 l/s) and when 22 wells were completed the production capacity augmented to 86,400 m³/d (1,000 l/s).

71. Based Conclusion of State Commission on Reserves # 933 dated from 30 October, 1983, the operation ground water resources were calculated and confirmed in amount 141.7 thousand m³/day.

72. The water quality in VU-1 has bicarbonate-sulphate-calcium-magnesium with dry residual 0.37-0.6 mg/l and total hardness about from 5.2 up to 6.2 mg.ecq/l. These indicators comply with national standards for drinking water – 1-1.5 mg/l and 7-10 mg.ecq/l accordingly.¹⁰

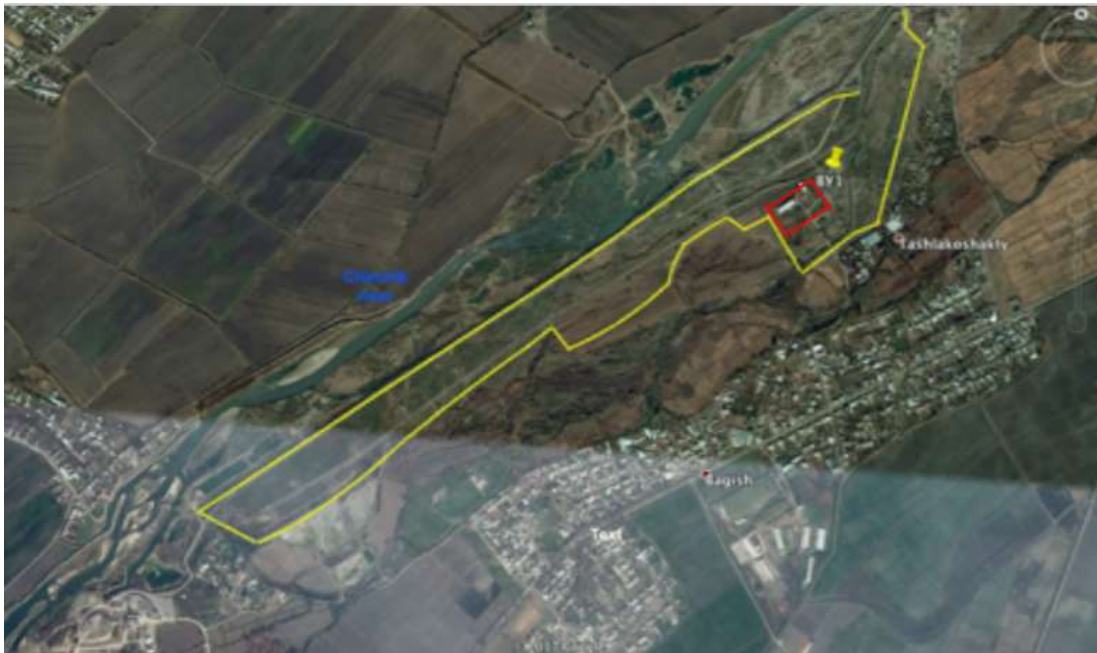


Figure 3: Location of VU-1. Territory of the main buildings is indicated in red

73. The equipment located on the VU-1 territory includes two 2000 m³ concrete and two 2,000 m³ steel clean water reservoirs and a 2nd lift pumping station composed of 3 centrifugal pumps. Presently only one pump with capacity of 1,250 m³/h is operated. The distribution network composed of a pipework more than 30 years old, is largely out of service and in disrepair (Some 15 km of pipework should be reconstructed)

¹⁰ State Standard - Drinking water. O'z DST 950:2011 – Drinking water. Hygienic requirements and quality control



Figure 4: Main building on VU-1

74. From the 2nd lift pumping station VU-1 water is pumped towards the 3d lift pumping station VU-3 via a 14.7 km long 1,000 mm diameter transmission and from VU-3 the water is distributed up to Khalkabad in Yangiyul district via a recently renovated DN 800 mm.



Figure 5: Entrance to VU-1



Figure 5a: Pumping station



Figure 6: Territory of VU-1 – clean water reservoir



Figure 6a: Well on VU-1

75. The chlorination is being implemented manually. One tank for solution and one bank for chlorination solution are installed above the CWR. There are no disinfection and technological equipment in chlorination building.

76. There is no equipment for chemical and bacteriological laboratories in VU-1. Chlorination is conducted directly to the CWR. Administrative building is not equipped and it needs major repair.

77. Analysis of water quality was conducted within this project by scientific institute “Uzhydroingeo” under the State Committee on Geology and Mineral Resources. The results of analysis showed that water quality in operating wells is complies with national standards for drinking water¹¹ (Table 4).

Table 4: Water quality in groundwater of VU-1 wellfield

#	Name	Actual Concentration	Standard ⁸
Chemical indicators			
1	pH	7.7	6-9
2	Dry residual, mg/l	458	1000-1500
3	Cl ⁻ , mg/l	20	250-300
4	SO ₂ ²⁻ , mg/l	5.9	400-500
5	NO ₃ ⁻ , mg/l	3	45
7	Hardness, mg.ecq/l	5,4	7-10

Source: institute “Uzhydroingeo”, Laboratory “Geoekohim”, January 2018

78. However, water quality from this wellfield does not meet requirements on biological indicators (Table 5). Therefore, before supplying water to the network, the ground water is disinfected by hypochlorite sodium.

Table 5: Water quality in groundwater of VU-1 wellfield

#	Name	Actual Concentration	Standard ⁸
1	Total microbial number	190	100
2	Coli index	23	3

79. For the VU-1 requirements of the same regulation for first sanitarian zone for underground water intakes are met as well. Distance between the longest well and the nearest construction is more than 30 m¹². However, condition of fence is not satisfactory and in some parts the fence is absent. Full restoration of the fence is included into the project design.



Figure 6b: Location of closest houses (100m) and warehouse (65m) to the longest well

¹¹ State Standard - Drinking water. O'z DST 950:2011 – Drinking water. Hygienic requirements and quality control

¹² In accordance with KMK 2.04.02-97, there are no any houses/building could locate within 30 meters to the ground water well

Yangiyul District

80. **Changtepa WDC** was established in 1970 and currently is not operating. There are old administrative and pump station buildings. The territory of the WDC is partly fenced. All facilities require full reconstruction. It was decided, the Changtepa WDC will not be included in the project and population of this area will be directly connected to the transmission main between VU-1 and VU-3.



Figure 7: Former administrative building on the territory of WDC



Figure 8: Water reservoirs

Water Distribution Center (WDC) VU-3

81. WDC VU-3 located in Yangiyul district was built in 1982. Currently the VU-3 supplies water from VU-1 ground water intake facility to part of population of Zangiata and Yangiyul districts. There are no settlements on surrounded area, only agricultural lands (Picture 9). There is small workshop on the north-west from WDC.



Figure 9: Location of VU-3 and its facilities

82. The facility includes: clean water reservoirs 2 x 2000 m³ (two prefabricated reinforced-concrete and one steel round reservoir D = 15 meters). The reservoirs are in working conditions. However, they need to be cleaned, repaired and equipped with filters-absorbers. The steel round reservoir is not operating.

83. There two pumps in III-lift pump station. The concrete building can accommodate six pumps. Currently two pumps are operating: one with capacity of 1600 m³/h and one pump with capacity 1250 m³/h. Most of equipment is in emergency condition, there are leakages on the roof.

84. Hypochlorite sodium is used for water disinfection. Temporary shelter installed on dyking of reservoir is used as water chlorination place. There is building of chlorination without equipment on VU-3.



Figure 10: Entrance and administrative building on the territory of the WDC VU-3



Figure 11: Building of pump station on VU-3



Figure 12: Metal water reservoir



Figure 13: Building of old pump station located on VU-3

85. The WDC «VU-3» supplies water through trunk mains to small part of Zangiota district and mainly to Yangiyul district by schedule: two days to Zangiota and two days to Yangiyul district. All structural and electromechanical components pumping station are in a very deteriorated condition and the station needs to be fully rehabilitated.

86. **WDC Khalkabad** - was constructed in 1983 for water supply of Yangiyul district. The WDC occupies area in 0,7 ha. Water is supplied to URV from «VU-1» wellfield through water distribution center VU-3. The WDC is designed for supplying water to rural settlements Khalkabad, Ikramov, Mirishkor and Navoi.



Figure 14: WDC “Khalkabad” – pumping station



Figure 15: Pump station in WDC “Khalkabad”

87. The URV includes the following facilities: (i) reinforced concrete clean water reservoirs 2 x 500 m³; (ii) second lift station with two pumps from which one is operating. There is no chlorination unit in WDC, therefore water is not chlorinated.

88. The URV site is fenced with reinforced concrete fence. There is no security lighting. Water is supplied to the WDC «Khalkabad» by schedule – 2 days a week.

89. **WDC “Bozsuv”** The WDC Khalkabad was constructed in 1983 for water supply of Yangiyul district. The WDC occupies area in 0,7 ha. Water is supplied to URV from «VU-1» wellfield through water distribution center VU-3. The WDC is designed for supplying water to rural settlements Khalkabad, Ikramov, Mirishkor and Navoi.



Figure 16: Building of former pump station



Figure 17: Houses located close to WDC “Bozsuv”

Chinaz district

90. **WDC «Eshonobod»** - was built before 2001. It is located in Chinaz district, in the center of Uzbekistan village. The area of WDC is 0,42 ha. The WDC includes the following facilities: (i) three metallic reservoir; (ii) two water towers (25 and 18 m height). There is building of pumping station without equipment. The territory of WDC is partly fenced. The WDC is not operating.



Figure 18: Entrance to WDC "Eshonobod"



Figure 19: Access road to WDC "Eshonobod"

WDC Sutbulok

91. WDC Sutbulok occupies 1 ha and it is located in eastern part of Sutbulok settlement. It was commissioned in 1984 to supply with water settlement Sutbulok, Birlik, and Khudoyberganova, URV Madaniyat and URV Amir Timur.

92. The URV includes the following facilities: (i) reinforced concrete reservoirs 2 x 1000 m³, (ii) II lift pumping station without equipment. There is no chlorination facility at the plant. WDC Sutbulok does not operate. Local population use tanked water.



Figure 20: WDC "Sutbulok"



Figure 21: Access road to WDC "Sutbulok"

WDC Madaniyat

93. The WDC Madaniyat was built in 1985 to supply with water rural settlements of Madaniyat, Samarkand, Uchkun as well as URV «Amir Timur». The of WDC is located in the eastern part of Madaniyat settlement and it occupies 0.7 ha.

94. Currently water is not supplied to the WDC due to breakdown of supply pipelines. URV is not functioning. A well was drilled on the territory of URV which supplies water through water tower located near houses.

95. WDC includes the following facilities: reinforced concrete reservoir (2 x 500 m³), II left pumping station without equipment. There is no chlorination equipment in the WDC, therefore, the facilities are not operating. Rural settlements in the area initially covered by URV are supplied by tanked water.



Figure 22: Territory of WDC "Madaniyat"



Figure 23: Building of Pump station

96. **WDC Yangiobod** was built in 1985 to supply with water Yangiobod and Norkuzieva settlements. WDC occupies territory in 0.9 ha and it includes the following facilities: reinforced concrete reservoir (2 x 500 m³), II left pumping station without equipment. There is no chlorination equipment in the WDC, therefore, the facilities are not operation. Rural settlements in the area covered by URV are supplied by tanked water.



Figure 24: Entrance of WDC "Yangiobod"



Figure 25: Territory of WDC "Yangiobod"

97. **WDC Yallama** was built in 1984 to supply with water Yallama, Dekhonobod, Kir, Erkin and Chinjamshid settlements. WDC occupies territory in 0.9 ha and it includes the following facilities: reinforced concrete reservoir (2 x 500 m³), II left pumping with 3 pumps. Two of them are operating. Thirds one does not operate and needs to be dismantled. There is no chlorination equipment in the WDC. Water is supplied to the settlements by 1 wells, another one does not operate. All facilities need to be rehabilitated.



Figure 26: General view of WDC "Yallama"



Figure 27: Entrance to WDC "Yallama"

98. **WDC Kutarma** is located on the territory in 0.9 ha on north-eastern part of Yangiobod village. Currently the facilities do not operate. There are two concrete reservoirs 2x500 m³ and well on the territory of WDC. There is no pump station or building and shelter for chlorination unit. The reservoirs are not subject to recovery and must be dismantled.



Figure 28: Entrance WDC "Kutarma"



Figure 29: Access road to WDC "Kutarma"

99. The WDC has reinforced concrete fence. There is no security lighting. Fencing does not comply with national standards. Rural settlements in the area covered by URV are supplied by tanked water.

100. **WDC "Chinaz"** and ground water intake was built in 1964. The facilities occupy territory in 1.8 ha. There are 3 wells are operating currently on WDC "Chinaz". There is no chlorination unit on the WDC. The water from ground water wells is pumped from depth in 180-200 meters.



Figure 30: Administrative building of WDC "Chinaz"



Figure 31: Old transformer on the territory of WDC

101. Water from wellfield supplies water to Chinaz city by schedule through 1 lift pump station. There are 5 wells in the wellfield and from them 3 are in working condition. Chlorination is being implemented manually by hypochlorite sodium.

3.2. Project components

3.2.1. The main civil works

102. The selection of settlements being included in the development Project has been done in close collaboration with TPS and its district branches management personnel. A leading principle in selecting settlements was to secure sustainable, continuous safe water supply to 92,8% of the population living in the villages within the perimeter of the project. The final plan consists of providing water supply to 71 settlements Yangiyul and Chinaz districts and 6 settlements in Zangiota district (Figure 32).

103. The main physical components of the water supply network system are resumed hereafter:

- Rehabilitation of wellfield VU-1 with bringing production capacity up to 60,000 m³ for supplying with water Yangiyul and Chinaz districts;
- Reconstruction of WDC VU-3;
- Construction of 16.3 km long transmission main from the VU-1 wellfield to the WDC VU-3;
- Construction of 48,2 km of transmission main from VU-3 until Chinaz WDC.

104. For the distribution of water to the beneficiary settlements it will be necessary also to:

- Construct 6 new and rehabilitate 11 existing water distribution centers;
- Install 5 elevated water towers;
- Construct 533.91 km of distribution pipeworks ranging from 450 to 100 mm in diameter;
- Implement some 36,697 customer connections.

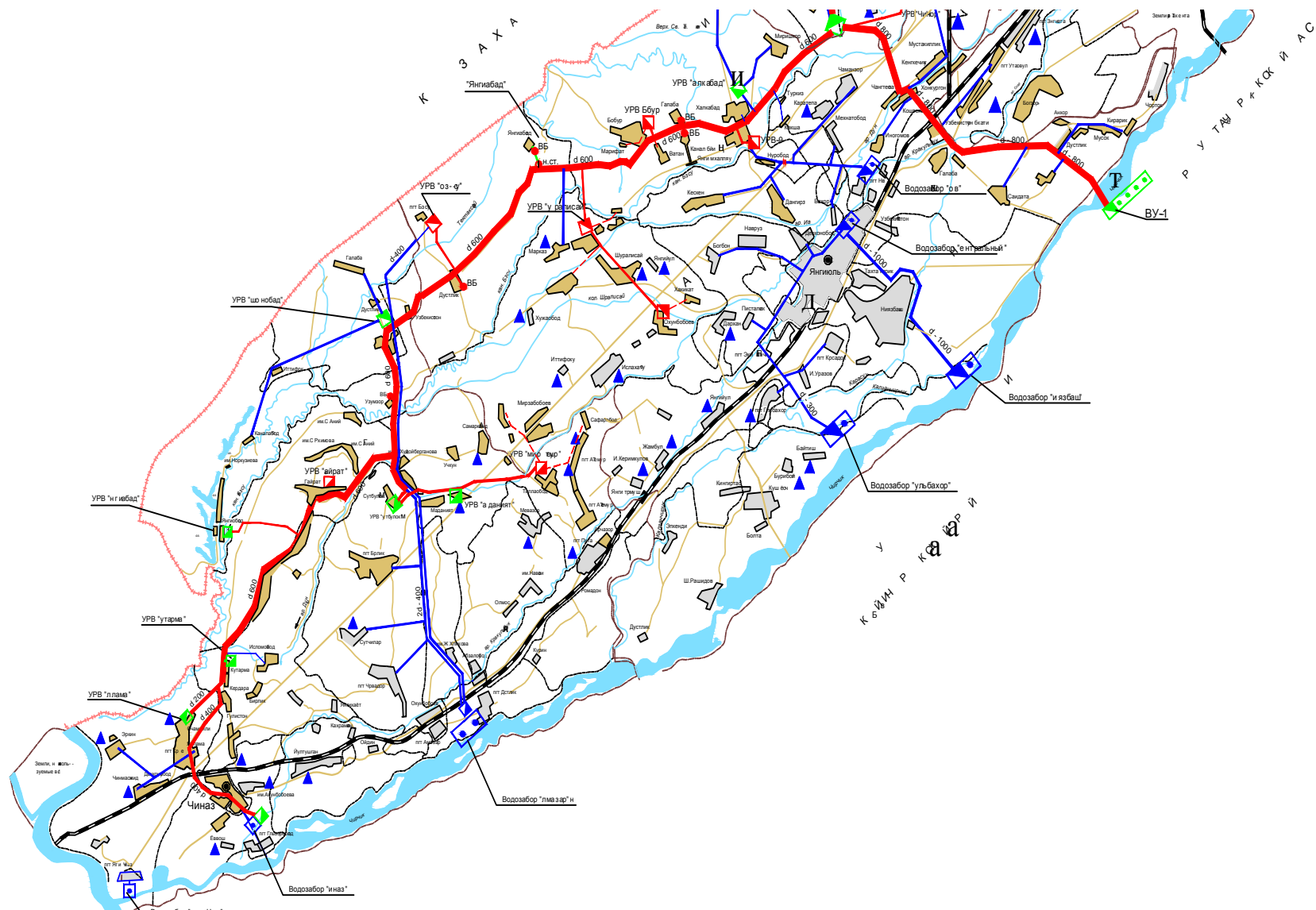


Figure 32: Project Water Supply Scheme: blue line – existing water pipe, red line – projected transmission main

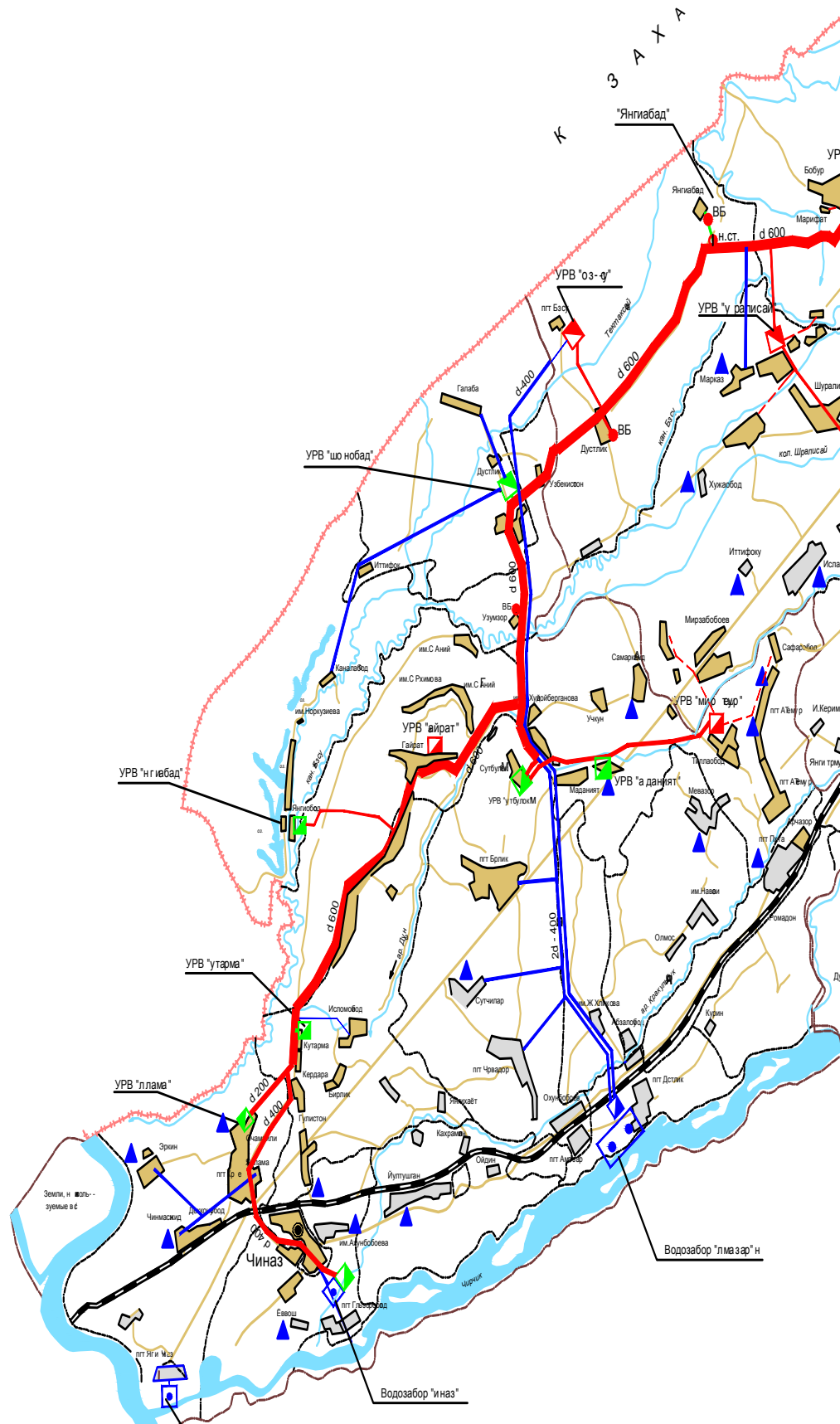


Figure 32 (a): Project Water Supply Scheme: blue line – existing water pipe, red line – projected transmission main – western part

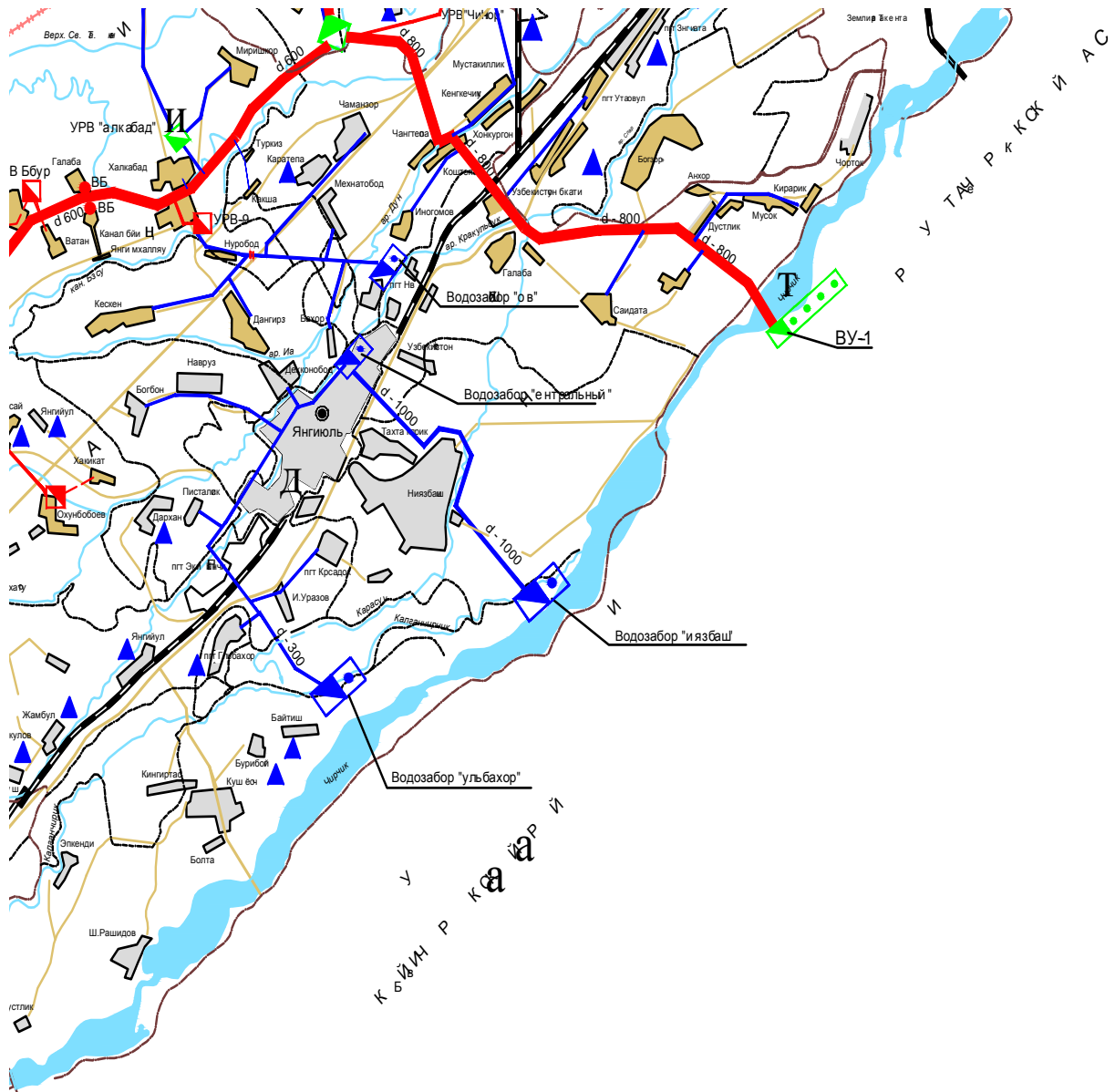


Figure 32 (b): Project Water Supply Scheme: blue line – existing water pipe, red line – projected transmission main – eastern part of the project area

105. It should be noted, that several options were considered for this project. Both districts are located in the Chirchik river basin. As it was described above, certain part of the districts consume water from along staying and groups of ground water wells. There are several ground water deposits located on the river bank (Figure 33).

106. From the technical and safety point of view it is more preferable to have several water sources for supplying of both districts with drinking water. There are several ground water deposits located on the left bank of Chirchik river. Three of them were considered as potential water sources: Chinaz, Almazar and VU-1. Three options of use of ground water wellfield were accessed: (i) only VU-1; (ii) VU-1 and Almazar, and (iii) Chinaz, Almazar and VU-1.

107. To investigate all three options a hydrogeological survey was conducted by Scientific-Research institute "Hydroingeo" under the State Committee on Geology and Mineral Sources. The research is based on the desk study, observation of wellfields and conduction of chemical and biological analysis of water from wellfields. The purpose of the study was assessment of existing deposits in term of available volume and quality.

108. For **option 1** water would be withdrawn only from VU-1 wellfield. For this, daily discharge from this wellfield has to be no less than 60 m³/day. Special hydrogeological survey was conducted under the current PPTA in order to access existing deposits of these three wellfields and water quality in each of them.

109. More preferable was **option # 3** when all deposits are used in the same time. It would allow extracting less water from VU-1 and distribute more equivalently extraction of ground water among three wellfields. **Option #2** considered usage of VU-1 and Chinaz wellfield in the same time. This option also allows decreasing load on the VU-1.

110. As per official conclusion of hydrogeological survey, an assessment of current ground water reserve in VU-1 was done based an assessment conducted by hydrogeological group in 2015. In accordance with conclusion, the assessment of ground water deposits is still valid and could be used for planning of water supply. The operation reserves of ground water deposit is equal to 90 m³/day. The water quality complies with national standards for drinking water – O'z Dst 950-2001 (Chapter 3, Table 4).

111. The latest assessment of existing ground water deposits in Chinaz and Almazar wellfield was conducted in 1989. Conclusion of hydrogeological commission confirm that available for operation use reserve is equivalent to 54.43 m³/day (for both wellfields). However, due to changed hydrological conditions in the of Chirchik river, deterioration of wells, and, as consequences, changes the depth of pumped water, water quality in these wellfields does not comply with national standards. Therefore, operation reserves of the wellfields were not officially re-confirmed. To justify presence of required volume of water even with high level of hardness conduction of additional geological survey, including drilling new wells is required.

112. Therefore, among considered three options, the first one is most suitable for implementation on this stage.

Figure X.XX – WATER SUPPLY DEVELOPMENT
OPTION 3

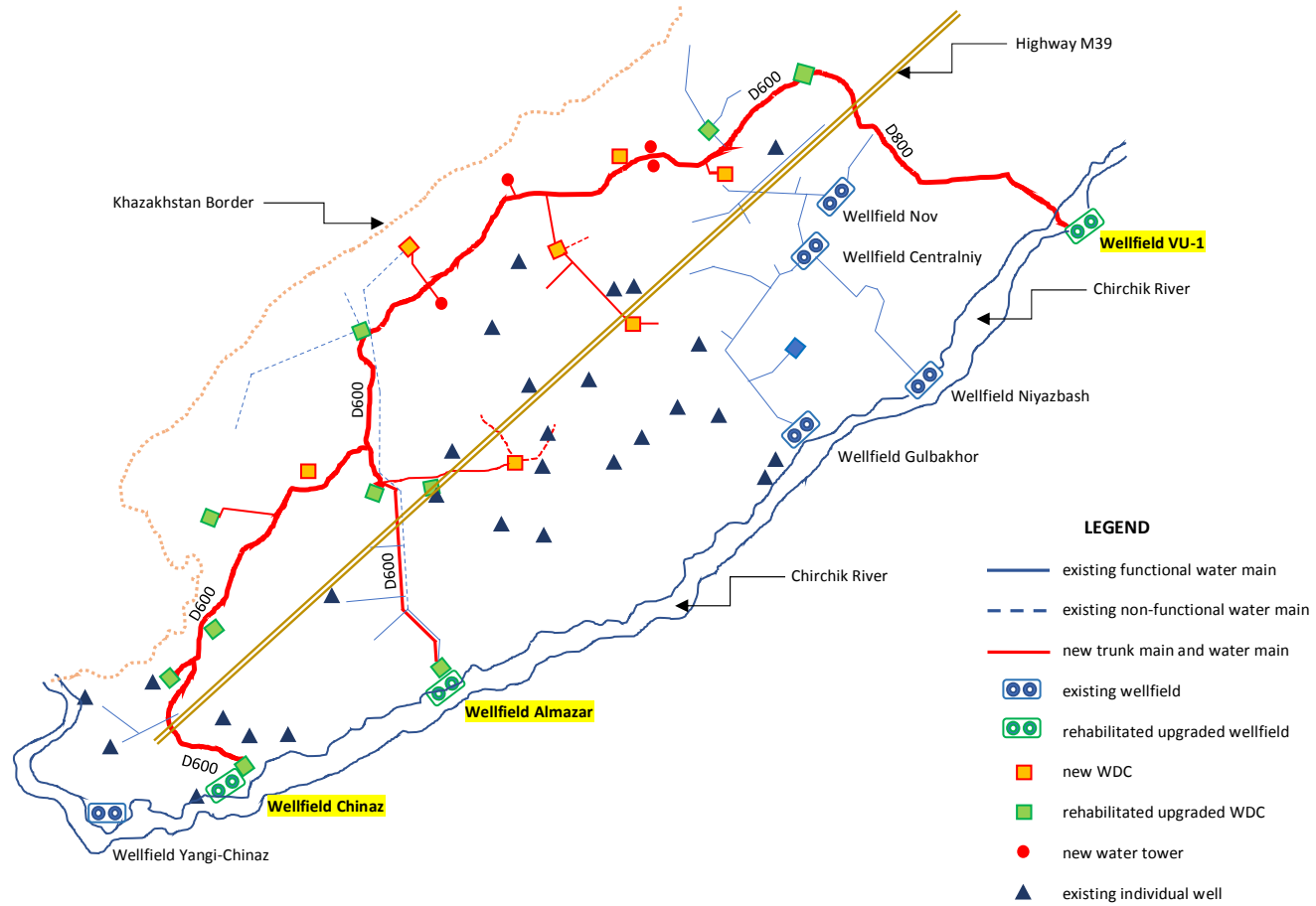


Figure 33: Wellfield VU-1, Almazar and Chinaz in the project area (highlighted in yellow)

113. Total information on planning activities in Yangiyul and Chinaz districts are presented in below Table 6.

Table 6: Planned activities in Yangiyul and Chinaz districts

#	WDC System	Type of activity	Planning activities
Yangiyul District			
1	VU-1 wellfield	Reconstruction	Demolition: existing building of laboratory Construction: drilling 12 wells (50 meter), I lift pump stations, collector lines, clean water reservoir 1 x 2000m ³ , administrative building, sanitation facility 50 m ³ Reconstruction of clean water reservoir 1 x 2000m ³ II lift pump station, 2 guardhouses, service connections in-site power supply networks, transformer substation, external power supply, external power supply facilities protection perimeter fencing and land improvement
4	WDC VU-3	Reconstruction	Reconstruction: clean water reservoirs 2 x 2000m ³ , chlorination plant pump station, guardhouse, service connections in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks resurfacing, landscaping, protection perimeter fencing
5	WDC Khalkabad	Reconstruction	Reconstruction: clean water reservoirs 2 x 500m ³ , pump station, service connections, in-site power supply networks, transformer substation, external power supply, resurfacing, landscaping, protection perimeter fencing Construction: clean water reservoir 1 x 500 m ³ , guardhouse chlorination plant, sanitation facility, security lighting networks, control-measuring units and automation networks
6	WDC VK-9 (Nurabad)	New construction	Construction: clean water reservoirs 2 x 500m ³ , pump station including chlorination plant, guardhouse, sanitation facility, service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks, resurfacing, landscaping, protection perimeter fencing
7	WDC Bobur	New construction	Construction: clean water reservoirs 2 x 300m ³ , pump station including chlorination plant, guardhouse, sanitation facility, service connections, in-site power supply networks, transformer substation, external power supply security lighting networks, control-measuring units and automation networks, land improvement, landscaping, sanitary perimeter fencing, construction of access road
8	WDC Shuralisay	New construction	Construction: clean water reservoirs 2 x 300m ³ , pump station including chlorination plant, in-site power supply networks, transformer substation, external power

			supply, security lighting networks, control-measuring units and automation networks, service connections guardhouse, sanitation facility, land improvement, landscaping, sanitary perimeter fencing, construction of access road
9	WDC Okhunboboev	New construction	Construction: clean water reservoirs 2 x 100m ³ , pump station including chlorination plant, service connections in-site power supply networks, transformer, substation, external power supply, security lighting networks, control-measuring units and automation networks, guardhouse, sanitation facility land improvement, landscaping, sanitary perimeter fencing, construction of access road
10	WDC Boz-Suv	New construction	Construction: clean water reservoirs 2 x 500m ³ , pump station including chlorination plant, service connections, in-site power supply networks, transformer substation, external power supply security lighting networks, control-measuring units and automation networks, guardhouse, sanitation facility land improvement, landscaping, sanitary perimeter fencing, construction of access road
11	Water Tower Galaba and Water Tower Kanalbuyi	New construction	Construction: water towers 2 x 50 m ³ , boosting pump station service connections, power supply networks land improvement, landscaping, sanitary perimeter fencing, construction of access road
12	Water Tower Yangirabad	New construction	Construction: water towers 2 x 50 m ³ , boosting pump station service connections, power supply networks land improvement, landscaping, sanitary perimeter fencing, construction of access road
13	Water Tower Dustlik	New construction	Construction: water towers 2 x 50 m ³ , boosting pump station service connections, power supply networks land improvement, landscaping, sanitary perimeter fencing, construction of access road
14	WDC Chinor	Reconstruction	Construction: clean water reservoir 1 x 1000m ³ , chlorination unit, Reconstruction: service connections, in-site power supply networks, transformer substation, external power supply, guardhouse security lighting networks, control-measuring units and automation networks resurfacing, landscaping, protection perimeter fencing
	Transmission trunk	11.3 km	
	Network		
Chinoz district			
1	WDC Eshonobod	Reconstruction	Demolition: existing metallic reservoirs 3 x 65 m ³ Construction: pump station including chlorination plant, clean water reservoirs 2 x 300m ³ , sanitation facility Reconstruction: service connections, in-site power supply networks, transformer substation, external power supply, guardhouse security lighting networks, control-measuring units and automation networks

			resurfacing, landscaping, protection perimeter fencing
2	WDC Sutbulok	Reconstruction	Construction: chlorination plant, guardhouse sanitation facility Reconstruction: clean water reservoirs 2 x 1000m ³ pump station, service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks resurfacing, landscaping, protection perimeter, fencing
3	WDC Madaniyat	Reconstruction	Construction: chlorination plant, guardhouse sanitation facility, Reconstruction: clean water reservoirs 2 x 500m ³ , pump station, service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks resurfacing, landscaping, protection perimeter fencing
4	WDC Amir Timur	New construction	Construction: clean water reservoirs 2 x 1200m ³ pump station including chlorination plant guardhouse sanitation facility service connections in-site power supply networks, transformer substation, external power supply security lighting networks, control-measuring units and automation networks land improvement, planting of landscaping, sanitary perimeter fencing, construction of access road
5	WDC Gayrat	New construction	Construction: clean water reservoirs 2 x 500m ³ , pump station including chlorination plant, service connections in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks, guardhouse sanitation facility land improvement, planting of landscaping, sanitary perimeter fencing, construction of access road
6	WDC Yangiobod	Reconstruction	Construction: chlorination plant, sanitation facility Reconstruction: clean water reservoirs 2 x 500m ³ , pump station, service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks guardhouse, resurfacing, landscaping, protection perimeter fencing
7	WDC Kutarma	Reconstruction	Demolition: reinforced-concrete reservoirs 2 x 500 m ³ Construction: pump station including chlorination plant, clean water reservoirs 2 x 700m ³ , sanitation facility Reconstruction: service connections, in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks Guardhouse, resurfacing, landscaping, protection perimeter fencing

8	WDC Yallama	Reconstruction	Construction: clean water reservoir 1 x 500m ³ , chlorination plant sanitation facility Reconstruction: clean water reservoirs 2 x 500m ³ pump station, in-site power supply networks, transformer substation, external power supply security lighting networks, control-measuring units and automation networks, guardhouse service connections, resurfacing, landscaping, protection perimeter fencing
9	WDC Chinaz	New construction	Demolition: building of laboratory Construction: clean water reservoirs 2 x 1700m ³ , pump station including chlorination plant, administrative building, service connections in-site power supply networks, transformer substation, external power supply, security lighting networks, control-measuring units and automation networks, guardhouse, sanitation facility land improvement, planting of landscaping, sanitary perimeter fencing, construction of access road
10	Water Tower Uzumzor	New construction	Construction: water towers 2 x 50 m ³ , boosting pump station service connections, power supply networks, land improvement, planting of landscaping, sanitary perimeter fencing, construction of access road
	Transmission trunk, km	64.5	
	Network, km	27.27	

114. As a result of project implementation, 73,560 thousand people (28,7%) in Yangiyul and 92,556 thousand people (74,3 %) in Chinaz district will be provided by safe and continuous water supply by 2043. The project will cover 71 settlements including 33 settlements in Yangiyul and 38 settlements in Chinaz district.

115. Average per capita water consumption (lcd) considered for the projections are:

- 150 lcd in the urbanized rural centers;
- 120 lcd in rural settlements.

116. Immediate benefits which are expected to be induced by the renovated water supply are: improved health and reduced occurrence of infectious disease, enhanced opportunities for local business including tourism industry, and increased attraction for investors.

117. The Project is expected to be implemented within a period of five years starting from January 2019. Preparation and planning activities will be carried out during 2017-2018. Physical works will start in 2019 and are expected to be completed as of December 2022, the liability and insurance period extending through 2023.

3.2.2 Proposed Wastewater Management Options for Project Area

118. When it comes to wastewater treatment and disposals, normally only two options are considered, (1) centralized wastewater systems (i.e., town sewers with treatment facilities) and (2) decentralized onsite systems (i.e., conventional onsite HH septic systems). Centralized wastewater systems, consisting of collection network and centralized treatment plants, were developed in the modern days while onsite HH systems have been used for centuries, evolving from simple earth pits to cesspools to septic tanks.

119. Urban and suburban areas with high population densities would probably be better served by centralized wastewater systems but construction of the sewers and centralized treatment facilities requires substantially high capital investments and length of time. It also requires adequate utility management, O&M capacity and financial budgets.

120. For urban setting the preferred treatment option is usually the development of a centralized wastewater collection and treatment system (primary, secondary, or advanced). However, it may not be the right choice for rural setting. Small communities in rural settlements often cannot afford these expensive facilities and sustain adequate O&M, and their populations are relatively low and spread out to make centralized treatment a feasible option.

121. For rural settlements, decentralized onsite HH wastewater system is often the best option for wastewater management. Normally an onsite HH system consists of a conventional septic tank and a leaching field for earth absorption of septic tank effluent. This appears to be least cost and most practical solution for rural communities.

122. Centralized wastewater collection and treatment systems will be developed for 6 urban centers under Phase 3 of the Project. Centralized system will consist of sewage collection network and treatment facilities (screenings, primary and secondary treatment processes).

123. Decentralized onsite HH wastewater disposal system (septic tanks) will be developed for 73 rural settlements of the project. Under this Phase 2, about 4,030 households in 11 rural settlements in low elevation areas (high groundwater table, 2-5 m) will be installed with septic tank systems. It will minimize the pollution of ground water. The remaining 62 rural settlements in highlands will be covered under Phase 3 of the Project.

124. Prefabricated PE septic tanks will be used for the project rural population. The onsite HH septic tank system consists of a PE septic tank and an effluent discharge perforated PVC pipe for ground adsorption.

125. Usually, the installation of a septic tank shall include a soil absorption field (also known as leaching field). Trenches in the soil absorption system are dug wide enough to accommodate open-jointed drain, typically of a gravel or coarse aggregate under and around the perforated pipe(s) that discharge the tank effluent. The purposes of the aggregate were to provide a porous media through which the septic tank effluent could flow and be absorbed into the ground without plugging the perforated pipe(s).

126. Normally the HH system and its associated connections are to be constructed by homeowners themselves or by local entrepreneurs in accordance with local requirements. Under this project, the septic tank and effluent pipe(s) will be installed by the contractor hired by the project. The onsite HH septic tank systems must be periodically inspected and maintained in order to treat domestic wastewater properly and to protect the environment and human health. The periodic maintenance service of the onsite HH septic tank systems can be done individually by home owners themselves or by public utility or by a private entity under PPP contract arrangements.

127. A typical 2.0 m³ prefabricated PE septic tanks available for commercial procurements are shown below. A single unit of a 2.0m³ septic tank system can accommodate wastewater treatment for a household of up to 12 persons.

Figure 33a: Prefabricated PE septic tank specifications



Figure 33b: Typical design layout of an onsite HH septic tank system for rural areas

128. The below Table 6a summarizes treatment capabilities and efficiencies of onsite HH septic tank systems.

Table 6a: Summary of Septic Tank Treatment Efficiencies

Parameter	Effluent Concentration	Percent Reduction
T. Phosphate (mg/L)	20 to 25	15 to 20%
COD (mg/L)	200 to 327	60 to 70%
BOD ₅ (mg/L)	120 to 140	40 to 50%
Suspended Solids (mg/L)	39 to 155	40 to 80%
T. Nitrogen (mg/L)	36 to 45	0 to 50%
Oil and Grease (mg/L)	20 to 25	70 to 80%

Source: US EPA, Design Manual: Onsite Wastewater Treatment and Disposal Systems, October 1980

129. A typical design layout of an onsite HH septic tank system for rural areas is illustrated in the figure shown below.

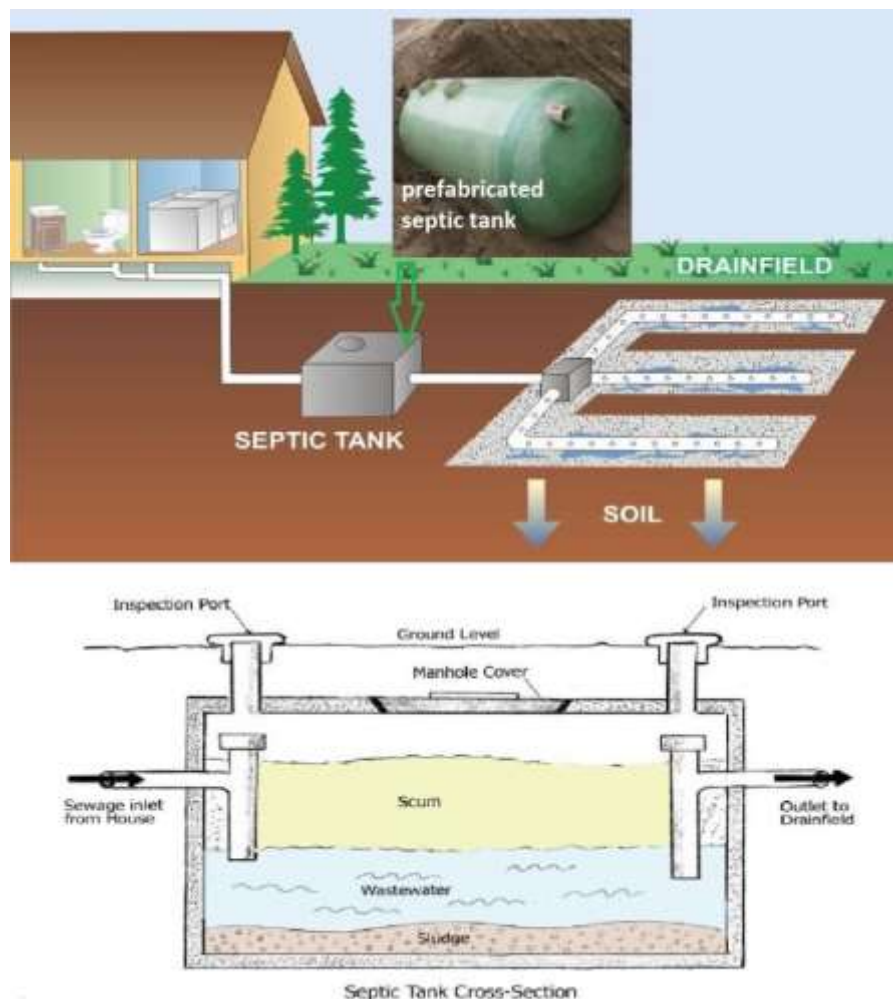


Figure 33b: Typical design layout of an onsite HH septic tank system for rural areas

3.2.3. Other physical components to the Project

3.2.3.1. Water quality laboratories

130. In addition to the fully equipped laboratory at the new Kadirya WTP (under previous TPWSP Phase I), two other laboratories will be installed: one at the wellfield VU-1, and one at the Chinaz Suvokova branch.

3.2.3.2. Operation control system

131. The output of the project would be a complex hydraulic system. Operating such a system in a sustainable manner is a complex, multitask undertaking, requiring modern Operation Control System (OCS) for day-to-day operations management, quick and appropriate response to system failures, and optimum monitoring and control of non-revenue water (NRW). The system will comprise of three tiers of automation and control:

- Equipment level automation and control;
- Subsystem level automation and control;
- The SCADA control system.

132. Automation and control at the equipment level would involve inter alia procurement and installation of pumps with frequency controllers, enabling automatic flow adjustments, as

needed, in an autonomous mode. This activity would also involve fitting equipment with flow meters, pressure gauges, water level monitoring devices, communication devices and other control features procured in conjunction with the equipment.

133. Automation and control at the subsystem level would involve identifying and delineating subsystems, such as water intakes or separate distribution networks controlled with designate Water Distribution Centers (WDC). Each subsystem would have: (a) prescribed performance parameters; (b) comprehensive water flow metering at inputs and outputs; (c) pressure gauges at inputs and strategic control points; (d) communication and telemetry systems; (e) Programmable Logic Controllers (PLCs); (f) control panels and other control features. The objective of this tier is to enhance overall controllability of the hydraulic system and to optimize technical features of civil works.

134. The SCADA control system would be the only element of the OCS procured as a stand-alone package, but it would dictate features of procurement packages relating to equipment and civil works. The SCADA would be located at the building of the Tashkent Province Suvokova (TPS) and would involve an overall control over the whole hydraulic system. The SCADA would monitor performance of all equipment and subsystems within the system, with remote control functionality over wellfields of VU-1, Kadirya and others, as well as over control valves at connection points to the water main and critical control points within distribution networks. The SCADA would also have extensive analytical and data management capabilities to facilitate minimization of the NRW.

3.2.3.3. Construction materials and equipment

135. The project proposes to use high density polyethylene (HDPE) pipes with nominal diameter (DN) up to 200 mm. For larger diameters the use of ductile iron (DI) pipes is foreseen. The minimum depth of pipe invert shall be 1.5 m. For diameters of 800 mm and larger the invert depth can be of 1.8 m.

136. For the disinfection of drinking water, it is considered adopting liquid chlorination units, preferably of the vacuum type. Such units are compact and safe to use. Liquid chlorine is available in 400/500 kg containers in Uzbekistan.

137. The water distribution system will be equipped with flow meters at all main nodal points of the water networks, along the transmission mains, at each off-take from the transmission main, at the inlet and outlet of reservoirs, at the inlet of each settlement. District metering areas (DMA) will also be designed within each distribution area or settlement in order to allow periodical balances and control of the NRW. Remote system controls will be installed at the main pumping stations in order to ensure permanent control of the flow at main pumping stations and other crucial nodal points by means of a SCADA from an operational center optimally located either within the premises of the new WTP or at the office of the TPS.

4. DESCRIPTION OF THE ENVIRONMENT

4.1. Physical conditions

138. Chinaz district is part of Tashkent province established in 1935. The district borders with Yangiyul district in the north and it the north-east, in the east and south-east borders with Quyi Chirchiq district and on south and west it is borders with Sirdarya province of Uzbekistan, and on north-west borders with Kazakhstan.

139. The Yangiyul district was established in 1926 and it borders with Kazakhstan, Zangiota, Chinaz, Quyi Chirchik districts of Tashkent province and Tashkent City.

140. Both Chinaz and Yangiyul districts are located in the plain part of Chirchik climatic area, which includes near-Tashkent loess plain and Western Tien Shan Range irrigated from Chirchik and Angren rivers.



■ - meteorological stations "Kaunchi" (Yangiyul district) and "Syrdarya" (Chinaz district)

Figure 34: Project districts

141. The district territory is open on the west and south-west for movement of air masses, therefore there are more precipitation in this area in comparison with another plain parts of Uzbekistan. Precipitation amount varies from 300 and 400 mm.

142. The average temperature of January varies from $-1,0$ up to $-1,5^{\circ}\text{C}$. The duration of real winter period is 1.5-2 months. The absolute minimum is below 30°C . The summer is hot, the average temperature of July is 27°C . Absolute temperature maximums is 42°C . On the most part of the territory, a vegetation period exceeds 200 days, sum of plus temperature varies from 4500 up to 4600°. Favorable conditions allow to grow cotton and warm heat-loving crops and have harvest 2-3 times per year. Chinaz district is located in moderate dry and arid zones.

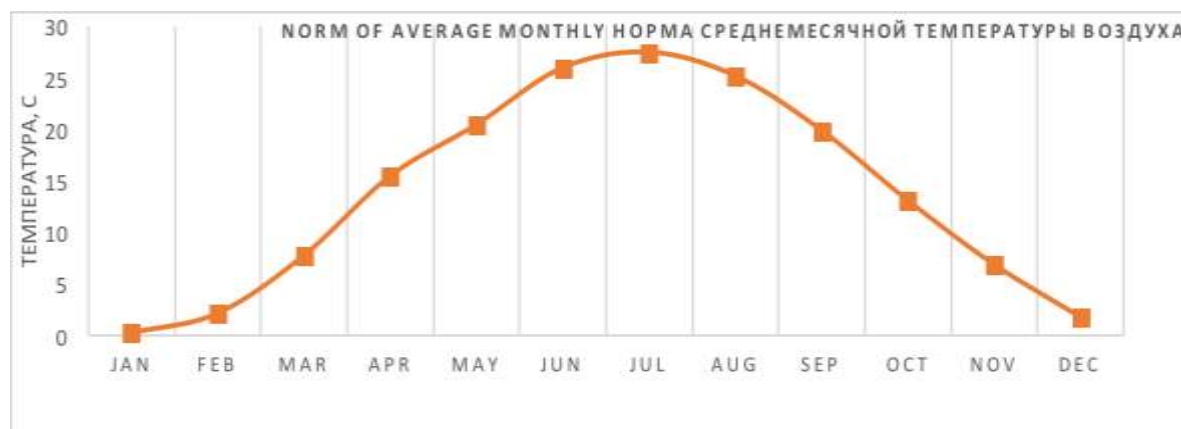




Figure 35: Climatic data from Kaunchi station (Yangiyul) – average monthly temperature (above) and average monthly precipitation (below)

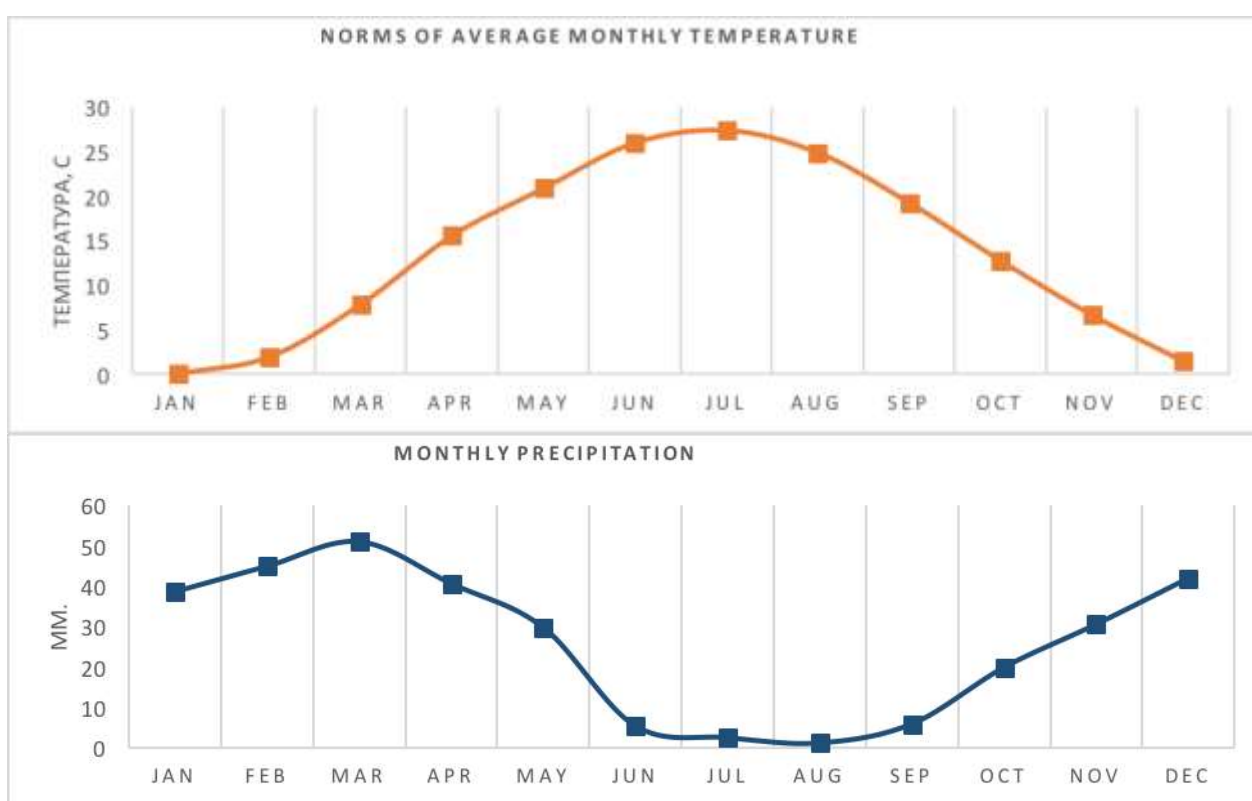


Figure 36: Climatic data from Syrdarya station (Chinaz district) - average monthly temperature (above) and average monthly precipitation (below)

Table 7: Air quality in Yangiyul city
Source: Uzhydromet, 2018

Ingredient		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Norm
Dust	2017	0	0	0	0	0	0	0	0	0	0	0	0	0.15
	2016	0	0	0	0	0	0	0	0	0	0	0	0	
SO ₂	2017	0.002	0,001	0,002	0,002	0,002	0,002	0,001	0,001	0,002	0,001	0,001	0,002	0.05
	2016	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,001	0,002	
NO ₂	2017	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.04
	2016	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.02	

143. In accordance with data provided by national agency Uzhydromet, air quality in the project area complies with national standards¹³ (Table 7).

144. As part of baseline survey, noise measurements on the project site were conducted in February 2018. In most of cases project sites (constructed/rehabilitated WDCs) are located on the outskirts of the city. However, some of the WDCs or water towers are located close to the settlements.

145. Three different standards will be applicable for the main receptors located close to the project site: living area, commercial zone and school. Therefore, three different standards were applied which are presented in Table 7a. The national standards were compared with international stands. As shown in the table for living area national and international standards are the same. However, for colleague stricter standards were selected (40 dB and 65/55 dB accordingly).

Table 7a: Standards for noise level for different receptors

#	Type of receptor	National (dB) ¹⁴		IFC (dB) ¹⁵	
		Day time 7-23	Night time 23-7	Day time 7-23	Night time 23-7
1	Living area	55	45	55	45
2	Commercial area	60		70	70
3	Educational entities	40		55	45

Source: PPTA's consultant, 2018

146. Noise level measurements were conducted by an expert from the national the Institute of Hygiene under the Ministry of Health. Totally nine points were reviewed (Figure 36a). The original copies of noise measurements and photos from the project site are presented in Appendix 6.

¹³ SanR&N RUz No.0179-04 Hygienic norms. List of Maximum Allowable Concentrations (MACs) of pollutants in ambient air of communities in the Republic of Uzbekistan including Annex 1

¹⁴ Sanitarian Norms and Rules (SanPiN) # 0267 (2007) "Admissible noise level into the living area, public buildings and outside the buildings"

¹⁵ IFC General EHS Guidelines: Environmental Noise Management, Table 1.7.1, 2007



Figure 36a: Noise measurements points

147. The results of noise measurements presented in Table 7b shows, that noise levels in points ## 8 and 9 (existing WDC “Chinaz” and planning “Amir Timur”) exceed standards for day time on 10 dB. In both cases the source of increasing noise level is a traffic.

Table 7b: Results of noise measurements

#	Location/Point	Results of measurements		Standards (Table 13)		Exceeding, dB	
		Day time	7-23	Day time	7-23	Day time	7-23
1	WDC “Madaniyat”	43/43		55		-	
2	WDC “Sutbulok”	43/43		55		-	
3	WDC “Eshohobod”	43/43		55		-	
4	WDC “Urikzor”	54/56		55		-/1	
5	WDC “Gayrat”	56/52		55		1/-	
6	WDC “Yangiabad”	52/52		55		-	
7	WDC “Kutarma”	42/42		55		-	
8	WDC “Chinaz”	65/65		55		10/10	
9	WDC “Amir Timur”	65/65		55		10/10	

Source: PPTA consultant, 2018

Lithology

148. In lithological respect, the project area consists of a thick layer of gravel sediments, covered a thin layer of loess loams. The level of soil salinity, lying to the soles of foundations, characterized by the thick residue of water-soluble salts in the dry soil from 894 to 1468 mg. kg.- at a content of chlorine ions in 70-87 mg kg and sulfate ions - 291-645 mg.kg. In accordance with classification adopted on methodology of ecological hygienic zoning, condition of soil area can be considered as satisfactory.

4.2. Water resources

Surface water

149. The main water course in the project are is Chirchik river. The Chirchik river which is formed due to confluence of Chatkal and Pskem river is the main natural waterway in the survey area. The flow of Chirchik river is regulated by Charvak water reservoir with a usable capacity of 2 billion m³. Along its route the river receives only two comparatively big inflows: on the right side – Ugam river, on the left side– Aksakata river. Other tributaries have the character of small inflows including biggest ones such as on the right- Aktash, Shurabsay, Tavaksay, Azatbash, on the left – Chalibsay, Parkentsay and Bashkizilsay.

150. Not taking virtually any tributary within plain region, the Chirchik river is heavily diverted for irrigation by channel networks. Most major channels are Zakh, Boz-Suv (right) and Northern Tashkent channel (in the upper part it is called Left Bank Kora-Suv). Channels are characterized by high flow capacity and they have a view of real rivers.

151. Waters of Chirchik river are taken for irrigation and are used for hydropower needs (diversion channel of Chirchik Hydropower Plant drops some of its water through Boz-Suv channel directly into Syrdarya river). The Chirchik river gradually reduces its flow and goes to Syrdarya river. Length of Chirchik river is 174 km, the basin area is 14 240 km².

152. According to data of Uzhydromet the surface flow of water was monitored during the whole year (Table 8) at the Gazalkent and Chinaz stations. The Gazalkent water monitoring station is located above Tashkent city (before project site) and Chinaz station just below

Chinaz city. Maximum flow volumes were recorded during October – March period and minimal volumes were recorded during May – July (sometimes August) (Appendix 7).

Table 8: Average monthly flow of Chirchik river at Gazalkent and Chinaz stations

Years	Months												Average annual
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
Chirchik river – Gazalkent station													
2011	215	163	179	71	157	159	224	251	103	101	128	126	156
2012	175	106	107	82	173	233	269	242	107	96	80	92	147
2013	130	178	188	193	286	358	323	251	174	125	114	146	205
2014	130	147	118	134	328	513	396	276	182	150	147	140	221
2015	174	168	150	191	356	459	349	278	170	163	171	182	234
2016	197	132	169	158	366	552	425	304	180	178	183	147	249
2017	188	178	156	335	586	704	497	298	190	172	186	155	304
Chirchik river – Chinaz station													
2011	98,6	90,7	126	48,3	9,72	12,5	12,5	21,5	42,6	45,8	119	164	65,9
2012	135	125	82	48,4	60,1	28,4	87,5	21,2	41,8	49,4	62,0	103	91,6
2013	85,2	55,0	59,4	32,9	13,0	73,3	14,6	11,5	28,2	37,4	44,9	92,8	45,7
2014	81,4	147	101	51,1	49,5	136	55,3	21,0	48,1	58,7	68,0	95,0	76
2015	69,0	93,8	90,0	41,4	76,2	101	13,3	20,3	37,9	69,2	146	130	74
2016	111	78,5	39,5	50,1	183	281	94,9	60,0	37,0	67,3	60,6	104	97
2017	130	174	63,5	299	391	509	181	19,9	44,6	57,3	50	86,3	167

Source: Uzhydromet, 2018

153. The chemical composition of the river water is formed to a large extent under the influence of pollution coming from wastewater of industrial enterprises of Tashkent, Gazalkent, Chirchik, Chinaz such as Salar Aeration Station, "Sredazkabel" TAPOiCH, UzKTZhM, "Elektrokhimprom", Chirchik Transformer Factory, etc. The river can be attributed to the water streams with low mineralization.

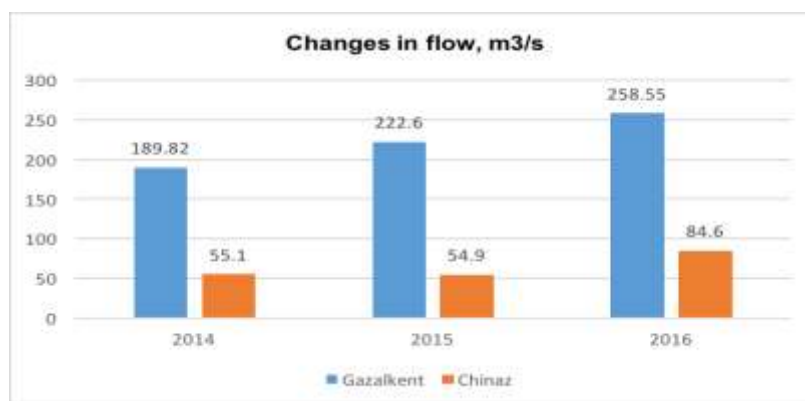
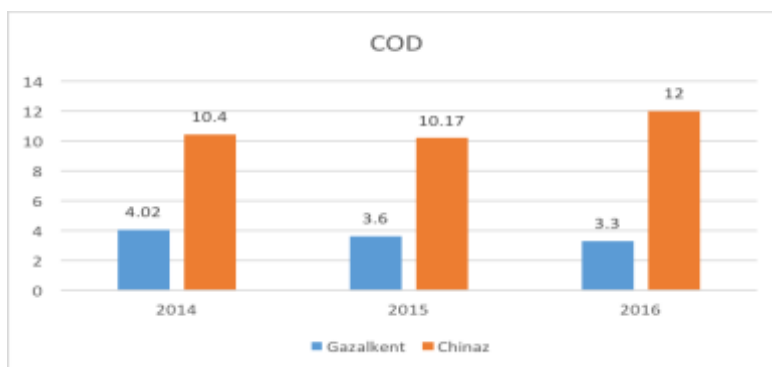
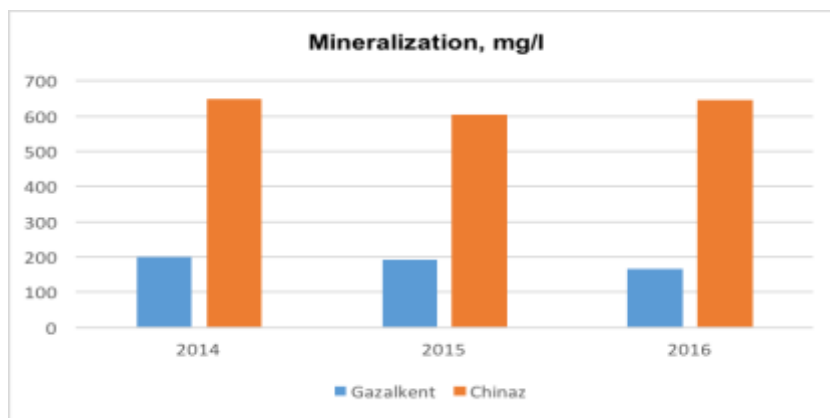
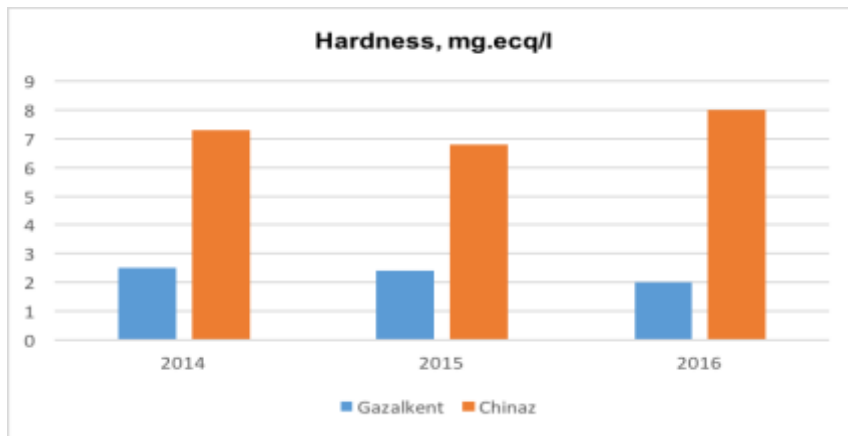
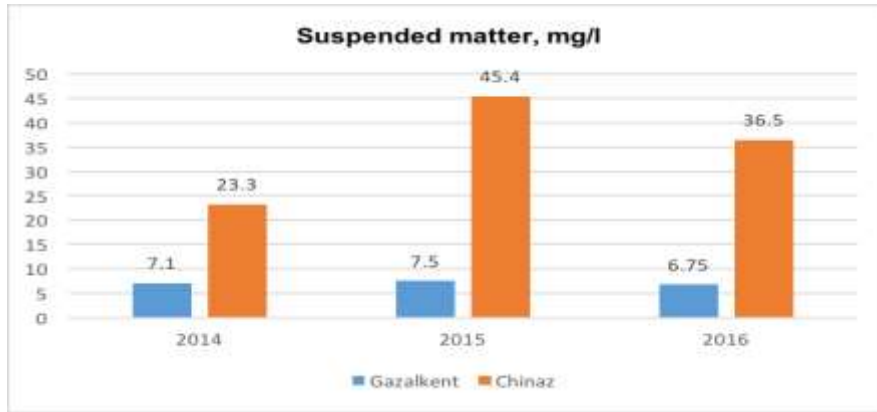


Figure 37: Changes in average annual flows between Gazalkent and Chinaz stations

154. The quality of the Chirchik river is noticeably deteriorated from Gazalkent station to Chinaz. Along with decreasing volume of flow between two stations, quality of water is changing as well.



Figures 38-40: Water quality of Chirchik river in Gazalkent and Chinaz hydroposts

155. Total mineralization of water in the Chirchik river during the period of observations varied in the range 0.4-0.6 g/l, total hardness - 5,7-9,0 meq/l. The maximum values was recorded in May and the lowest - in July. In most samples, values of salinity and hardness in the samples are respectively 0.5 g/l and 5.2 meq/l, pH -7-8. Water includes hydrocarbonate-sulphate sodium-calcium-magnesium (or magnesium-calcium).

156. Construction works on some of WDCs will be conducted next to the water courses. As part of baseline, water samples were taken from some of them (Figure 38-40a).



Figure 38a: Water samples from Irrigation canal near to WDC “Kutarma”



Figure 39a: Water samples from Bozsuv canal near to WDC “Yangiobod”

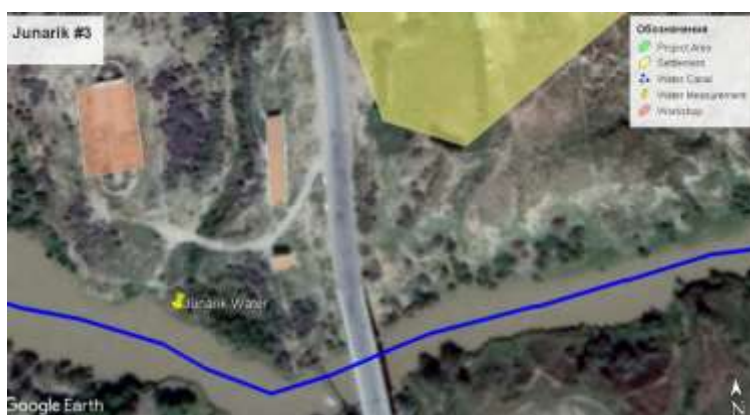


Figure 40a: Water samples from Junarik canal near to WDC “Uzumzor”

157. Analysis showed that water quality in water course close to WDC “Kutarma” exceeds norms. For the WDCs “Uzumzor” and “Yangiobod” water quality complies with national standards for water quality of water courses used for irrigation purposes.

Table 9: Water quality in water courses near to construction sites

Component	Yangiyul district	Chinaz district		Standards ¹⁶
	Uzumzor	Yangiobod	Kutarma	
Suspended matter, mg/l	31	56	15	shall not be increased by more than 75 mg/l
pH	7.66	7,65	8.05	6,5-8,5
BOD ₅	3.04	0.99	3	3
COD mg/l	4.98	6.23	12.5	15
Hardness mgecv/l	6.9	7.8	18.5	3-7
Dry residual, mg/l	455	700	1505	1000
Cl ⁻	17.4	28.5	33.6	350
SO ₄ ²⁻	209	326	839	500
NH ₄ ⁺	0.31	0.61	0.47	2
NO ₂	0.019	0.036	0.017	3,3
NO ₃ ⁻	0.91	1.31	2.17	45
Oil products	n/a	n/a	n/a	0,3

Source: PPTA's consultant, Baseline survey, February 2018

Ground water

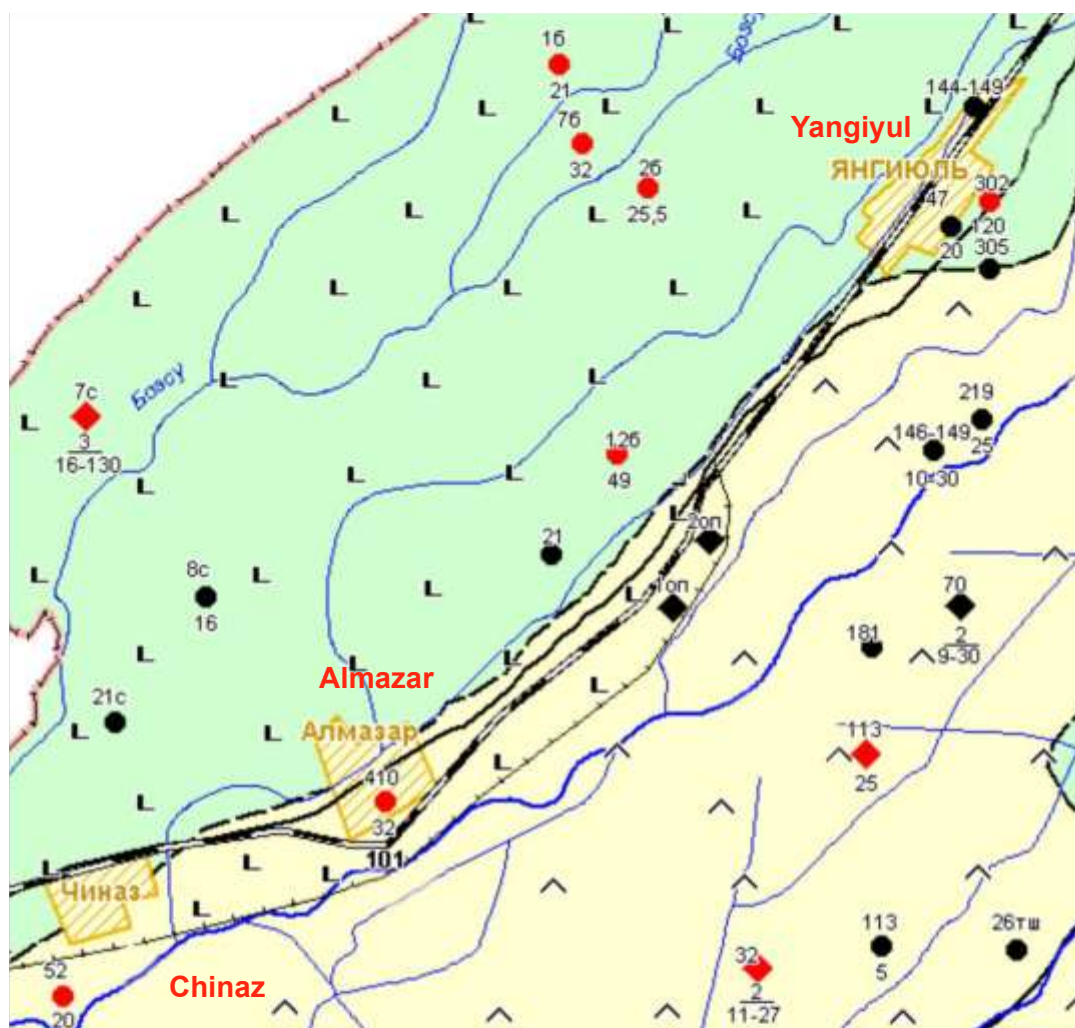
158. According to hydrogeological zoning the project a completely belongs to the Near Tashkent Artesian Basin. Explored sites are considered as part of deposit of drinking water source of current Chirchik river valley. The Chirchik deposit of ground waters is developed within the lower I-II terrace of the river as well as III above the flood plain terrace. Ground waters are confined to the alluvial gravel of quaternary age.

159. The main source of supply of ground waters of the aquifer is areal infiltration of irrigation waters from irrigated lands and groundwater inflow from the upper sections of the Chirchik. Ground waters are fresh. Mineralization level is mainly up to 0,6 g/l; total hardness up to 7,0 meq/L. Type: mostly sulphate-bicarbonate-calcium-magnesium.

160. Due to frequent change of the section by gravels conglomerates, more rarely by loam the aquifer contains sub-confined groundwaters, piezometric level of which is determined on the level of 1,2-4,7 m below the surface.

¹⁶ SanR&N No 0088-99 "Sanitarian requirements for development and approval of maximum allowed discharges (MAD) of pollutants discharged into the water bodies with waste waters".

161. Map with ground water level in the project area is present in Figure 41.



- GWL 2-3 m, - GWL - more than 5 m
Figure 41: Ground water level in the project area

162. High level is observed in July-September, lowest in April. The annual amplitude of fluctuations is: 2.0 to 5.0 m. Exit of ground waters is carried out by groundwater outflow in the southwest direction towards the valley of Syrdarya river.

163. High level of ground water is observed on the territory adjusted to the river. With the distance from Syrdarya river ground water level decreases.

4.3. Biological conditions

164. The project area was significantly influenced by anthropogenic factor. The list of representatives of fauna of reviewed district is limited those type of animals, who could adapt to the life in anthropogenic conditions. Big mammals are fully absent, typical for unpopulated districts. Representatives of rodents are frequently found here: jackals, foxes, house mouse, common rat, sometimes could be found the eared hedgehog. Typical village representatives inhabit here from the birds family. They are rook, jackdaw, hooded crow, starling, and different species of sparrows, my-lady's-belt, pigeons and others.

165. The vegetation is represented by artificial planting of trees, bushes, fruit and vegetable crops. Non-fruit trees such as poplars, mulberry and willow grow usually along with roads and

edge of fields. There is plenty of fruits trees growing in the orchards in the project area: apricots, apples, cheery, peaches and etc. Mainly cotton and wheat are cultivated on the agriculture lands.

166. In whole it could be stated, that the reviewed districts are characterized as an area with those fauna species found their niche and adapted to the environment, where dominate place is occupied by human and one's business activity.

Ugam-Chatkal State Natural National Park

167. Ugam-Chatkal State Natural National Park was established in 1970 (re-organized in 1990 after preliminary surveys) and is located in the Tashkent Province area of 574,000 hectares, covers almost all the south-western spurs of the Western Tien Shan: Koksuz, Ugam, Maidantal, Pskem and Chatkal ridges. The range of heights varies from 900 to 4000 m above sea level, which includes the midland, forest and alpine zones. It is situated in more than 190 km to north-west from WDC "Changtepa" (Yangiyul district) which is the closest object among the Project components to the protected area, which means no impact on the national park.

4.4. Socio-economic conditions

General district information

Yangiyul district.

168. Yangiyul district is administrative unit in Tashkent province. The administrative center is Yangiyul city. The territory of the district is 431.7 sq.km from them 24,073 is agricultural land, including 20,048 ha irrigated area and 1066 ha is pasture.

169. There are 22 kindergartens, 68 schools and 9 colleges in the Yangiyul district. The food, textile, construction materials productions, oil refinery are developed in the district. Around 23.3 thousand ha is cultivated area, where cotton, wheat and various vegetables grows.

Chinaz district.

170. The territory of Chinaz district is 0,34 thousand km². There are 1 big city (Chinaz-capital), 2 small cities (Almazar, Yangi Chinoz), 8 rural citizens assemblies (RCAs) (Islahot, Ittifoq, Ko'tarma, Turkiston, Chinoz, Eski Toshkent, Yallama, Uzbekistan) in the district. The total population is 127,975.

Public Health. Waterborne disease-related data

171. Records of diseases typically related to insufficient water supply and sanitation over the period 2014 to 2016 from the Sanitary and Epidemiological Services (SES) of the Ministry of Health (MOH) are displayed in Appendix 1. The time-dependent graphics in Figures 42 reveal some increasing trends of some indicators, particularly Acute intestinal disease, however not systematically in all districts.

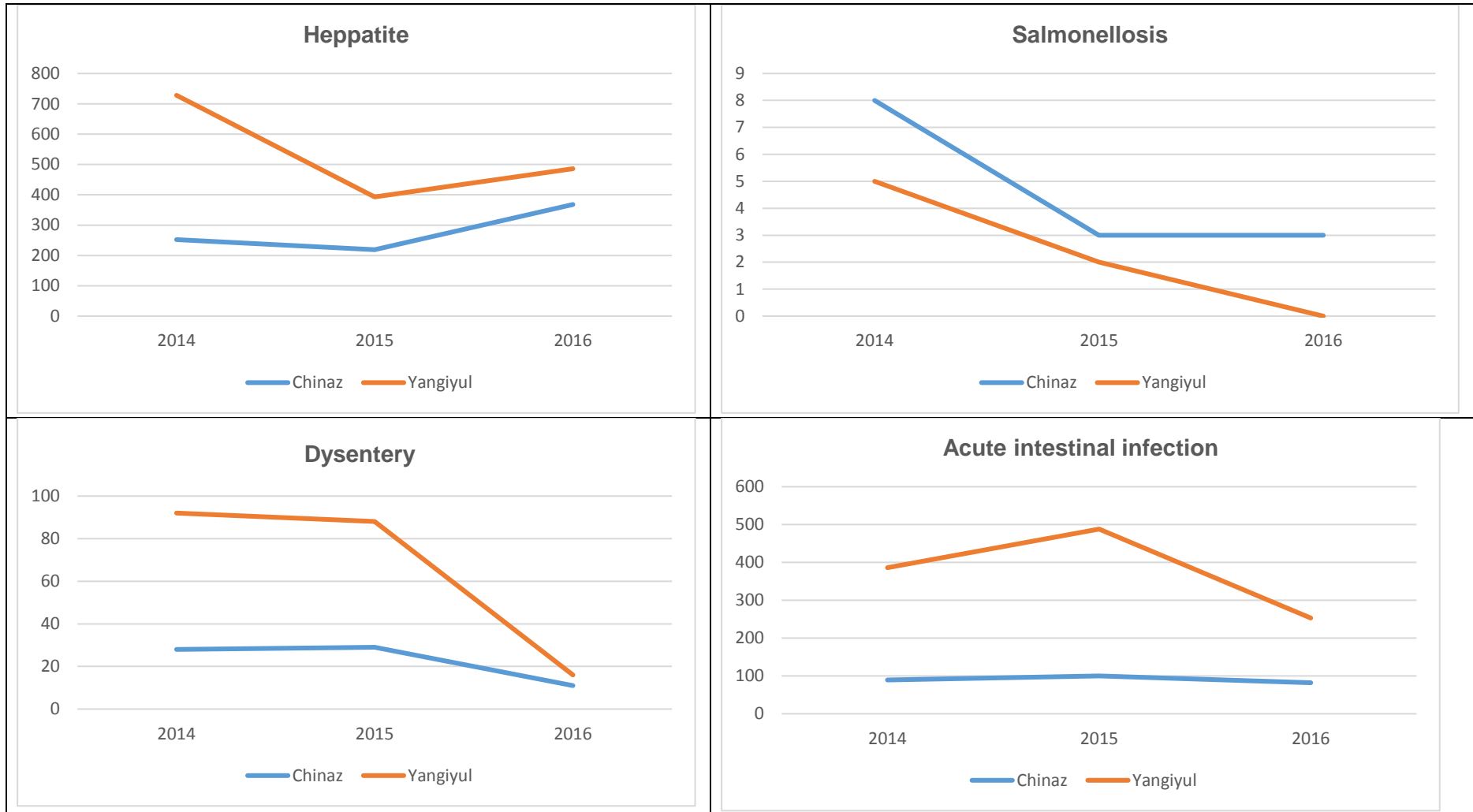
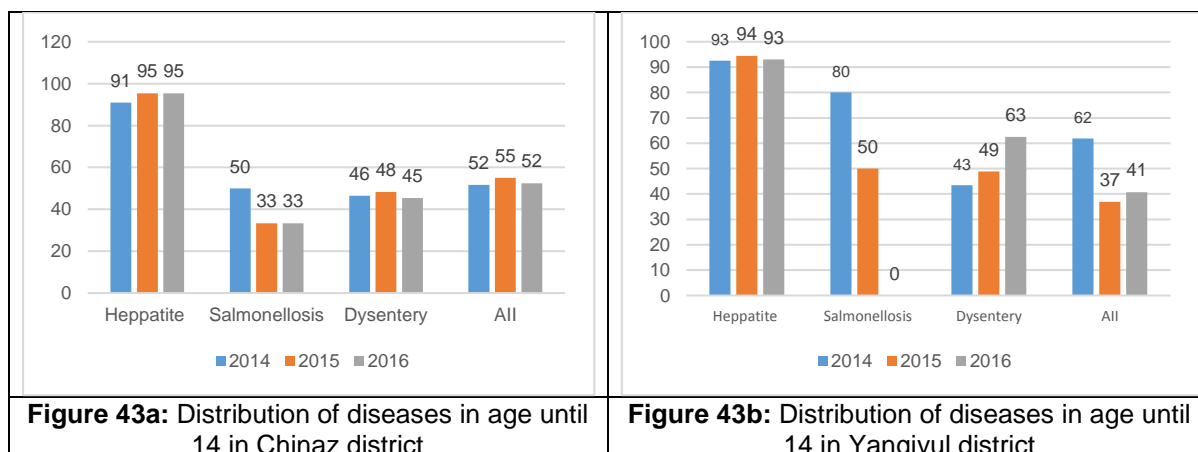


Figure 42: Distribution of water borne diseases



4.5. Cultural Heritage

172. There are no historical heritages within the project area. The closest historical complex - a complex of mausoleums Zangi – Ota is located in more than 20 km from the project area Yangiyul district. It means that the Project will not impact on this heritage.

5. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATE MEASURES

173. Anticipated the project's environmental impacts were reviewed at the three stages – pre-construction, construction and operation stages.

5.1. Pre-construction stage

Impact

174. During pre-construction stage the following aspects may impact on effectiveness of implementation of environmental safeguards during whole project cycle and may lead to non-compliance with requirements: (i) design of water treatment facilities will not ensure efficient water quality, (ii) non-efficient sanitarian zone for surface and ground water intakes may lead to deterioration of water quality, (iii) non-inclusion of environmental requirements into the bidding and contract, (iv) no compliance on receiving all required permissions, (v) purchase of goods, techniques and machinery which is not comply with with ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009) and national standards on exhausted gases.

Design of water treatment facilities

175. Selection of inefficient water treatment technology may lead to production of water with quality which does not meet national standards for drinking water (GOST 950-2011. Hygienic requirements and quality control). For the current project, ground water from the VU-1 wellfield will be used as a water source for drinking water supply for Chinaz and Yangiyul districts. As shown in the Chapter 3.1, water quality in the wellfield complies with national standards according to chemical indices. Disinfection by sodium hypochlorite will be conducted to ensure water quality with biological indicators (GOST 950-2011).

176. Locations of all new WDCs have been selected in accordance with national requirements indicated in regulation KMK 2.04.02-97 "Water Supply. External network and facilities". For almost all WDCs and ground water intake the condition for first level of sanitarian zone are met, even in some cases fences of WDCs are destroyed and they need full/partly recovering.

177. Some changes in WDCs location could be done at the stage of the project details design. It may lead to generating new impacts which will require updating the current IEE.

178. The following activities are proposing to mitigate impacts identified at the pre-construction stage.

Mitigation measures

- During detail design stage layout WDCs, route of main trunk and water distribution networks will be updated with consideration of minimizing impact on environment and population during construction and operation phases;
- Ensure that first sanitarian zone (within 30 meters from the longest well) for ground water intakes is in compliance with national standards KMK 2.04.02-97 "Water supply. External networks and facilities" (1997) and the territory is fenced ;
- IA with assisting Project Management Consultant's (PMC) environmental specialist will ensure inclusion of environmental provision along with EMP in the bidding documents and in contracts for Contractors;
- Bids evaluation needs to be done with consideration of: capacity of bidders to meet EMPs requirements, proposing adequate budget efficient for implementation EMP, existence of good practice in environmental performance within other similar projects;
- Within 30 days after contract award and prior to commencing any physical works, Site-specific Environmental Management plans (SSEMPs) will be developed by the Contractors under the guidance of the PMC, and be endorsed by PMC before submission to PCU for approval;
- In addition to SSEMPs, Topic Specific SEMP's need to be prepared by Contractors, endorsed by PMC and approved by PCU for the following activities: Traffic Management Plan for construction of distribution network within settlements, Waste management Plan for sites with demolishing works, Hazardous Wastes Management Plans as described in the next sub-sections, Construction Camps Management Plan and Occupational Health and Safety Plan (OHS Plan);
- Goods procured for project implementation will be done in compliance with ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009);
- Environmental specifications have to be included in bidding packages for purchase machinery within the project. Particularly, toxic level of machinery must meet "Euro 3" environmental requirements as defined by national regulations¹⁷;
- If any changes in the project design will take place, the IEE has to be updated accordingly.

5.2. Construction stage

5.2.1 Physical resources

Impact on air quality

179. During construction stage pollutants emissions will be caused by earth works, construction/demolishing activities and exhaust gases from vehicles. It is expected that dust pollution will occur more frequently. Especially, risk of dust pollution will increase during the windy weather and movements of trucks with high speed inside settlements.

¹⁷ Resolution of President of RUZ "On measures for further development of production at the Samarkand automobile plant and renewal automobile park", dated from December 14, 2006

180. At the same time equipment and vehicle with improper technical characteristics or in poor conditions also may lead to pollution by exhausted gases. Improper waste management, particularly burning of construction and domestic wastes may lead to air pollution.

181. Asbestos dust generating during demolishing of old facilities on rehabilitated WDCs may cause a serious risk for health of people living in surrounded settlements. This impact is described in detail in the section "hazardous wastes management".

182. The project will be implemented both: in sparsely populated area and inside towns and villages, therefore, more stringent mitigation measures need to be implemented in the urban areas.

183. Some of WDCs (Sutbulok, Chinor, Madaniyat) are located close to settlements (25-30 meters). For this settlements dust level monitoring needs to be conducted. In case of exceeding standards for dust level for this area (0.15 mg/m^3)¹⁸ additional mitigation measures for dust control need to be undertaken – more often watering or installation of dust screen.

Mitigation measures:

184. During construction period regular mitigation measures shall be used in the most of the cases:

- apply watering of construction sites and roads inside settlements during dry season;
- cover transported bulk materials;
- control speed limitation for vehicles during movement inside of settlements - no more than 40 km/h;
- all vehicles and techniques must comply with technical requirements and have to pass regular inspection as indicated into the national standards¹⁹;
- prohibit open burning of solid wastes generated particularly from labor camps and construction activities;
- Clean wheels and under carriage of haul trucks prior to leaving construction site;
- Restrict demolition activities during period of the high winds or under more stable conditions when winds could nevertheless direct dust towards adjacent communities;
- Pipe laying works in street with width less than 2 meters, needs to be conducted manually.

Noise and vibration

Noise

185. To assess an anticipated noise level during these type of works calculations were done based on existing information about operation of various equipment. During construction and rehabilitation works on WDCs temporary noise emissions may be caused from the following equipment:

- a. Decommissioning equipment
- b. Construction equipment
- c. Earth moving activity
- d. Generators
- e. Vehicles used for material transport

¹⁸ SanR&N RUz No.0179-04 Hygienic norms. List of Maximum Allowable Concentrations (MACs) of pollutants in ambient air of communities in the Republic of Uzbekistan including Annex 1

¹⁹ "O'z DSt 1057:2004 Vehicles. Safety requirements for technical conditions" and "O'z DSt 1058:2004 Vehicles. Technical inspection. Method of control".

186. Level of noise generated by various equipment was used based on existing standards. It is expecting that during the following equipment will be used for construction of WDC and water towers.

Table 10: Noise level form various techniques (at the distance 50 feet²⁰)²¹

Noise source	Equivalent noise level, dBA
Excavator	81
Dozer (Bulldozer)	82
Track crane	83

187. Noise impact from this equipment was calculated for each case separately. As shown in the Figure 44, the closest houses to WDC “Chinaz” are located on the distance 10 and 64 m. Propagation of noise level for this case for different distance for this is presented in the Table 11.



Figure 44: Chinaz WDC (Chinaz district)

188. As a rule, noise caused by moving equipment is reduced at some distance. Such reduction has logarithmic properties. In case of noise caused by construction activities, noise spread pattern from the noise point is used, that can be determined as: Noise level₁ - Noise level₂ = 20 log r₂/r₁.

Table 11: Noise levels at the various distances

Distance	Equivalent noise level (maximum), dBA		
	Excavator (81)	Dozer (82)	Track crane (83)
10	86	86.5	87.5
20	78	79	80
68	65	66	67
75	64	65	66

²⁰ One feet is equivalent to 0.3048 meters, 50 feet is 15.2 meters

²¹ Part Two – Construction noise impact assessment, Table 7-4

Distance	Equivalent noise level (maximum), dBA		
	Excavator (81)	Dozer (82)	Track crane (83)
100	60	61	62
110	59	60	61
120	58.6	59.6	60.6
300	50	51	52
350	47	48	49

189. As shown in the Table 11, at the distances up to 100 meter noise level from the noisiest equipment will exceed standards - 55 dB²² for day time in the area adjusted to the living houses. Due to fence between the closest house and WDC territory noise level will decrease on 6 dB. In addition, noise level will reduce on 1.5 dB due to non-asphalted soil absorption.

190. Baseline assessment showed that ambient noise level for the area adjusted to construction exceeds standards on 10 dB (Table 7) and it is equivalent to 65 dB. In accordance with IFC requirements when “noise impacts should not exceed the levels of presented in Table 1.7.1, or results in a maximum increase in background levels of 3 dB at the nearest receptor location off-site”²³. Therefore, noise level generated by construction equipment should not exceed 68 dB in front of houses faced to construction site.

191. There is educational entity on the distance around 300 meters to the north from WDC “Bozsuv” in Chinaz district (Figure 44a). Therefore, standard for this type of receptor - 40 dB has to be applied for this case (Table 7a). As shown in the Table 11, noise level will reach if construction works will be conducted on the distance closer that 350 meters (considering fence which will be installed within the perimeter of construction site and soil absorption coefficient 1.5 for non-asphalted soil). Therefore, if construction works will be conducted on the territory closer than 350 the the school, acoustic screen must be used. Or in order to meet the standards, Contractor should not use noise equipment during school hours (from 9 am until 3pm). The construction activities need to be agreed with local authority (RCA’s leader) and school administration.

²² SanN&R 0267-09, Acceptable noise levels for habitable areas Uzbekistan 0267-09 and IFC, EHS Guidelines, 2011

²³ IFC, EHS General Guideline, 2007, chapter 1.7.



Figure 44a: Location of Boz Suv WDC

192. In Madaniyat WDC case, the houses are located next to the construction site, at the distance no more than 5-7 meters (Figure 45). Therefore, in order to avoid noise pollution, the Contractor has to use temporary acoustic screen.



Figure 45: Living houses located next to the Madaniyat WDC

193. Noise level during construction works may exceed standards for living area for Sutbulok, Uzumzor and Chinor WDCs (Yangiyul district), and Gayrat, Yangiobod, Kutarma and Chinaz WDCs (Chinaz district). Noise measurements need to be conducted on these

WDCs and in case of exceeding standards for day time in 55²⁴ dB, installation of acoustic screen will be required.



Figure 46: Location of WDC "Sutbulok"



Figure 46: Location of WDC "Chinor"

194. As shown in the Table 11, after 110 m from noise sources, the noise level is acceptable without implementation of mitigation measures, (55 dB is requirements per IFC standards²⁵). It can be assumed that in accordance with preliminary calculations, that noise impact will not exceed 110 m and increase of noise level after this distance is assessed as acceptable impact. For the conduction project works at the area located closer than 110 m to construction sites, the contractor should implement all mitigation measures mentioned in the below para.

²⁴ SanN&R 0267-09, Acceptable noise levels for habitable areas Uzbekistan 0267-09 and IFC, EHS Guidelines, 2011

²⁵ Maximum Allowable Noise Levels (General IFC Guidelines, 2007)

195. During pipe lying works some noise impact will occur due to work of technics. Even impact will be short term, it is required to implement mitigation measures. It is essential for such area as access road to Shuralisoy WDC, WDC Sutbulok and other project sites where pipe lying works will be implemented closer that 2 meters to the houses' or buildings' walls.

Mitigation measures:

196. The following measures need to be implemented to avoid noise and vibration impacts on project sites located within settlements:

- Install acoustic barrier next to the WDCs, “Madainyat”, “Sutbulok”, “Bozsuv” and Chinor settlements;
- For the rest of WDCs acoustic screens have to be used if construction activities will be implemented closer than 110 m;
- For the WDCs “Bozsuv” if construction works will be conducted on the distance closer that 300 meters, acoustic screen must be used. Or in order to meet the standards, Contractor should not use noise equipment during school hours (from 9 am until 3pm). The construction activities need to be agreed with local authority (RCA's leader) and school administration;
- If noise level in front of houses near to WDC Chinaz increases 68 dB during the day time, install acoustic screen;
- During construction period establish limits on speed for vehicles inside of settlements (40 km/h);
- In case of receiving any complaints from population, noise measurements need to be conducted and in case of exceeding established standards, additional mitigation actions for decreasing noise level need to be undertaken (establishing temporary sound absorbing barriers and others);
- Schedule construction so as to minimize the multiple use of the most noisier equipment near sensitive receptors (houses, schools);
- Use of Personal Protective Equipment (PPE) by workers involving in demolishing and construction works in conditions of increased noise level is mandatory;
- conduct weekly noise measurements at the all WDCs. Make sure that in WDC “Chinaz”, “Madaniyat” and “Sutbulok” noise level not exceed 55 dB during the day time. For WDC Bozsuv case, noise level in front of school does not exceed 40 dB;
- during pipe lying works in the site where digging of tranche will be implemented closer than 2 meters to the wall use compact less noisier pipe lying techniques;
- Inform population about anticipated works.

Vibration

Vibration impact

197. Vibration impact during construction stage could be caused by the same machinery. The level of vibration and its propagation within a distance was calculated in accordance with methodology indicated in Transportation and Construction Vibration Guidance Manual (2013).

198. The Manual with reference to Transit Noise and Vibration Impact Assessment (Federal Transit Administration 2006), provides information on vibration level from different construction equipment (Table 13). The table does not provide data on mobile and assembles cranes since vibration level is not significant.

Table 13: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference in PPV at 25 feet (in/sec)
Excavator (Clam shovel drop)	0.202
Small bulldozer	0.003
Loaded trucks	0.076

Source: Federal Transit Administration 1995 (except Hanson 2001 for vibratory rollers)

199. Using these source levels, vibration from this equipment can be estimated by the following formula:

$$PPV_{eqp} = PPV_{Ref} \left(\frac{25}{D} \right)^n$$

Where:

PPV_{Ref} = reference PPV at 25 ft. (Table 6);

D = distance from equipment to the receiver in ft;

n = 1.4 (the value related to the attenuation rate through ground).

200. Values of vibration level calculated in accordance with this formula are presented in Table 14.

Table 14: Calculation of vibration from equipment

Distance, m	Vibration from equipment,					
	Small bulldozer		Loaded trucks		Excavator	
	in PPV (in/sec)	dB	in PPV (in/sec)	dB	in PPV (in/sec)	dB
20	0.004	37	0.1	66	0.28	74
30	0.002	34	0.05	62	0.16	71
50	0.001	29	0.028	57	0.08	65

Source: PPTA's consultants, 2018

201. National standards for vibration level in residential houses are provided in Sanitarian Norms and Rules (SNR) № 0146-04 "Design of the living houses in climatic conditions of Uzbekistan". For living houses the standards is 67 dB for night time and 72 dB for day time with frequency in 37 and 61 Hz and for night time is 67 dB.

Table 15: National standards for vibration

Period	Permanent vibration, dB
Day time	72
Night time	67

202. The standards are provided in "Transportation and Construction Vibration Guidance Manual" (2013). The Manual provides two types of limits for vibration level – for "frequent events" and "infrequent events". The Manual defines that "Frequent events" (continuous) is defined as more than 70 events per day and "Infrequent events" (single event) is defined as fewer than 70.

203. As per consultation with engineering team maximum amount of trucks which will move to and from site will not be more than 70. Therefore, for vibration assessment for construction and reconstruction activities lower threshold will be applied. For example, a threshold for residential buildings with plastered walls/... is 0.2 in/s for continuous vibration and for single event condition is 0.5 in/s.

204. The Table 16 presents maximum continuous vibration level for preventing damages for different type of buildings. This data could be used as thresholds for both phases – construction and operation for structural integrity of buildings/houses.

Table 16: Maximum continuous vibration levels for preventing damage (mm/s)

Description of building type	AASHTO (1990)			SAS (1992)		
	mm/s	in/s	dB*	mm/s	in/s	dB*
Historic sites or other critical locations	2.5	0.09	94	2.5	0.09	94
Residential buildings with plastered walls / Building with foundation walls and floors in concrete, wooden ceilings and walls in masonry	5.1-7.6	0.2-0.29	100-104	5.1	0.2	100
Residential buildings in good repair/ Building with foundation walls and floors in concrete, walls in concrete or masonry	10.2-12.7	0.4-0.49	106-108	7.6	0.29	100
Engineered structures without plaster / Buildings in steel or reinforced concrete	25.4-38.1	0.99-1.4	114-118	12.7	0.49	108

AASHTO = American Association of State Highway and Transportation Officials, SAS = Swiss Association of Standardization

Source: California Department of Transportation (2013), US Transportation Research Board (2012)

* Converting into dB was done based on formula provided in para 57

205. As showed results of calculation of vibration level (Table 14), vibration from construction activities on this stage will not impact on people living on surrounded area and structures since it is below standard in 72 dB for day time.

206. Anticipated vibration levels at the distances 30 meter (WDC Madaniyat) is below standard. It will not also impact on residential building as well, since the highest vibration level will not exceed 0.16 in/s or 71 dB.

207. Therefore, above described impacts on air quality, noise and vibration will be temporary and it could be mitigated by implementation of recommended measures.

Impact on water resources

208. The surface water may be polluted due to improper placement of excavated soil, poor management of construction camps, and improper storage of construction materials, leakage of fuel and lubricates from construction machinery, washing of vehicles and techniques without proper treatment. During construction of transmission main a temporary contamination of Chirchik river, Bozsuv canal and Northern Tashkent Canal (NTC) may occur in places where transmission main crosses water courses (Figure 49).



Figure 49: Transmission main crossing Chirchik river



Figure 50: Transmission main crossing Bozsuv canal

209. In addition, some part of works on pipe laying of transmission main will be conducted along NTC, and pipe laying of internal network – along smaller water streams (Figure 51).



Figure 51: Transmission main along with NTC

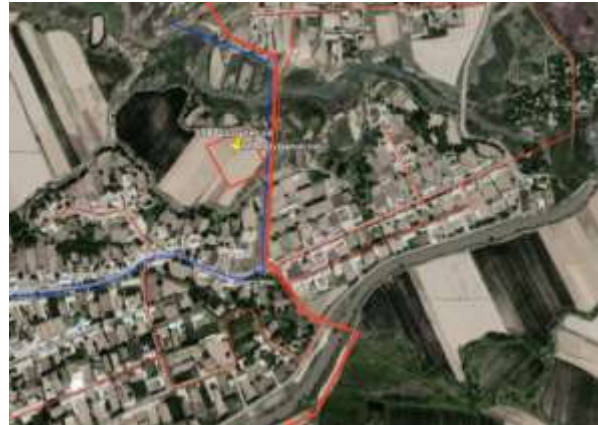


Figure 52: Planning pipe laying works inside of settlements

210. Construction of new WDCs and rehabilitation of existing ones, as well as construction of water towers will not be conducted next to the water bodies.

211. Implementation of the mitigation measures and continuously monitoring of water quality in the points indicated in Environmental Monitoring Table (Chapter 8) is necessary to avoid deterioration of water quality.

Mitigation measures:

212. The following mitigation measures shall be implemented to minimize impact on water resources:

- Construction and labor camps, including storage places for lubricant, fuel and other oils will be located 100 m away from water bodies;
- Conduction of refueling, oil replacement or repairing works will be banded at the area within 50 m from water streams;
- Sanitary waters and solid wastes will not be released directly into water streams;
- Topsoil stripped material shall not be stored where natural drainage will be disrupted;
- Water samples will be taken and compared with the baseline monitoring results obtained in the preconstruction stage. Location of monitoring points, frequency and monitoring substances are presented in Environmental Monitoring Plan (Chapter 8.2).

213. Groundwater table level in the upper part of the Project zone is located (mainly in Yangiyul district) 18-20 meters. In the down stream area (Chinaz district) on the depth 8-10 meter. In the territory close to the Chirchik river (lower part of Chinaz district) ground water table increase up to 2-3 meters. Therefore, potential impact arises from maintenance of contractors' camps, transport, maintenance of vehicles and handling and storage of lubricants and fuel. The required provisions for construction camps and monitoring of ground water quality are described in the subsections describing impacts on soil quality and waste management.

214. Although location of WDC is selected at the highest elevation in order to provide good pressure of pumping water, there is some possibility that ground water may impact during construction of WDCs. Therefore, it is recommended that all construction works related to

digging on the depth more than 3 meters (pump station and administrative buildings basement) need to be conducted during non-irrigation season. The irrigation season in that region is May-August. If this period could not be avoided, usage of standard technology for construction in areas with high water logging needs to be applied – pumping water into the nearest drainage canal.

215. Direct or indirect (through soil) pollution of ground water may deteriorate of water quality in the hand pumps, which population use for drinking purposes. Therefore, monitoring of water quality in the hand pumps houses located close to the rehabilitating or constructing new WDCs needs to be undertaken by Contractor on the monthly base. In case of exceeding standards, ground water pollution source(s) need to be identified and repaired.

Impact on soil

216. The main anticipated impacts on soil during construction stage will be: disturbance or loss of top soil, its compaction and pollution. For pipe lying works, earth excavation, pipe laying and backfill of material including compaction will be implemented. Excavated soil will be temporary stored alongside the trench and refilled after pipe lying. Gravel will be used as a bed for the pipes and excavated soil will be placed back to fill tranche and be compacted. Certain amount soil will surplus due to pipes and gravel in trench.

217. Surplus excavated soil will be generated during construction of WDCs particularly for construction of clean water reservoirs (CWR) and pump stations. Even surplus materials will be used as embankment fill as far as possible certain amount of earth will remain.

218. The movement of equipment and the temporary storage of materials on the ground during the construction may lead to compaction of the soil. This compaction will take place in the area affected by the construction and rehabilitation works, in its vicinity, in the access areas, pipelines, etc.

219. Gravel and sand will be required for pipe lying and rehabilitation of damaged roads. Unauthorized excavation of such construction materials and improper restoration works on closing used carriers will negatively impact on soil.

Mitigation measures:

220. To minimize this impact on soil quality the following measures shall be implemented:

- The top soil of about 30 cm depth shall be removed and stored separately during excavation work, and after the construction of the main trunk pipes the same soil shall be replaced on the top, in unpaved areas;
- The excess top soil and earth reminded after construction new WDCs will be used at other project sites or disposed at the places prior approved by local government authorities and The State Committee for Ecology and Environmental protection (Goskompriroda);
- To minimize soil compaction, movement of all type techniques will be allowed only through identified assess roads;
- Contractors will be required to use only authorized carriers with getting all necessary permissions per respective national legislation.

221. Pollution of soil during construction phase maybe caused by improper handling of fuel and oil during refueling and poor waste management which is reviewed in the next chapters.

Waste management

Hazardous construction wastes

222. During construction phase hazardous wastes will be generated from vehicle operation and maintenance, rehabilitation works at the 9 WDCs, particularly replacement of old transformers. In addition, there is possibility of presence of asbestos materials in remaining buildings and facilities of rehabilitated WDCs.

223. Among 16 transformers in 10 transformers have been produced before 1994²⁶ and there is a possibility that oil contained PCB was used for such equipment. Due to specific of nature of works on transformers demolishing, replacement and further hand over of installed new transformers to TPS, such works could be conducted only by eligible organizations with appropriate certificates/license. Therefore, this activity will be implemented by SJC “Uzbekenergo”, owner of the electricity facility. Demolishing transformers will be transferred to SJC “Uzbekenergo” as well for further storage and disposal.



Figure 53: Transformer in WDC “Madaniyat”



Figure 54: Transformer in WDC

224. There is procedures on disposal of used oils and transformer in Uzbekistan²⁷, however taking in consideration a possibility of PCB content in transformer oil, disposal of this equipment requires special approach. This approach was developed within Framework of the “Modernization and Upgrade of Transmission Uzbekistan” project in 2015 and approved by Uzbekenergo Substations. The framework requires conduction of laboratory testing transformer oils on PCBs. However, as showed baseline survey, there are no certified laboratory, conducted such analysis.

225. Optionally, the special kits for PCBs analysis in transformer oil could be purchased within the Project to check of used oil from demolishing transformers on presence of PCBs.

226. During the public consultation the participants raised the question regarding safe disposal of all asbestos pipes that were used before drinking water supply. In accordance with the project design and a procedure for conduction construction works, all old pipes (including asbestos) will not be excavated and they will stay in the ground. However, it is important for TPS “Suvoqova” do not touch/excavate these pipes (asbestos) during the project phase.

²⁶ In Russia, Last transformer contained PCB was produced in 1993. all transformers used at WDCs were produced in Russia.

²⁷ Safety regulations for the maintenance of electrical consumers, Approved by State Inspection under Uzenergonadzor, 2004 and Regulation guideline 34-301-941:2007 Individual norms for oil usage for repairing and maintenance needs for equipment of energy enterprises

Mitigation measures:

- Used oil from demolishing transformers produced before 1993 have to be analyzed on content of PCBs. This analysis has to be conducted by the designated specialist from Uzbekenergo – national electrical company authorized on handling used transformers. Or these analyses could be undertaken by Environmental Specialist of PSC on equipment which will be purchased within this project for PCBs testing. If PCBs be found in the transformers' oil all transformers have to be carefully handled and disposed without pouring oil and avoiding oil leakage. Transformers contained PCBs have to be labeled with sign "Content PCB" and disposed in accordance with "Guidebook on Environmental Sound PCB Management in Electrical Equipment" (prepared under Moldova POPs Stockpiles Sustainable Management and Destruction project)". Notification on presence of such equipment will be sent to The State Committee for Ecology and Environmental protection (Goskompriroda) and Sanitarian Epidemiological Station for their further actions;
- If demolishing transformers do not contain PCBs, they have to be disposed in accordance with national regulation "Safety regulations for the maintenance of electrical consumers", Approved by State Inspection under Uzenergonadzor, 2004 and Regulation guideline 34-301-941:2007 "Individual norms for oil usage for repairing and maintenance needs for equipment of energy enterprises".
- A separate Waste Management Plan needs to be developed by Contractor, endorsed by PMC and approved by PCU for the construction sites with demolishing works. The Plan has to include information about type of generating wastes, procedure of their collection and disposal;
- Make sure that old pipes (especially asbestos) are not excavated or touched. The new pipes will be laid along to the existing;
- Used oil from vehicles and machinery shall be collected into containers placed at the concreted sites and disposed to national oil company designated for accepting and treatment of used oils;
- Refueling vehicles and replacement oils also have to be conducted in special designated and properly equipped places. Emergency facilities have to be at the place for elimination of accident of oil spills.

227. The project involves demolishing of existing WDCs including old buildings and constructions, therefore there is a possibility of presence of asbestos materials (in roofing slate).

Mitigation measures:

- Prior to commencement of rehabilitation works at the WDCs, EO with International or National Environmental Specialist of PMC will conduct vision observation of old buildings and facilities on presence of asbestos materials.
- In case of presence such materials, will developed by Contractor a detailed "Waste Asbestos-Containing Material Management Plan" is to be developed by Contractors (Appendix 8).

228. During construction phase another types of hazardous wastes (used oil and batteries, fuel) could be generated during operation and maintenance of machinery. In case of improper handling and dispose of such materials it will lead to pollution of environment and they are hazardous to human health.

Mitigation measures:

- Used oil shall be collected into containers placed at the concreted sites and disposed to national oil companies designated for accepting and treatment of used oils²⁸;
- Refueling vehicles and oil replacement have to be conducted in the special designated and properly equipped places. Such places have to be organized in the way avoiding releasing or leakage of oil on the ground or water courses. Emergency facilities have to be at the place for elimination of accident of oil spills;
- Used batteries have to be collected separately and transferred to the local branches “Cvetmet” for further disposal.

Non-hazardous wastes

Municipal wastes

229. Municipal solid wastes and waste waters will be generated at the construction and camp sites. Mainly this is rubbish, plastic or glass bottles, glasses, waste food, etc. Improper wastes management may cause the spread of infectious diseases, emergence of insects and parasites in construction camp sites. In addition, it may lead to conflict with local population.

Mitigation measures:

230. The followings shall be implemented for proper waste management:

- Segregation of wastes on recyclable and non-recyclable wastes;
- Selling recyclable wastes to relevant organizations (paper, scraps, accumulators) and timely disposal of non-recyclable wastes to the landfill, determinate by local hokimyats.
- Providing hydro isolated septic tank for collecting waste waters at the camp sites and bio toilets for workers at the construction sites and timely disposal of waste waters to the local waste water treatment plants.

Construction wastes

231. Construction wastes in significant amounts will be generated during demolishing of existing buildings and facilities at the WDCs. Storage of such wastes in area close to settlement and untimely or improper disposal may impact on air quality, dust generation and disturbance of neighboring settlements. Besides this wastes, used welding rods, packing materials, woods will be generated as well.

Scrap materials

232. Old equipment from rehabilitated WDCs, such us old pumps, pipes and etc. will be handed over to Tashkent Province Suvoqova (TPS) for further use or disposal. As mentioned

²⁸ Resolution of Cabinet Ministries of RUz # 258 “On collection, storage and further disposal of used technical oil” dated from 4 September 2012

above, old transformers produce before 1994 will be demolished and storage in accordance with established procedure.

Mitigation measures:

- Waste disposal needs to be done in accordance with agreement concluded between Contractor and local agency “Toza hudud”;
- Segregation of wastes on recyclable and non-recyclable wastes;
- Selling recyclable wastes to relevant organizations and timely disposal of non-recyclable wastes to the landfill, determinate by local agency “Toza hudu”;
- Burning of waste on any construction site is forbidden with the exception of stub and small branches from felled trees and bushes, which is better to be burned in order to avoid pest dissemination.

5.2.2 Biological resources

233. It is expected that during the construction works limited impact on biological resources may occur. Project sites are combination of populated area and agricultural lands represented by typical urban and agro-biocoenosis. There are no natural protected areas or sensitive environmental receptors close to project sites. The nearest natural protection zone – Chatkal reservation is located 120 km to north-west from VU-1, which means no impact on the reservation.

234. Impact on flora may occur due to cutting trees and removal bushes during construction of main trunk, distribution water supply network and construction or extension of existing WDCs.

235. In accordance with estimation, provided in LARP around 312 fruit and 1,490 non-fruit trees will be felled for transmission main construction. All these trees belong two farmers and households, therefore compensation payment for the trees will be done to farmers’ and households’ accounts.

236. Besides these trees around 20 mulberry trees need to be felled as well for construction of transmission main. Compensation payment for the tree will be paid to The State Committee for Ecology and Environmental protection (Goskompriroda) as per national legislation²⁹. Prior commissioning of construction works, all project sites where trees need to be felled, have to reviewed by representatives of Contractor and Goskompriroda for calculation number of cating trees. After compensation payment, permission on felling trees will be issues by Goskompriroda (as indicated in para 9 of this IEE).

²⁹ CMR # 290 dated from 2014, “About regulation use of biological resources and on the order of procedure of getting permission for their use”



Figure 55: Site for construction of new WDC in Yangiyul district



Figure 56: Street where pipe laying works will be carried out

237. Some impact may occur during pipe laying works as well. As a rule, construction works on pipe laying will be conducted along existing roads. In general, wide of roads During these works Contractor shall avoid felling trees as much as possible, however if felling trees is unavoidable, compensations need to be paid to owner of trees or Goskompriroda.

238. Greening of WDCs territory after completion civil works are included in the project design.

239. The project works will be implemented in the populated areas and agricultural lands with limited presence of wild animals, therefore impact on flora is considered as insignificant.

240. Implementation of civil works related to pipe laying along with small water streams and at the several points where transmission main will cross canals, may impact of aqua fauna of the canal. However, taking in consideration, that the canal is used for irrigation mostly, this impact is assessed as insignificant.

Mitigation measures:

241. To mitigate adverse impact on vegetation and wildlife and to comply with national requirements the following measures are required:

- At the project details stage select an alignment of pipeline in a way which allows to minimize cutting of trees and bushes;
- If cutting trees is unavoidable, to compensate losses as indicated in CMR # 290 (2014);
- Conduct joint revision of the project sites with representatives of inspectors from relevant district branches of Goskompriroda to identify number of cutting bushes and trees if any and to pay compensations.
- Don not use chemical and burning for removing vegetation.

Impacts on land use

242. Impacts on land use was accessed based on LARP materials prepared for this project. The feasibility design attempted to minimize the land acquisition and involuntary resettlement. The impacts are categorized as permanent and temporary. The project components which require permanent land acquisition include one ground water intake facility "VU-1", 20 water distribution facilities such as water distribution centers (WDCs) and water towers. The existing ground water intake facility VU-1 will not require land acquisition. Out of the total 20 water distribution facilities, 9 facilities will require land acquisition. Total land requirement for acquisition is 4.82 hectares (ha) which includes 4.12 ha of irrigated agricultural land and 0.7

ha orchards. This is an estimation based on the technical input received from the engineering team. However, this is still draft and subject to change. District wise distribution of land acquisition shows that Yangiyul district requires maximum land acquisition which is 3.62 ha followed by Chinaz district having 1.2 ha.

243. Temporary impacts occur in terms of loss of crops during the construction/reconstruction of pipe lines especially the transmission mains and distribution mains which pass through agricultural land. The land will be restored to the previous use post the construction and the users will be allowed to continue their cultivation.

244. Totally 21.7 hectares of land is likely to be impacted temporarily due to construction of transmission main and supply main. Land is categorized in to two parts such as arable/crop cultivation land and orchard/garden land. Out of the total 21.7 ha of temporarily affected land, 20.66 ha is arable/crop cultivation land and 1.04 ha of land is classified as orchard/garden land. These lands will not be acquired permanently rather will be affected in terms of loss of crops and trees during construction.

5.2.3. Socio-economic resources

245. The project will have positive effect and may have some negative impacts on socio-economic resources during construction works.

246. Personnel with different qualifications will require for construction works, and local population could be hired for some of activities, which means creation of new jobs. Moreover, indirect services will be needed to provide needs for housing, catering, petrol stations, etc. This temporary positive impact will contribute overall project positive impact.

247. Construction of the main trunk and pipelines will pass through mostly agricultural fields, some orchards, and vineyards. The impact related to construction of pipelines is temporary in terms of losses of standing crops if unavoidable. Cutting trees and vineyards may also lead to loss of people incomes.

Mitigation measures

248. The following measures need to be undertaken to minimize or compensate this impact:

- Construction during agricultural off- season may further minimize the impact (loss of agricultural income). Major crops in the project affected are wheat, sunflower, vegetables and cotton, which growing seasonally;
- If cutting trees is unavoidable, to compensate losses as indicated in the LARP for this project and in cost for trees.

Health and safety issues

249. Besides impacts on air, water and soil quality, described in previous chapters, certain risks may take place related to community health and safety, for workers in campsites.

For community

250. Inadequate lighting and fencing of construction sites inside of settlement areas can be dangerous for pedestrians and vehicles especially during the night time. Increasing of traffic due to trucks and vehicles movements to construction sites, temporary closing of roads during pipe lying inside of settlements may cause inconvenience for local population as well. In addition, pipe lying will cause temporary blockage of household access.

251. Untimely and inefficient disposal of solid waste and improper sanitary conditions generated by the construction workers at construction sites and labor camps may cause pollution of the surrounding environment and affect the health of local people. There could also be some social problems due to irresponsible behavior of the outside work force such as gambling, alcoholism and disrespect to local people and their culture.

252. Cultural interference workers with local communities may cause HIV and sexually communicable diseases (STD) spreading in case of low awareness about these diseases among workers and community.

253. Increased traffic movement may create a risk for inhabitants living in areas adjusted to some of reconstructing and rehabilitation WDCs, particularly for houses and schools listed in chapter 5.2.1 (noise impact).

254. Moreover, a movement of heavy tracks may destroy or deteriorate conditions of roads inside settlements.

Mitigation measures

255. The following measures need to be undertaken to minimize this impacts:

- Contractor and PMC will inform population about anticipated works in the settlement in advance;
- Contractors will require to develop a Traffic Management Plans with clear indication routes of vehicles' movements, placement special signs, and speeding allowance inside of the settlements and schedule transportation activities by avoiding peak traffic periods
- The Traffic Management Plans will be approved by Traffic Police and disclosed to local communities prior commencement of construction works on respective sites;
- Clear signs will be placed at construction sites in view of the public, warning people of potential dangers such as moving vehicles, hazardous materials, excavations etc. and raising awareness on safety issues.
- Contractor will require to install temporary bridges and effectively organize works, which will allow avoid unreasonable delaying of construction works;
- All construction sites will be properly lightened and fenced;
- Development of Site Specific Plans for campsites;
- After completion works all roads shall be rehabilitated at least up to condition of pre-construction stage;
- Carry out regular awareness campaigns among work staff, including specific hazards associated with the spread of HIV/AIDS.

256. Construction sites and areas used for construction camps without proper cleaning and reinstatement works will cause damage and inconvenience to local communities due to debris, spoils, excess construction materials.

- After completion of the main construction Contractor shall provide full reinstatement of the construction and camp sites by bringing them to its primary condition;
- Remove all rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; and
- All disrupted utilities restored, all affected structures rehabilitated /compensated;
- The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up;

- All hardened surfaces within the construction camp area shall be ripped, all imported materials removed;
- PMC will conduct post-construction audit during defect liability period to make sure that construction sites and camps are properly cleaned and restored to pre-project conditions before acceptance of works before hand-over to Tashkent Province Suvoqova and local khokimiyats.

257. Separate Site Specific EMP for labor/construction camps (or part of general SEMP) will be developed by Contractors, endorsed by PMC and approved by the Environmental/Social Specialist of Project Coordination Unit's prior commencement of works. SSEMP for labor/construction camps will describe waste collection and disposal procedure, set up of camp facilities (such as a storage place for construction materials and techniques if any, laundry and toilets, access roads) in the way, which will allow to minimize disturbance of local population. If washing equipment and vehicle is planning to be conducted at the labor/construction camp's site, appropriate wastewater treatment facilities have to be organized on the camp and respective permissions on water intake and waste water disposal need to be received by Contractor from relevant government agencies. At the same time, labor camps have to provide safe and adequate living conditions for workers, such as dining rooms, toilets, shower rooms etc. In addition, the Contractors shall instruct all the workers to act in a responsible manner. After completion works, construction camps

258. At the completion of work at a particular site, Contractor will remove all equipment and structure, clean up and dispose all waste materials, rehabilitate all construction sites and work areas so that these can be returned as possible to their previous use.

For workers

259. Separate Site Specific EMP for labor/construction camps will be developed by Contractors, endorsed by PMC and approved by the Environmental/Social Specialist of Project Coordination Unit's prior commencement of works. SSEMP for labor/construction camps will describe waste collection and disposal procedure, set up of camp facilities (such as a storage place for construction materials and techniques if any, laundry and toilets, access roads) in the way, which will allow to minimize disturbance of local population. If washing equipment and vehicle is planning to be conducted at the labor/construction camp's site, appropriate wastewater treatment facilities have to be organized on the camp and respective permissions on water intake and waste water disposal need to be received by Contractor from relevant government agencies. At the same time, labor camps have to provide safe and adequate living conditions for workers, such as dining rooms, toilets, shower rooms emergency medical kits. Other measures for fire-fighting and preventing electric shocks etc. In addition, the Contractors shall instruct all the workers to act in a responsible manner. After completion works, construction camps.

260. At the completion of work at a particular site, Contractor will remove all equipment and structure, clean up and dispose all waste materials, rehabilitate all construction sites and work areas so that these can be returned as possible to their previous use. Safety and health non-compliance may create a risk for construction workers. The Contractors will require to develop Occupation Safety and Health Plan, which covers among others the following topics: usage of PPE, working procedure with hazardous materials (such as asbestos materials, PCBs etc.), training activities and others. The workers have to be provided with appropriate living conditions: safe water supply, washing conditions.

Mitigation measures

261. The following measures need to be undertaken:

- Comply with requirements of Labor Code of Uzbekistan (1998) and standards on work and health safety³⁰;
- Ensure that all site personnel have a regular E&S training and basic level of environmental awareness training;
- Ensuring all workers are provided with and required to use personal

5.2.4. Cultural heritage

262. The land and vegetation clearing, earthmoving activities during the construction of the new WDU and extension of existing ones, pipelaying works may affect the archaeological heritage in the project areas.

263. As showed the baseline study, there is one important archaeological heritage in Zangiota district – Zangiota Graveyard. The heritage is located 20 km to north from rehabilitated main trunk's route and project area. Therefore, the project will not impact on this heritage.

264. For the rest of the project area mitigation measures will be undertaken in accordance with the procedure indicated in the Law of RUz "On Protection and Use of Objectives of the Archeological Heritages" (2009). Procedure on chance finds procedure is presented in Appendix 9.

Mitigation measures

265. The following measures need to be undertaken in case of possibility to chance of finding heritage:

- Excavation and other works need to be suspended immediately;
- Area with possible heritage shall be fenced with fencing tape;
- A designated focal point from a local administration (khokimiyat) needs to be informed and invited for assessment of potential heritage and undertaken necessary actions;
- Civil works at the finding place could be recommenced after obtaining permission from the focal point.

5.3. Operational stage

Impact on the air

266. No permanent impact on air is expecting during operation phase. Some temporary impact may occur during maintenance works.

Mitigation measures

- Watering of earth during maintenance works
- Immediately replacing defective equipment and removing it from the work site;
- No truck movements in inhabited areas between 22:00 and 6:00.

³⁰ Construction Norms and Rules # 3.01.01-03. Organization of Construction works. 2003

Impact on water

267. Extensive pumping of ground water from wellfield may impact on water level in Chirchik river and it may lead to depletion of ground water reserve. A hydrogeological assessment provided by the State Committee on Geology and Mineral Resources establishes a maximal amount of water which could be withdrawn from wellfield without impact on water balance between ground and surface water. A hydrogeological Conclusion on available water sources in VU-1 is presented in Appendix 10.

268. In accordance with the assessment, up to 90 thousand m³/day could be withdrawn from wellfield VU-1 without adverse impact on Chirchik river's flow and depletion of ground water reserve. 90,000 m³/day is defined as threshold beyond that land subsidence would happen. Required amount of water for drinking water supply of two project districts is 60 thousand m³/day. Therefore, pumping water within approved amount will not adversely impact on Chirchik water quality and quantity.

269. Improved and extended water supply service will lead to increasing waste water. It may create problems due to low capacity or absence in some cases of sewage system in the project districts and lead to pollution of ground water, spread of diseases and other social problems.

270. In order to minimize this impact, construction and rehabilitation of sewage system in urban area of Yangiyul and Chinaz districts were included in the state program "On Program on complex development and modernization of water supply and sewage system improvement" (Resolution of President of RUz # 2910 dated from April 20, 2017). In accordance with this program, the centralized sewage system of Chinaz and Yangiyul cities will be rehabilitated and extended.

271. In addition to this program, 4030 Household (HH) septic tanks will be installed in 11 settlements of Chinaz district under the current project (Chapter 3.2.2). It will help to avoid pollution of the local ground water wells, located close to project area and Chirchik river itself.

272. Under the next phase of this project (Phase III), construction of HH septic tanks are planned in the rest 60 settlements and some of the urban areas which will be defined after study of the current situation.

273. Raw calculation of sludge generation in HH septic tanks was done based on assumption, that 65g/day of solid matters will be generated from one person. Considering daily norm as 120 lcd in rural are per person and average size of family as 10 people, it is expected that 0.65 kg/day or 237 kg/year of solid matters will be settle in the HH septic tank.

274. Accepting density of such sludge as 1.5 kg/m³ annual volume of generated sludge was calculated. It will equivalent to 0.16 m³/year. Type of proposing HH septic tank (Figure 33a) has approximately 0.75 m³ of effective area. It means that sludge from septic tanks needs to be cleaned every 4,6 years. Sludge from septic tanks will be disposed at the existing Yangiyul city waste water treatment facilities. Current capacity of sludge beds on WTPP is more than 162,000 m³ (length 300, width 80 and depth 3 meters). Annually 640 m³ of sludge will be generated in septic tanks, it will be 0.4 % from total volume of sludge beds.

275. Operation of chemical laboratories for monitoring drinking water quality without proper treatment of chemical's reagents residual may pollute surface and ground water.

Mitigation measures

- Installation of 4030 Household (HH) septic tanks in the project area;
- Conduction of awareness program on proper and timely waste water disposal for population in the project area;
- Ensure proper maintenance of the septic tanks and timely removal sludge from tanks;
- Discharging chemical's reagents residual into water stream without treatment will be prohibited. Special procedure of utilization of such reagents, indicated in Standards for Drinking Water, 2011 has to be implemented.

Soil quality

276. The main possible impact on soil during the project operation is risk related to land subsidence in case of excessive extraction of ground water at the "VU-1" well field, Yangiyul district. To avoid such situation, water from wells has to be pumped strictly in the amount, indicated in the design documents and permission for special water use. TPS will have to obtain the permission from State Committee on Ecology and Environment Protection (Goskomprroda).

Mitigation measures

- TPS has to received permission on special water use, as indicated in Chapter 2, Table 1;
- Water extraction from wellfield VU-1 has to be done in strictly compliance with amount indicated in permission on special water use.

Health Safety

277. In order to meet national standards for drinking water sodium hypochlorite (SHC) will be used for disinfection. Even SHC is less dangerous than gas chlorine, the special prevention measures need to be undertaken to minimize possibility of SHC leakage and consequently negative impact on facilities personnel, population from vicinity and environment.

Mitigation measures

- Providing required facilities: storage of SHC in well ventilated rooms;
- Applying special marking for containers with this agent;
- Using vehicles with increased safety measures for transportation;
- Special procedure need to be developed and applied for utilization leakages.

278. Thus during project operation stage some negative impacts and risks may take place. However, all of them could be mitigated by implementation proposed measures described in EMP and required by national legislation.

279. Along with this, positive impact of the project is obvious and it is well described in the part of the project goals and expected outcomes. Detail information about impacts, recommended mitigation measures, responsible people for EMP implementation and monitoring with cost estimates for this activities are presented in Chapter 9.

6. INFORMATION DISCLOSURE, CONSULTATION, AND PARTICIPATION

280. One of the main goals of the IEE is to facilitate the participation of all stakeholders and local communities at all stages of the project cycle: from the pre-construction phase and

construction activities to its operation. In this regards, a number of consultations were held in the project districts to capture the stakeholders' opinions about the project, and agree on the project activities.

281. Prior to the public consultations several meetings were conducted with internal and external stakeholders, such as representatives of the Tashkent Committee for Ecology and Environmental protection (Goskompriroda), district Khokimiyats and makhallas, the Tashkent Irrigation and Melioration Institute, CSA and others.

282. In compliance with ADB requirements with the aim of informing the communities in the project area about the upcoming consultations, the announcements on planning consultation were published twice in the local daily newspaper "Toshkent haqiqati" dated from May 2016 and March 10, 2018 (#18) in Uzbek and Russian languages. In addition, all chairman of RCAs covered by the project, were informed about planning activities from local representatives of districts TPS and hokimiyats (Appendix 3).

283. General information on settlements representatives of each participated at the public consultation is presented in below table.

Table 16a: List of settlements whose representatives participated at the public consultations

Yangiyul District		
2018		
#	Name of settlement	Name of WDC
1	Mustakillik	VU-1 wellfield till WDC VU-3
2	Tuyabutiz	
3	Inogomov	
4	Uzbekistan	
5	Galaba	
6	Said ota	
7	Kushtepa	
8	Changtepa	
9	Khonkurgon	
10	Kengechik	
11	Mirishkor	WDC Khalkabad
12	Khalkobod	
13	Navoi	
14	A.Ikramov	
15	Nurobod	WDC VK-9 (Nurabad)
16	Keskan	
17	Dangir	
18	Turkiz	
19	Kaksha	
20	Bobur	Bobur
21	Marifat	
22	Vatan	
23	Markaz	WDC Shuralisay
24	Shuralisoy	
25	Ohunbabaev	WDC Okunboboev
26	Khakikat	
27	Umid	WDC Boz-Suv
28	Galaba	Water Tower Galaba
29	Kanal bui	Water Tower Kanalbuyi
30	Yangi mahallya	
31	Yangiobod	Water Tower Yangirabad
32	Dustlik	Water Tower Dustlik
33	Mirzaboboev	WDC Amir Temur

2016		
1	U.Musaev	WDC Khalkabad
2	A.Ortiqov	
3	Halkobod	
4	Boz-Suv	WDC Boz-Suv
5	Shuralisoy	WDC Shuralisay
6	Navbohor	
Chinaz district		
2018		
#	Name of MFI's or KFI's	Name of WDC
1	Chinaz city	WDC Chinaz
2	Uzbekistan	WDC Eshonobod
3	Galaba	
4	Ittifok	
5	Dustlik	
6	Kanalobod	
7	Sutbulok	WDC Sutbulok
8	A.Houdoiberganov	
9	Birlik	
10	Madaniyat	WDC Madaniyat
11	Uchkun	
12	Samarkand	
13	Yangiobod	WDC Yangiobod
14	Norkuzieva	
15	Kutarma	WDC Kutarma
16	Birlik	
17	Islomobod	
18	Kerdara	
19	Guliston	
20	Yallama	WDC Yallama
21	Ochamayli	
22	Dekhkonobod	
23	Erkin	
24	Chinmasjid	
25	Kir	WDC Gayrat
26	Gayrat	
27	S.Ayniy	
28	Kakhramon	
29	S.Rahimov	WDC Chinaz
30	A.Temur	
31	Mevazor	
32	Archazor	
33	Tillaobod	
34	Safarobod	
35	Abzalobod	
36	Olmos	
37	Okhunboboev	
38	Uzumzor	Water Tower Uzumzor
2016		
1	Chinaz city	WDC Chinaz
2	Eshonobod	WDC Eshonobod
3	Turkiston	
4	Kutarma	WDC Kutarma
5	Uzbekistan	WDC Eshonobod
6	Yallama	WDC Yallama
7	Chinaz	WDC Chinaz
8	Olmazor	
9	Eski Tashkent	

Yangiyul district

284. Three sets of public consultations were conducted in administrative buildings of Yangiyul Khokimiyats in May 29, 2016 and on March 10 and 17, 2018. Additional public consultation on May 18, 2018 was conducted for population of 5 settlements which will directly connected to transmission main. The registration lists of public consultations held in project districts are presented in Appendix 4. Among participants were representatives of RCA chairman, Yangiyul branch of "Suvoqova", Goskompriroda, land cadaster and hokimiyat. Total number of participant was 47 (Appendix 2).

285. Representatives of almost all RCAs covered by the project area participated the public consultation. The dialog was made through informing communities about the proposed project and obtaining suggestions about the anticipated environmental impacts and developed mitigation measures. The social aspects including land acquisition and compensation payment were presented to the participants as well.

286. Project objectives and main findings of conducted environmental assessment, EMP and GRM was presented in Power Point presentation. People were requested to give their opinions and suggestions. In addition, participants were provided with contact information of focal points from TPS, Yangiyul district branch of TPS and PPTA's Environmental Specialist for further suggestions and questions.

287. The stakeholders/consultation participants were informed that Contractors would develop an Informative Banner with information on project objectives, activities, implementers, schedule of construction works, deadlines, contact information and logbooks for complaints and suggestions on each construction site. As per request from PC participants, soft version of presentation was shared with representatives of khokimiyat and district branches of Vodocanal.

288. The main issues raised during the public consultation are presented in the Table 17:

Table 17: Issues raised during public consultation in Yangiyul district

Issues raised	Response	Addressed in IEE
You described risk related to work with asbestos materials. Some of the pipe which the project is going to replace is asbestos pipe. How it will impact on our health	The project only constructs new pipe without replacing old one, including asbestos pipes. They will stay in the ground without disturbance. The main anticipated impact during the project works will be related to demolishing old buildings. To make sure that procedure	Details are provided in chapters 3 and 8, Appendix 8
Some of the pipes go through our households. Does it mean that our houses will be demolished?	Routes of all pipes is designed in the way to minimize impact on households. No any house will be demolished under this project. Some land will be acquired from farmers' and households' plots, but for all houses compensation will be paid in accordance with procedure that was explained during second part of presentation	Details are in chapter 5.3
Currently we consume water from wells. This water is very	Under this IEE we have checked water quality from VU-	Chapters 3 and 5

poor quality. How you can ensure that water which will be supplied from VU-1 will have good quality?	1. Water complies with national standards for drinking water on chemical characteristics. To meet standards on biological characteristics, disinfection will be done by sodium hypochlorite.	
Who will monitor quality of supplied water? Now the quality is very poor.	In accordance with national regulation (O'zDst 950-2011) analysis of water will be conducted by Vodocanal and Sanitarian Epidemiological Station based on schedule indicated in the document.	Details are provided in Environmental Monitoring Plan
Life time of pipes	Fiberglass and polyethylene pipes characterized by extremely low roughness coefficient will be used for the construction of the water network, which ensure more than 40 years life time	Details provided in Chapter 3.2
Questions related to connection of different RCAs to the new transmission main and pipeline	List of the settlements included into the project is presented in slides and IEE	Information is presented in chapter Chapter 3
Who will pay for installation of HH septic tanks and who will maintain?	HH septic will be installed under the loan and installation will be provided by the Contractor. The maintenance of the HH will be under the PPP.	Information is presented in chapter Chapter 3.2.3
What is duration of the construction period	In accordance with plan the design work shall start in 2019 and construction shall be completed by 2023.	Chq

Chinaz District

289. Public Consultation for Chinaz district was held on March 17 in administrative building of Chinaz hokimiyat. Representative the same organizations from Chinaz district attended the meeting. Presentation flow was the same as described above. During consultation participants raised the following issues:

Table 18: Issues raised during public consultation in Chinaz district

Issues raised	Response	Addressed in IEE
When construction works will start and when they will be completed?	Construction period is 2019-2023	Details provided in Chapter 1
What is a source for drinking water which will be supplied to our district?	Water will be delivered from VU-1. Quality of water in that source complies with national standards for drinking water (O'zDst 950-2011)	Included in Chapter 3.1
You told that the project will be implemented with involvement of ADB funds. Who will pay back the loan?	Water supply sector belongs to the social infrastructure project. The Government is guarantee payback for this loan.	Included in Introduction part
Will water meter be installed? Who will pay for installation?	Yes, totally 36,697 water meters will be installed under this project. The cost will be included in fee for water for certain years. This is financial part of the project	Included in Chapter 3
Who will implement construction work? Will it local company?	Contractor will be selected based on tender, which will be conducted in accordance with ADB and national regulations. Usually for such type of the project national contractors are selected	Included in Chapter 5
What will be done with old pipes which will excavated during construction works	Construction works does not include works on excavating old pipes. New pipes will be laid next to the existing ones.	Included in chapter 5

290. During all three public consultations the GRM was discussed. Stakeholders were explained that GRM to be a continuous process that envisages a collaboration of the Implementation Agency with population during the entire project cycle. Leaveleft with information about the project have been distributed by the makhallas heads to all households located along the proposed pipelines and WDCs. The detailed information on this mechanism will be presented in the next chapter.

291. This IEE incorporates comments and suggestions from all concerned stakeholders. The final IEE report will be made available on local language on CSA official website and in English on ADB's website.

292. As part of information disclosure, the final version of IEE will be translated into local language and will be delivered to local communities and relevant authorities (hokimiyats). The final IEE report will be sent to the Tashkent Committee for Ecology and Environmental protection (Goskompriroda), khokimiyats, CSA and ADB for further use during the construction and operation phases.

293. For the interested parties the IEE (English and Russian versions) will be available at the offices of the PCU and CSA and their websites.

294. In order to maintain the transparency of public disclosure process, the semiannual environmental monitoring reports (EMRs) will be published on the ADB and CSA websites as well. The hard copies of EMRs will be also sent to the State Committee for Ecology and Environmental protection (Goskompriroda).

295. Future consultations for project stakeholders shall follow as mentioned below.

- (i) During detailed design stage, in case of any major changes in the design/alignment/location, the IEE will be updated accordingly. The PCU will hold at least one public consultation meeting at early stages to solicit perceived impacts, issues, concerns and recommendations from affected communities.
- (ii) Prior to construction, the PCU will conduct an intensive information, education and communication campaign (IEC) to ensure the sufficient level of awareness/information among the affected communities regarding the upcoming construction, its anticipated impacts, the grievance redress mechanism, contact details and location of the PCU, and status of compliance with the Government's environmental safeguard requirements. Among others, the information banners containing information about the subproject, implementation schedule and contact details of the executing agency and Contractors will be installed at the strategic locations within the subprojects' main areas of intervention. The grievance redress procedure and details will be posted at the offices of the district branches of PCU.

7. GRIEVANCE REDRESS MECHANISM

296. In accordance with ADB SPS (2009), Grievance Redress Mechanism (GRM) will be established after the project effectivity. The main goals of GRM are ensuring the free submission and timely redress of grievances and remarks submitted by aggrieved from the project person and resolve complaints at the project level and prevent escalation to the national courts or ADB Accountability Mechanism. Along with the ADB requirements on development and approval of grievance redress mechanism by implementation of investment projects, grievance redress procedure in Uzbekistan is also regulated by the national legislation of Republic of Uzbekistan, in particular by the law "On Citizens' Applications" and the law "On the order of submission of appeals of physical and legal entities" (2014). The submission procedure for grievances and citizens' applications has been discussed during the public consultations in the project districts.

297. The GRM for the current project takes into account the national legislation, the specificity of the project sites and results of public consultations.

298. PCU under Kommunkhizmat (CSA) will be responsible for establishment of GRM after the project effectivity and act as the GRM secretary to make sure that the GRM is operational to effectively handle environmental and social concerns of project affected persons. The proposing GRM was presented during the public consultations to affected people, discussed with representatives of Yangiyul and Chinaz districts, TPS subdivisions, CSA representatives and manager of existing ADB PCU.

299. In addition, the GRM was discussed with PPTA Social Team and updated into the format applicable for both aspects – environmental and social in term of land acquisition and resettlement.

300. After discussion with all parties, the following GRM was proposed which consisted of several levels:

- **Level 1.** The aggrieved person applies to district subdivisions of TPS. After registration received complaints, district TPS will review nature/specificity of the complaint and will forward it to relevant party for resolving. In parallel, district TPS informs CSA about received complaint. Depending on nature of complaint it may go to Contractor, Land Cadaster, Makhalla or district branch of Committee for Ecology and Environmental protection (Goskompriroda). For example, complaints related to resettlement issues may be forwarded to Land Cadaster, hokimiyat and makhallas. In case of environmental issue, complaint will be forwarded to Contractor or District Goskompriroda. In GRM implementation district TPS will be assisted by PMC and PCU's Environmental and Social Specialists. At this level complaint should be resolved during 2 weeks. The district subdivision of TPS will inform the aggrieved person and CSA about undertaken measures.
- **Level 2.** In case the grievance was not redressed on the first stage or applicant is not satisfied with the decision made/solution, s/he can submit the grievance directly to the ADB PCU in Tashkent. Thereafter, the received grievance will be reviewed by the PCU in assistance with PMC specialists and representatives of TPS. In case the the grievance is not related directly to the project, the further instance will be recommended to the applicant where s/he should apply for the decision making.
- **Level 3.** If the issue was not solved or the applicant is dissatisfied with the decision/resolution, the aggrieved person may submit grievance to Economic Court where decision will be made in accordance with relevant national legislation.

301. The aggrieved persons can also use the ADB Accountability Mechanism (AM) through the direct citizens' application to the Head Quarter in Manila, particularly to Complaints Receiving Officer, Accountability Mechanism Asian Development Bank Headquarters 6 ADB Avenue, Mandaluyong City 1550, Philippines Email: amcro@adb.org, Fax +63-2-636-2086

302. AM is the last resort and ADB has its availability as a recourse in case other mechanisms for dealing with harmful project effects are not successful. GRM is required by SPS and the use of project level GRM should be encouraged first.

303. Most of grievances on environmental issues are redressed at 1-2 levels. All grievances received from the population will be registered in a logbook which should be available at all levels: at the site office of Contractor, each subdivision of "Suvokova" and province "Suvokova". Even so, the information on received by Contractor grievances and applications from the aggregated persons, and undertook measures should be submitted to the district subdivisions of "Suvokova" for the accounting all grievances. Consequently / Thereafter the information on all received grievances will be collected at the province subdivision of "Suvokova".

304. The Contractor should include the information on grievances in monthly progress reports submitted to the province subdivision of "Suvokova", who in their turn will include aggregated information to the semiannual reports on environmental monitoring submitted to ADB.

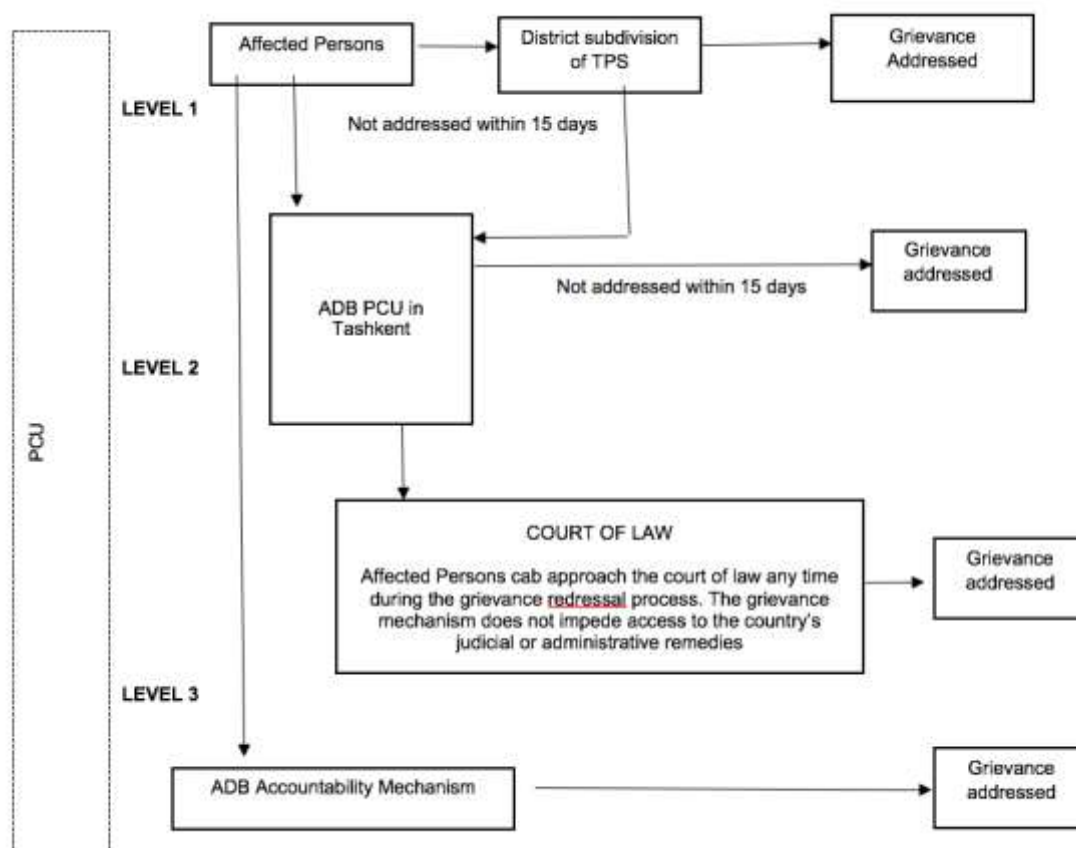


Figure 56a: Grievance Redress Process

8. ENVIRONMENTAL MANAGEMENT PLAN

305. The EMP compiles the comprehensive information gathering a summary of impacts previously identified, the actions required to mitigate those impacts in accordance with the laws of Uzbekistan and the ADB safeguard policy; and the monitoring activities that are to be undertaken as part of the project in order to confirm that they have been effective in reaching their objectives.

306. The EMP also details the institutional arrangements and capacities that currently exist, or that will be put in place during project implementation, to ensure that the IEE (including the EMP) has (i) comprehensively considered both Uzbek and ADB requirements for environmental protection, (ii) identified all likely environmental impacts, (iii) proposed appropriate mitigation measures, and (iv) put in place the necessary systems to ensure that effective procedures for environmental monitoring and control of the project impacts, and mitigation measures are implemented throughout the life of the project.

8.1. Environmental Mitigation measures

307. Mitigation measures required to address the impacts identified by this IEE have been consolidated in the following EMP (Table 19). The table provides information on anticipated impacts during the pre-construction, construction and operation phases with proposing mitigation measures, defining responsible party for their implementation. It is considered that ESS Specialist from PCU's, Environmental Specialist of PMC and Environmental Specialist or designated staff from Contractors will be responsible people for EMP implementation.

Table 19: ENVIRONMENTAL MANAGEMENT PLAN

Impact	Mitigation measure	Responsibility	Cost
Pre-construction stage			
Project design	<ul style="list-style-type: none"> • During detail design stage layout WDCs, route of main trunk and water distribution networks will be updated with consideration of minimization of impact on environment and population during construction and operation phases; • Ensure that first sanitarian zone (within 30 meters from the longest well) for ground water intakes is in compliance with national standards KMK 2.04.02-97 "Water supply. External networks and facilities" (1997) and the territory is properly fenced; 	PMC develops detail design PCU monitor compliance	No cost required
Lack of proper environmental requirements	<ul style="list-style-type: none"> • Ensure that EMP is included in bidding documents. • Ensure that environmental covenants, tools for resolving issues with Contractors non-compliance with established requirements are included in the bidding documents (such as penalties for violence environmental requirements and etc.) and further in contracts. • Include list of required national approval and licenses (indicated in chapter 2, Table 1a) are included in the bidding documents and responsible for receiving such permission are identified. 	PCU, PMC's Environmental Specialist PCU, PMC's Environmental Specialist PCU, Environmental Specialist	No cost required
Improper assessment of bidders' environmental capacity	<ul style="list-style-type: none"> • IA with assisting Project Management Consultant's (PMC) environmental specialist will ensure inclusion of environmental provision along with EMP in the bidding documents and in contracts for Contractors; • Bids evaluation needs to be done with consideration of: capacity of bidders to meet EMPs requirements, proposing adequate budget efficient for implementation EMP, existence of good practice in environmental performance within other similar projects; 	CSA, PCU	No cost required
Non-compliance with national environmental legislation in term of conduction environmental impact assessment and required permission	<ul style="list-style-type: none"> • Prepare ZVOS and submit it to Provincial Committee for Ecology and Environmental protection (Goskompriroda) for revision and approval. • Include the requirements indicated in EA into the final EMP. 	TPS	Will be founded TPS budget

Impact	Mitigation measure	Responsibility	Cost
Generation of different potential environmental impacts due to changes in design, layout	<ul style="list-style-type: none"> If any changes in the project design will take place, the IEE has to be updated accordingly. 	Provincial TPP, PCU with PMC	Included in PMC contract
Non-compliance with national and international requirements during conduction bidding for purchase machinery and mechanisms	<ul style="list-style-type: none"> Goods procured for project implementation will be done in compliance with ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009); Environmental specifications have to be included in bidding packages for purchase machinery within the project. Particularly, toxic level of machinery must meet “Euro 3” environmental requirements as defined by national regulations³¹; 		
Improper SEMP and SSEMP development	<ul style="list-style-type: none"> Within 30 days after contract award and prior to commencing any physical works, Site-specific Environmental Management plans (SSEMPs) will be developed by the Contractors under the guidance of the PMC, and be endorsed by PMC before submission to PCU for approval; In addition to SSEMPs, Topic Specific SEMPs need to be prepared by Contractors, endorsed by PMC and approved by PCU for the following activities: Traffic Management Plan for construction of distribution network within settlements, Waste management Plan for sites with demolishing works, Hazardous Wastes Management Plans as described in the next sub-sections, Construction Camps Management Plan and Occupational Health and Safety Plan (OHS Plan); 	Contractors develop SEMPs PMC review and endorses PCU approve	Included in the Contractors budget
Construction stage			
Air pollution	<ul style="list-style-type: none"> apply watering of construction sites and roads inside settlements during dry season; cover transported bulk materials; control speed limitation for vehicles during movement inside of settlements - no more than 40 km/h; all vehicles and techniques must comply with technical requirements and have to pass regular inspection as indicated into the national standards³²; 	Contractors implement PCU and PMC monitor implementation	Included in the Contractors budget 4,000 USD for installation of noise and dust protection screen

³¹ Resolution of President of RUz “On measures for further development of production at the Samarkand automobile plant and renewal automobile park”, dated from December 14, 2006

³² “O’z DSt 1057:2004 Vehicles. Safety requirements for technical conditions” and “O’z DSt 1058:2004 Vehicles. Technical inspection. Method of control”.

Impact	Mitigation measure	Responsibility	Cost
	<ul style="list-style-type: none"> • prohibit open burning of solid wastes generated particularly from labor camps and construction activities; • Clean wheels and under carriage of haul trucks prior to leaving construction site; • Restrict demolition activities during period of the high winds or under more stable conditions when winds could nevertheless direct dust towards adjacent communities; • Conduct monitoring of dust level in front of settlements located close to constructed or reconstructed WDCs. In case of exceeding standards for dust level for this area (0.15 mg/m³)³³ additional mitigation measures for dust control need to be undertaken – more often watering or installation of dust screen. 		
Noise and vibration	<ul style="list-style-type: none"> • Install temporary acoustic screens next to the WDCs “Chinaz”, “Madainyat”, “Sutbulok”; • For the rest of WDCs acoustic screens have to be used if construction activities will be implemented closer than 110 m; • For the WDCs “Bozsuv” if construction works will be conducted on the distance closer that 300 meters, temporary acoustic screen must be installed. Or in order to meet the standards, Contractor should not use noise equipment during school hours (from 9 am until 3pm). The construction activities need to be agreed with local authority (RCA’s leader) and school administration; • During construction period establish limits on speed for vehicles inside of settlements (40 km/h); • operation of heavy equipment shall be conducted between 7 am and 7 pm only, limitation on speed for vehicles; • In case of receiving any complaints from population, noise measurements need to be conducted and in case of exceeding established standards, additional mitigation actions for decreasing noise level need to be undertaken (establishing temporary sound absorbing barriers and others); • Schedule construction so as to minimize the multiple use of the most noisy equipment near sensitive receivers (living houses or school); 	Contractors implement PCU and PMC monitor implementation	Included in the Contractors budget

³³ SanR&N RUz No.0179-04 Hygienic norms. List of Maximum Allowable Concentrations (MACs) of pollutants in ambient air of communities in the Republic of Uzbekistan including Annex 1

Impact	Mitigation measure	Responsibility	Cost
	<ul style="list-style-type: none"> • Use of Personal Protective Equipment (PPE) by workers involving in demolishing and construction works in conditions of increased noise level (more than 80dB) is mandatory; • during pipe laying works in the site where digging of tranche will be implemented closer than 2 meters to the wall use compact less noisier pipe laying techniques; • Inform population about anticipated works. 		
Pollution of surface and ground water	<ul style="list-style-type: none"> • Construction and labor camps, including storage places for lubricant, fuel and other oils will be located 100 m away from water bodies; • Conduction of refueling, oil replacement or repairing works will be banded at the area within 50 m from water streams; • Sanitary water and solid wastes will not be released directly into water streams; • Topsoil stripped material shall not be stored where natural drainage will be disrupted; • Water samples will be taken and compared with the baseline monitoring results obtained in the preconstruction stage. Location of monitoring points, frequency and monitoring substances are presented in Environmental Monitoring Plan (Chapter 8.2) • all works related to digging on the depth more than 2 meters need to be conducted during non-irrigation season. The irrigation season in that region is May-August. • If this period could not be avoided, use standards technology for construction in areas with high water logging: pumping water into the nearest drainage canal. • Conduct monitoring of water quality in the hand pumps houses located close to the rehabilitating or constructing new WDCs needs to be undertaken by Contractor on the monthly base (Chapter 8.2, EMP). In case of exceeding standards, ground water pollution source(s) need to be identified and repaired. 	Contractors implement PCU and PMC monitor implementation	Included in the Contractors budget
Soil contamination	<ul style="list-style-type: none"> • The top soil of about 30 cm depth shall be removed and stored separately during excavation work, and after the construction of the main trunk the same soil shall be replaced on the top, in unpaved areas; • The excess top soil and earth reminded after construction new WDCs will be used at other project sites or disposed at the places prior 	Contractors implement PCU and PMC monitor implementation	Included in the Contractors budget

Impact	Mitigation measure	Responsibility	Cost
	<p>approved by local government authorities and The State Committee for Ecology and Environmental protection (Goskompriroda);</p> <ul style="list-style-type: none"> • To minimize soil compaction, movement of all type techniques will be allowed only through identified assess roads; • Contractors will be required to use only authorized carriers with getting all necessary permissions per respective national legislation. 		
Hazardous materials	<ul style="list-style-type: none"> • Used oil from demolishing transformers produced before 1994 have to be analyzed on content of PCBs. This analysis has to be conducted by the designated specialist from Uzbekenergo – national electrical company authorized on handling used transformers. Or these analyses could be undertaken by Environmental Specialist of PSC on equipment which will be purchased within this project for PCBs testing. If PCBs be found in the transformers' oil all transformers have to be carefully handled and disposed without pouring oil and avoiding oil leakage. Transformers contained PCBs have to be labeled with sign "Content PCB" and disposed in accordance with "Guidebook on Environmental Sound PCB Management in Electrical Equipment" (prepared under Moldova POPs Stockpiles Sustainable Management and Destruction project)". Notification on presence of such equipment will be sent to The State Committee for Ecology and Environmental protection (Goskompriroda) and Sanitarian Epidemiological Station for their further actions; • If demolishing transformers do not contain PCBs, they have to be disposed in accordance with national regulation "Safety regulations for the maintenance of electrical consumers", Approved by State Inspection under Uzenergonadzor, 2004 and Regulation guideline 34-301-941:2007 "Individual norms for oil usage for repairing and maintenance needs for equipment of energy enterprises". • A separate Waste Management Plan needs to be developed by Contractor, endorsed by PMC and approved by PCU for the construction sites with demolishing works. The Plan has to include information about type of generating wastes, procedure of their collection and disposal; • Used oil shall be collected into containers placed at the concreted sites and disposed to national oil company designated for accepting and treatment of used oils; 	Contractors implement PCU and PMC monitor implementation	<p>Cost of PCBs analyzer is USD 10,000 (with kits for 200 analysis)</p> <p>Cost for asbestos management plan – 2,000 USD is included in Contractor budget</p>

Impact	Mitigation measure	Responsibility	Cost
	<ul style="list-style-type: none"> • Refueling vehicles and replacement oils also have to be conducted in special designated and properly equipped places. Emergency facilities have to be at the place for elimination of accident of oil spills. • Prior to commencement of rehabilitation works at the WDCs, EO with International or National Environmental Specialist of PMC will conduct vision observation of old buildings and facilities on presence of asbestos materials. • A detailed “Waste Asbestos-Containing Material Management Plan” is to be developed by Contractors (Appendix 8) and implemented during demolishing works. • Make sure that old pipes (especially asbestos) are not excavated or touched. The new pipes will have to be laid along to the existing. 		
Non-hazardous materials	<ul style="list-style-type: none"> • Segregation of wastes on recyclable and non-recyclable wastes; • Selling recyclable wastes to relevant organizations (paper, scraps, accumulators) and timely disposal of non-recyclable wastes to the landfill, determinate by local hokimyats. • Providing hydro isolated septic tank for collecting waste waters at the camp sites and bio toilets for workers at the construction sites and timely disposal of waste waters to the local waste water treatment plants. • Segregation of wastes on recyclable and non-recyclable wastes; • Selling recyclable wastes to relevant organizations and timely disposal of non-recyclable wastes to the landfill, determinate by local hokimyats. • Burning of waste on any construction site is forbidden with the exception of stub and small branches from felled trees and bushes, which is better to be burned in order to avoid pest dissemination 	Contractors implement PCU and PMC monitor implementation	Included in the Contractors budget
Losses of trees and crops	<ul style="list-style-type: none"> • Site cleaning for extension existing and construction new WDCs should be done exactly within marked area. • Conduction of a preliminary survey together with Contractor and respective representative of Goskompriroda to define trees for cutting and payments in accordance with CMR # 290 dated from 2014. • Construction during agricultural off- season may further minimize the impact (loss of agricultural income). Major crops in the project affected are wheat, sunflower, vegetables and cotton, which growing seasonally; 	Contractors implement PCU and PMC monitor implementation	Included in the Contractors budget Cost for tree (non-fruits) for fees is approximately USD 9200

Impact	Mitigation measure	Responsibility	Cost
	<ul style="list-style-type: none"> • If cutting trees is unavoidable, to compensate losses as indicated in the LARP for this project; • Do not use chemicals or burning for removal of vegetation; • Greening of WDCs as part of the project design; 		
Health and safety issues	<ul style="list-style-type: none"> • Contractor and PMC will inform population about anticipated works in the settlement in advance; • Contractors will require to develop a Traffic Management Plans with clear indication routes of vehicles' movements, placement special signs, and speeding allowance inside of the settlements and schedule transportation activities by avoiding peak traffic periods • The Traffic Management Plans will be approved by Traffic Police and disclosed to local communities prior commencement of construction works on respective sites; • Clear signs will be placed at construction sites in view of the public, warning people of potential dangers such as moving vehicles, hazardous materials, excavations etc. and raising awareness on safety issues. • Contractor will require to install temporary bridges and effectively organize works, which will allow avoid unreasonable delaying of construction works; • All construction sites will be properly lightened and fenced; • Development of Site Specific Plans for campsites; • After completion works all roads shall be rehabilitated at least up to condition of pre-construction stage. • Development Occupation Safety and Health Plan, which covers among others the following topics: usage of PPE, working procedure with hazardous materials (such as asbestos materials, PCBs etc.), training activities and others. The workers have to be provided with appropriate living conditions: safe water supply, washing conditions. • Comply with requirements of Labor Code of Uzbekistan (1998) and standards on work and health safety³⁴; • Ensure that all site personnel have a regular E&S training and basic level of environmental awareness training; • Ensuring all workers are provided with and required to use personal 	Contractors implement PCU and PMC monitor implementation	Included in the Contractors budget

³⁴ Construction Norms and Rules # 3.01.01-03. Organization of Construction works. 2003

Impact	Mitigation measure	Responsibility	Cost
Construction camps	<ul style="list-style-type: none"> • Development of Separate Site Specific EMP for labor/construction camps (or part of general SEMP). • SSEMP for labor/construction camps will describe waste collection and disposal procedure, set up of camp facilities (such as a storage place for construction materials and techniques if any, laundry and toilets, access roads). • If washing equipment and vehicle is planning to be conducted at the labor/construction camp's site, appropriate wastewater treatment facilities have to be organized on the camp and respective permissions on water intake and waste water disposal need to be received by Contractor from Goskompriroda Provide safe and adequate living conditions for workers, such as dining rooms, toilets, shower rooms etc. • Contractors shall instruct all the workers to act in a responsible manner. After completion works, construction camps 	Contractors implement PCU and PMC monitor implementation	Included in the Contractors budget
Archeological heritages: Chance of finding heritage	<ul style="list-style-type: none"> • Excavation and other works need to be suspended immediately; • Area with possible heritage shall be fenced with fencing tape; • A designated focal point from a local administration (khokimiyat) needs to be informed and invited for assessment of potential heritage and undertaken necessary actions; • Civil works at the finding place could be recommenced after obtaining permission from the focal point. 	Contractors implement PCU and PMC monitor implementation Representative from Khokimiyat assist in assessment and undertake necessary actions	Included in the Contractors budget
Operation phase			
Impact on air	<ul style="list-style-type: none"> • Periodically water down temporary roads on site; • Immediately replacing defective equipment and removing it from the work site; • No truck movements in inhabited areas between 22:00 and 6:00. 	TPS	Included on TPS operational costs
Impact on water resources	<ul style="list-style-type: none"> • Conduction of awareness program on proper and timely waste water disposal for population in the project area; • Discharging chemical's reagents residual into water stream without treatment will be prohibited. Special procedure of utilization of such 	TPS	Included on TPS operational costs

Impact	Mitigation measure	Responsibility	Cost
	reagents, indicated in Standards for Drinking Water, 2011 has to be implemented.		
Soil pollution	<ul style="list-style-type: none"> • Permits for waste disposal should be received from Provincial Goskompriroda. • Sludge from HH septic tanks has to be timely disposed at the municipal waste area (located . Untimely disposal of generated sludge and place of its disposal will be provided in environmental permission (limits on sludge disposal) which "Suvoqova" has to get prior commissioning of WTP. 	TPS	Included on TPS operational costs
Health safety	<ul style="list-style-type: none"> • Providing required facilities: storage of SHC in well ventilated rooms; • Applying special marking for containers with this agent; 	TPS	Included on TPS operational costs
Over extraction of ground water	<ul style="list-style-type: none"> • Volume of extracted water has not exceed established threshold in 90,000 m³/day 	TPS	Included on TPS operation cost

8.2. Environmental Monitoring

308. To ensure that mitigation actions are implemented in accordance with the requirements of the EMP, monitoring shall be undertaken as follows:

- Instrumental Monitoring for environmental quality such as air and water quality. Cost for this equipment is included in Contractor's budget. Schedules, parameters, locations are indicated are presented in Environmental Monitoring Table # 20.
- Observational Monitoring – Throughout the Projects Construction phase PMC shall continually monitor the Contractors actions. This will be achieved through weekly inspections of the Contractors environmental performance by PMC's national environmental specialist throughout the construction period. PMC shall have the right to suspend works or payments if the Contractor is in violation of any of his obligations under the EMP and SSEMPs.

309. Developed within current IEE an Environmental Monitoring Plan provides details on required measurements, the locations of measurements points, frequency and responsibilities associated with each monitoring task (Table 20).

310. Besides instrumental environmental monitoring indicated into the Table 20, monitoring of EMP's implementation will be carried out. For efficient implementation of this activity it is proposed that several levels of supervision activities need to be undertaken: (i) daily inspection by Contractor's Environmental Specialist, (ii) monthly inspection by PMC's Environmental Specialist, and (iii) periodic audit (quarterly) by PCU's ESS.

311. Results of environmental performance including monitoring activity have to be properly documented and reported. As indicated in EMP and Chapter 7, each Contractor has to perform a book log book with information about conducted training on EH&S for workers and another book for registration accidents during the civil works. Original records on results of required instrumental environmental monitoring (air and water quality) also need to be kept in the separate file for records.

312. It is recommended that prior commencement of the civil works Contractors with assistance of PMC will develop a format for site inspection to optimize a process of environmental supervision. The format may could be in form of checklist with list of mitigation measures to be implemented at the construction sites, their performance status and some explanations as required.

Table 20: ENVIRONMENTAL MONITORING PLAN

Mitigation measures	Parameter to be monitored	Location	Frequency	Responsibility	Standards	Cost
Construction Stage						
Air quality	NO _x , SO ₂ , CO Dust	Construction sites located within settlements	Ones per month	Contract will hire certified laboratory to conduct analysis	Hygienic norms. List of Maximum Allowable Concentrations (MACs) of pollutants in ambient air of communities in the Republic of Uzbekistan including Annex 1. <u>SanR&N RUz No.0179-04</u>	Dust measurement device – 2,500 USD. The cost is included in PSC budget. Cost for hiring external laboratory is included in Contractor budget – 24,000 USD
Noise level	Noise level	1. Construction sites with demolishing works 2. Living houses located next to construction sites	Per complaints from people on noise disturbance during construction	Contractor	1. "Sanitarian Norms of allowed level of noise at the construction sites" SanR&N №0120-01 2. SanR&N No.026709 Sanitarian Rules and Norms on providing allowed noise level into the living building, public building and territory of living areas 3. For the area, where noise level exceeds standards (Table 7a) noise from construction site should not exceed baseline indicator on 3 dB (Table 7b).	Two noise measurement devices – 400 USD. The cost is included in Contractor (1 device) and PCS (1 device)
Vibration	Integrity of houses	Houses and buildings located close to construction site and pipe lying area	Once before construction activity will start	Contractor implements and PMC monitors	No new cracks	Cost is included in the Contractor budget

Mitigation measures	Parameter to be monitored	Location	Frequency	Responsibility	Standards	Cost
Water quality	<p>1. Visual monitoring of surface water on existence oil film and turbidity</p> <p>2. Oil products, dry residual, BOD, COD, pH, ammonia, SO₄</p> <p>3. Ground water quality monitoring (from hand pumps)</p>	<p>Water bodies located next to construction sites (points 1 and 3)</p> <p>2. The same</p> <p>3. Settlements located close to WDCs (existing and newly constructing)</p>	<p>1. Visual during each visit of construction site (at least weekly).</p> <p>2-3 Baseline – before construction works and after on monthly base and per complaints from people</p>	<p>1. Contractor</p> <p>2-3. Contract will hire certified laboratory to conduct analysis</p>	<p>1. Absence of oil films on the water bodies surface.</p> <p>2. If baseline shows non exceeding standards indicated in “Sanitarian requirements for development and approval of maximum allowed discharges (MAD) of pollutants discharged into the water bodies with waste waters”. <u>SanR&N No 0088-99</u>, this standard need to be used. If baseline exceeds standards (for example as in Table 9) use baseline indicators for comparison.</p> <p>3. If baseline shows non exceeding standards indicated in “Drinking water.” O’z’DST 950:2011 – Drinking water. Hygienic requirements and quality control this standards need to be used. If baseline exceeds standards use baseline indicators for comparison.</p>	<p>1. No costs is needed</p> <p>2-3 Cost for conduction water quality analysis is included in Contractor budget - USD 4,000</p>
Operation Stage						
Air quality	Noise level	Pump stations	<p>1. Ones per three years as part certification of work places</p> <p>2. Per complaints from people on noise disturbance due</p>	TPS	<p>1. "Sanitarian Norms of allowed level of noise at the construction sites" SanR&N №0120-01</p> <p>2. SanR&N No.026709 Sanitarian Rules and Norms on providing allowed noise level into the living building, public building</p>	Cost is included into the annual budget of TPS

Mitigation measures	Parameter to be monitored	Location	Frequency	Responsibility	Standards	Cost
			to work of pump station		and territory of living areas	
Water quantity	Amount of water extracted from VU-1	VU-1 wellfield	Daily	TPS	The volume has not to exceed a threshold established by State Committee on Geology and Mineral Resources – 90,000 m ³ /day	Cost is included into the annual of TPS
Timely sludge disposal from septic tanks	Level of sludge in HH septic tanks	Households where septic tanks were installed	Annually	PPP	Level of sludge should not exceed half of effective volume of septic tanks	Cost will be included in PPP annual budget
Water quality	Monitoring in accordance with 13.060.20. Drinking water. O'z DST 950:2011 (instead of O'z DST 950:2000) – Drinking water. Hygienic requirements and quality control.					Cost is included into the annual budget of TPS

8.3. Reporting

313. The Contractor(s) EO will prepare weekly environmental checklists and environmental section in monthly progress reports which will be submitted to the PMC for review. Based on site inspection and Contractors' reports, the PMC shall be responsible for preparing an environmental section of detailed Quarterly Progress Reports to submit to PCU. PCU will use this environmental section and the findings of review missions conducted by the PCU's ESSS to submit to ADB quarterly assessment of EMP implementation.

314. The PMC is responsible for assisting PCU in preparing semi-annual Environmental Monitoring Reports (EMRs) and final EMR including post-construction environmental audits. If there are any changes in the design or alignment or if there are any unanticipated impacts, the IEE/EMP will be updated to account for any additional or new environmental impacts and relevant corrective actions. In January and July every year, PCU will submit semi-annual environmental monitoring reports to ADB and relevant government authorities, and these reports will be disclosed to the public on the CSA (in Uzbek or Russian) and ADB (in English) websites.

8.4. Implementation arrangements

8.4.1 Institutional arrangements

315. Being directly accountable to the Cabinet of Ministers, Uzbekistan Agency 'Communkhizmat' (CSA) is a central government body with overall responsibility to improve water supply and wastewater services nationwide. It formulates policy, advises on reforms and decrees, and in particular is a focal execution agency for foreign investments in the sector. Its activities are financed by a combination of Government, utility and development bank project funding.

316. Currently five ADB funded projects are being implemented in CSA under the Project Coordination Unit (PCU) management. ADB PCU has generally good procurement capacity and well established procurement processes. ADB PCU is well familiar with ADB procurement guidelines due to PCU is implementing ADB projects since 2009.

317. The PCU at CSA will be responsible for implementation of EMP to comply with ADB's safeguards requirements and environmental national regulations. Present has Environmental and Social Specialist. Under the project, PCU will hire one more full-time safeguard position (Environmental and Social Safeguards Specialist (ESSS)) who will be assisted by the environmental specialists of the project management consultant (PMC) in overseeing the implementation of EMP. The cost for implementing EMP will be financed by the project, specifically: the costs of mitigation measures and environmental monitoring will be included in the construction contracts, and the cost for environmental supervision will be included in the consulting service of the PMC. PCU is responsible for overall environmental compliance with SPS 2009.

318. Contractors will be responsible for implementing mitigation measures. Within 30 days after contract award and prior to commencing any physical works, Site-specific Environmental Management plans (SSEMPs) will be developed by the Contractors under the guidance of the PMC, and be endorsed by PMC before submission to PCU for approval. The SSEMP is the document that the Contractors shall prepare outlining how he intends to implement the EMP and ensure that all of the mitigation and monitoring is completed according to the implementation arrangements specified in this EMP. SSEMPs will be needed for major environmental issues and most critical sites relating to sensitive receptors. During construction, the Contractors must retain the expertise of a full-time Environmental Officer

(EO) to implement and continually update the SSEMPs, and to report on the implementation of mitigation measures throughout the contract period.

319. The PMC is tasked with specific responsibility to assist PCU in ensuring safeguard compliance of civil works – with particular emphasis on the monitoring of implementation of EMP through the Contractors SSEMP and related aspects of the project. PMC shall retain the use of Environmental Specialist, both national (NES) and international (IES), to ensure that the Contractor is compliant with his environmental obligations. It is required that the IES provides a short training program to the PCU safeguard person and Contractors EO prior to the start of construction to develop their knowledge and understanding of the environmental, social, health and safety aspects of the Project. The IES will also be responsible for developing a comprehensive proposal for establishment and operations of the Environmental awareness centers. Training EHS for contractors need to be conducted throughout project implementation, at every visit of the IES. TORs for IES and NES can be found in the PMC contract.

320. In addition to the Contractor's full-time EO and the PMC's part-time NES backed up with an IES, it is required that PCU designate a full-time safeguard position to manage and coordinate the contractors and PMC in reporting to EA and ADB on safeguard performance of the project. PCU is responsible for overall EMP implementation and will be assisted by the PMC. The PCU's responsibilities include the following, but not limited to:

- Ensure the bidding documents of PMC and Contractors include all tasks as described in the approved EMP
- Supervise the PMC and Contractors in EMP implementation for overall compliance with SPS 2009 requirements and project environment-related legal covenants
- Ensure all necessary government permits and license, including ecological expertise opinion, for all civil works will be obtained.
- Approve SSEMPs which will be prepared by the Contractors and endorsed by the PMC
- With assistance of the PMC, prepare, submit to the EA and ADB, and disclose semi-annual environmental monitoring reports on ADB website and in UZB
- Report in a timely manner to ADB of any non-compliance or breaches with ADB safeguard requirements and take corrective actions promptly.
- Update the IEE in case of technical design changes or unanticipated impacts
- Establish a Grievance Redress Mechanism (GRM) after the project effectivity and act as the GRM secretary to make sure that the GRM is operational to effectively handle environmental and social concerns of project affected persons
- Build up and sustain institutional capacity in environmental management

321. As it was recommended for TPWSSP Phase I TPS will hire full-time Environmental Specialist who will in charge for implementation of EMP and ensure compliance with national environmental requirements during operation phase. Along with implementation mitigation measures indicated in EMP, he/she will responsible for in-time development and submission environmental reports to Statistical Committee of Uzbekistan and State Nature Protection Committee; obtaining and timely updating permissions on discharge waste water, exhausted gases in air and disposal of solid wastes; special permission on water use.

322. The Committee on Ecology and Environment Protection (CEEP) of Tashkent province through will be also involved in the process of project implementation and further operation. CEEP will review local Environmental Assessment (ZVOS) and approve it if the ZVOS complies with national requirements. Moreover, requirements indicated in Environmental Appraisal will be mandatory for implementation and it will be monitored by inspectors from

district branches of Nature Protection Committee. Representatives of the Committee will also participate into the hand-over process as member of State Acceptance Commission.

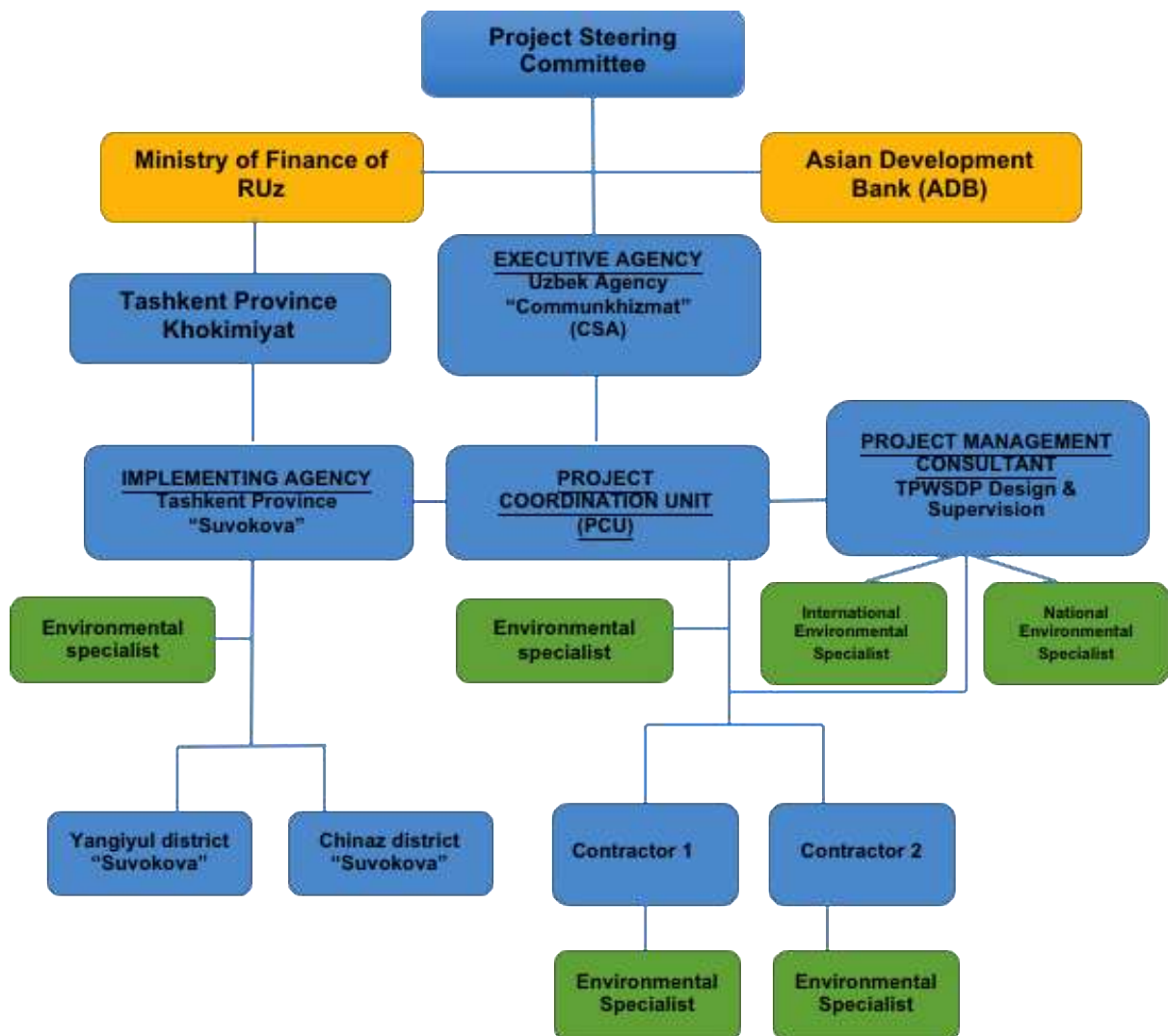


Figure 57: Project's institutional structure and environmental team

8.4.2 Capacity building activity

323. It is proposed the Project's capacity building on environmental aspects will cover three main directions:

- i) **PCU's capacity** on EMP implementation during construction stage - to enhance PCU's capacity on the EMP implementation PMC Environmental Specialist will provide respective training for PCU's ESS Specialist and further assistance in monitoring SEMP implementation and guidelines for Contractor's Environmental Specialists as required.
- ii) **TPS's capacity** on overall environmental performance during the project operation – PMC jointly with ESS Specialist will develop and conduct training program on general compliance with national environmental requirements such as timely receiving necessary permission, conduction monitoring of environmental performance and submission reports to respective national agencies and etc.

- iii) **awareness program for population** in the project area – for the project sustainability it is important along with physical interventions, institutional improvements and financial enhancing, to increase people awareness about water resources use. The program should be targeted on two groups of people – (i) households, daily consumers and (ii) young generation (pupils, colleges' students). The program should be developed by PMC and implemented along with the project construction activities.

324. In case of determining a presence of PCBs in oil from old transformers and asbestos materials in demolishing buildings, separate training for handling and disposal of hazardous materials to be conducted by for PCU and Contractors by PMC. The tentative plan of required training is presented in Table 21.

Table 21: Tentative program of training for PCU, TPS and Contractors staff

	Name of training	Time	Recipients	Organizer
1	Overall EMP implementation, Environmental Monitoring Reports preparation	Prior commencement of the civil works	PCU ESS Specialist	PMC
2	SEMP implementation	Prior commencement of the civil works	Contractors workers	Contractor's Environmental Specialist with support of PMC
3	Handling and disposal of hazardous materials	Before starting respective works	PCU ESS Specialist Contractors workers	PMC
4	On occupational health and safety	Regularly during construction and operation period	Contractors workers TPS staff	Contractor's Environmental Specialist with support of PMC, TPS safety Engineer
5	Handling and disposal chemicals from water quality laboratories of TPS	Regularly during operation phase	Staff of existing and new water quality laboratories	TPS

325. It is planning that under TPWSSP Phase I an education center will be created under the Provincial "Suvoqova" administration where pupils and college and lyceum student will improve their knowledge about water management with emphasis on the drinking water and supply and sanitation. Awareness program for drinking water supply and sanitation services will be implemented in this center.

8.4.3 Cost estimation for EMP implementation

326. Costs required for implementing the EMP will cover the following activities:

- (i) Conduction instrumental environmental monitoring of air and water by Contractors;
- (ii) Conduction environmental monitoring measures and getting necessary permissions; and
- (iii) Awareness program including organizing of education center.

327. Although some of the measures included in EMP are an integral part of the civil works (watering, storage of top soil and etc.), some measures (establishing sound-absorbing panels, temporary bridges, handling and disposal of hazardous materials) are required additional funds. Cost estimation for EMP by the main items are presented in Table 22:

Table 23: Cost estimates for EMP implementation

Item	Quantity	Unit cost, USD	Total Cost, USD	Remarks
Instrumental Monitoring				
Water quality a. surface water quality	10	50	500	To be conducted by Contractor on the monthly base as indicated in EMP
b. water from hand pumps	70	50	3,500	
Air quality SO ₂ , NO ₂ , CO	120	200	24000	Analysis will be conducted by external laboratory. Cost is included in Contractors budget
Noise measurement devices	2	200	400	Devices could be purchased for long-term use. Cost is included in Contractors budget
Environmental Mitigation Measures/Permissions				
Nosie protection screen	2	4,000	8,000	The cost in included in the Contractor budget
Cutting trees	40 ³⁵	230	9200	Cost will be included into the Contractors budget
Asbestos Management	8	250 ³⁶	2000	This mitigation measure will be implemented for the WDC related to rehabilitation of WDCs. Expenses will be included in Contractor contracts
Analyzer for oil from transformers on content PCBs	1	20,000	20,000	Cost is included in PSC budget
Environmental awareness program				
Training	5	3000	15000	As indicated in table 16. Budget is included in PMC contracts
Subtotal			82,600	

³⁵ cost for trees was accepted as average with diameter 16-20 cm, per RCM of RUz#290 dated 20 October 2014 and converted into the USD based on rate of Central Bank of Uzbekistan

³⁶ Calculation based on Asbestos materials management plan developed for Kyrgyz Republic: Issyk-Kul Sustainable Development Project (2015)

Miscellaneous			8,260	10% of subtotal
Contingency			9,912	12 % of subtotal + Miscellaneous
Total			100,722	
Staffing				
PMC Environmental Specialist International, p/m National	6	15000	105000	Cost is included in PMC budget
	18	1200	21600	
PCU National Environmental Specialist,	60	1200	72000	Cost is included in PCU
Total for staffing			198600	
Capacity building program on sanitarian program	Lump sum		800,000	Cost is included PMC budget. One additional Environmental Specialist will be hired in PCU
Installation of HH septic tanks	4,030		2,000,000	Cost is included in the Works and Goods line of the project budget

328. Expenses related to staffing of PCU, PMC and Contractors with Environmental Specialists are included into their budget, therefore they are excluded from total budget for EMP. The total budget for EMP is USD 100,722.

8.5. CONCLUSION AND RECOMMENDATION

329. Conducted IEE showed importance of the proposed project which will improve living conditions of population in 2 districts of Tashkent province. It will also improve environmental situation in the project area through wide integration of metering system, awareness program and capacity building for population and Tashkent Province "Suvoqova". All together it will contribute a rational use of water in the region with increasing scarcity of this resource.

330. Along with this benefits IEE identified several aspects which need to be addressed during project preparation and implementation both in short and long terms perspectives.

331. Adequately institutional set up with proper allocating human resources and funds need to be undertaken from the project beginning stages and to be continued during the operation. Recommended capacity building program is aimed to improve SA and Tashkent Province "Suvoqova" environmental performance to meet national environmental requirements.

332. It is important to make sure receiving of all necessary permission from national relevant agencies prior commencement the civil works and the the project commissioning.

333. IEE showed that during project implementation the project will have temporary impacts on air, water quality and may cause some inconveniences for local population. However, all anticipated impacts could be properly mitigated by implementation of the EMP developed within current IEE.

334. Due to absence of facilities to conduct analysis on content of PCBs in demolishing transformers, they have to be properly marked and storage in accordance with indicated regulation.

335. Due to implementation of significant part of the project works inside of settlements developed mitigation measures need to be strictly carried out to ensure safety for population and workers.

336. Conduction of environmental monitoring at all stages of the project is one of the crucial aspects. Monitoring of EMP implementation and adequate reporting at all levels of project cycle will provide effective mitigation of anticipated impacts. Environmental monitoring need to be carried out at the stage of operation phase as well.

337. Implementation Agency should ensure a proper functioning of a Grievance Redress Mechanism developed within current IEE and discussed with various stakeholders during Public Consultations.

338. During whole process of the project implementation it is important to be in touch with local communities, comply with all national environmental and EMP requirements, and conduct awareness program among population which ensure sustainable operation of the rehabilitated water supply system.

Appendixes

Appendix 1. Data on water related diseases

Handwritten: 100011, Toshkent sh., Navoi ko'chasi, 12

**O'ZBEKISTON RESPUBLIKASI
SOG'LIQNI SAQLASH
VAZIRLIGI**



**THE MINISTRY OF HEALTH
OF THE REPUBLIC OF
UZBEKISTAN**

100011, Toshkent sh., Navoi ko'chasi, 12

12, Navoi str., Tashkent, 100011

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Handwritten: 29.11.17 № 350-5/2479

**Министерство жилищно-коммунального обслуживания
Республики Узбекистан**

Handwritten: На Ваше №07-1/1755 от 13.11.2017 г.

Министерство здравоохранения Республики Узбекистан согласно Вашего запроса о подготовке Технико-экономического обоснования проекта «Реконструкция и строительство систем водоснабжения и канализации городов и районов Ташкентской области (Фаза-2)», в объём работ которого входит развитие и модернизация систем водоснабжения Янгйольского и Чиназского районов, направляет информацию относительно показателей заболеваемости острыми кишечными заболеваниями и вирусным гепатитом А по половому и возрастному признаку за период 2014-2017 гг. в этих районах.

Приложение: информация по заболеваемости на 1 листе.

Заместитель министра

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Э.И.Баситханова

5-Y Foydalanish
☎ 339-47-21


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29 11 2017


UY-JOY KOMMUNA VA KTIBXANA
KORXONASI VAZIRLIGI
Kirish 3898
2017.11.11

Территории	Заболевание	год	Зарегистрир ованные случаи (всего)	Заболевание среди женщин	Дети до 14 лет	В том числе			
						До 1 года	1-2 года	3-5 лет	6-14 лет
Чиназский район	Вирусный гепатит А	2014 г.	252	136	229	-	34	104	91
		2015 г.	219	107	209	-	23	94	92
		2016 г.	368	195	351	2	14	165	170
		2017 (9 мес)	112	65	108	-	6	47	55
	Сальмонеллез	2014 г.	8	2	4	1	1	1	1
		2015 г.	3	1	1	-	-	-	1
		2016 г.	3	2	1	1	-	-	-
		2017 (9 мес)	1	1	-	-	-	-	-
	Дизентерия	2014 г.	28	13	13	3	9	1	-
		2015 г.	29	17	14	2	5	3	4
		2016 г.	11	5	5	-	3	1	1
		2017 (9 мес)	14	7	4	-	2	1	1
	ОКИ	2014 г.	89	41	46	9	30	6	1
		2015 г.	100	45	55	6	40	3	6
		2016 г.	82	28	43	4	21	10	8
		2017 (9 мес)	93	36	31	3	11	9	8
Янгиюльский район	Вирусный гепатит А	2014 г.	728	356	674	-	102	286	286
		2015 г.	393	195	371	-	68	157	146
		2016 г.	486	232	452	-	57	164	231
		2017 (10 мес)	289	138	264	-	24	89	151
	Сальмонеллез	2014 г.	5	2	4	2	2	-	-
		2015 г.	2	2	1	1	-	-	-
		2016 г.	-	-	-	-	-	-	-
		2017 (10 мес)	15	5	8	2	5	1	-
	Дизентерия	2014 г.	92	44	40	5	21	7	7
		2015 г.	88	38	43	4	25	7	7
		2016 г.	16	7	10	3	1	4	2
		2017 (10 мес)	7	4	5	1	4	-	-
	ОКИ	2014 г.	386	157	239	53	136	26	24
		2015 г.	488	214	280	77	157	27	19
		2016 г.	253	115	103	32	50	10	11
		2017 (10 мес)	364	173	170	40	104	10	16

Appendix 2: Registration list of participants attended Public Consultation

Yangiyul March 10, 2018 (Public Consultation #1)



Регистрационный лист
Общественные слушания по проекту: «Реконструкция водозаборных сооружений для водоснабжения сельского населения Чиназского и Янгильского районов Ташкентской области». Март 10, 2018


Yangiyul district / Янгильский район

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Yangiyul district / Янгйулский район

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46	Ахмедов Ф.	Янгйул туман "Свобода" МФЙ		[Signature]
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Chinaz 17, 2018 (Public Consultation #1)



Регистрационный лист
Общественные слушания по проекту: «Реконструкция водозаборных сооружений для водоснабжения сельского населения Чиназского и Янгикульского районов Ташкентской области». Март 17, 2018



Chinaz district / Чиназский район

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12	Бобуродова М.	МФЙ котибаси	"Димовга" МФЙ	[Signature]
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15	Султонов Н.	МФЙ котибаси	"Самарканд" МФЙ	[Signature]
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17	Махмудов Р.	МФЙ фаол	"Афзон" МФЙ	[Signature]
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19	Калимуллоева Д.	МФЙ фаол	Султолик	[Signature]
20	Бобуродова С.	Тупан Комитети котибаси	Чиназ тумани	[Signature]
21	Эмуродова Б.	Маданият МФЙ	"Маданият" МФЙ	[Signature]
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Zangiota May 19, 2018 (Public Consultation #3)

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3	Абдураҳманова	Ҳ.С.С.И.М. № 35		Ҳ.С.С.И.М. № 35	Абдураҳманова
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5	Д. Закирова	Катта Чинор раиси		Катта Чинор МФЙ	Закирова
6	М. Раҳимов	Катта Чинор котиба		Катта Чинор	Раҳимов
7	Абдураҳманов С.	Нисол МФЙ раиси		Нисол	Абдураҳманов
8	Ҳусейнов Н.Н	Зангиота, Сувоқова филиали		Зангиота тумани	Ҳусейнов
9	Абдураҳманов	Там биле Ҳ.С.С.И.М.		Зангиота тумани	Абдураҳманов
10	Сулaimонов Х	Абдураҳманов МФЙ раиси		Абдураҳманов МФЙ	Сулaimонов
11	Абдураҳманов Х.А	Обод турмуш МФЙ		Обод турмуш МФЙ	Абдураҳманов
12					
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Appendix 3: Announcement in newspaper about planning Public Consultation

Uzbek version



Ўзбекистон Республикаси Президентининг ҚАРОРИ

ПАХТА ХОМ АШЁСИ ВА БОШОҚЛИ ДОН ЕТИШТИРИШНИ МОДИЯЛАШТИРИШ ТИЗИМИНИ ТУБДАН ТАКОМИЛЛАШТИРИШ ЧОРА-ТАДБИРЛАРИ ТЎҒРИСИДА

Ўзбекистон Республикаси Президентининг 2018 йил 3 мартдаги Қарори билан Ўзбекистон Республикасида пахта хом ашёси ва бошоқли дон етиштиришнинг модиялаштириш тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида қарор қабул қилинган.

Қарор билан Ўзбекистон Республикасида пахта хом ашёси ва бошоқли дон етиштиришнинг модиялаштириш тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида қарор қабул қилинган.

Қарор билан Ўзбекистон Республикасида пахта хом ашёси ва бошоқли дон етиштиришнинг модиялаштириш тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида қарор қабул қилинган.

Ўзбекистон Республикаси Президентининг 2018 йил 3 мартдаги Қарори билан Ўзбекистон Республикасида пахта хом ашёси ва бошоқли дон етиштиришнинг модиялаштириш тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида қарор қабул қилинган.

ҲАҚ ҚИЛАН МУЛОҲОТ: САВОЛЛАР КҮН БҮЛДИ, ЖАВОБЛАР ЭСА...

Ўзбекистон Республикаси Президентининг 2018 йил 3 мартдаги Қарори билан Ўзбекистон Республикасида пахта хом ашёси ва бошоқли дон етиштиришнинг модиялаштириш тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида қарор қабул қилинган.

Қошқовур

Ўзбекистон Республикаси Президентининг 2018 йил 3 мартдаги Қарори билан Ўзбекистон Республикасида пахта хом ашёси ва бошоқли дон етиштиришнинг модиялаштириш тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида қарор қабул қилинган.

ЕН ҚҮШНИЛАР ЖОН ҚҮШНИЛАР

Ўзбекистон Республикаси Президентининг 2018 йил 3 мартдаги Қарори билан Ўзбекистон Республикасида пахта хом ашёси ва бошоқли дон етиштиришнинг модиялаштириш тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида қарор қабул қилинган.

«АДЛУ ИНСОФ БИЛАН ҲАҚОН ГУЛШАНИ ОҒД БҮЛУР»

Ўзбекистон Республикаси Президентининг 2018 йил 3 мартдаги Қарори билан Ўзбекистон Республикасида пахта хом ашёси ва бошоқли дон етиштиришнинг модиялаштириш тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида қарор қабул қилинган.



Ўзбекистон Республикаси Президентининг 2018 йил 3 мартдаги Қарори билан Ўзбекистон Республикасида пахта хом ашёси ва бошоқли дон етиштиришнинг модиялаштириш тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида қарор қабул қилинган.

ХАЁТБАХШ ХҲҲЖАТНИНГ ФАРАХБАХШ МУҲДАСИ

Ўзбекистон Республикаси Президентининг 2018 йил 3 мартдаги Қарори билан Ўзбекистон Республикасида пахта хом ашёси ва бошоқли дон етиштиришнинг модиялаштириш тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида қарор қабул қилинган.



Ўзбекистон Республикаси Президентининг 2018 йил 3 мартдаги Қарори билан Ўзбекистон Республикасида пахта хом ашёси ва бошоқли дон етиштиришнинг модиялаштириш тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида қарор қабул қилинган.

Материалнинг манбаи

Диққат! Диққат! Диққат!

Барча юридик ва jismoniy шахслар, шу жумладан, чет эл инвесторлари диққатига!

Базилевский Юридик Группнинг ҳаётдаги ҳар бир иншоотида ҳам ҳақиқатни рақобатчиликнинг дини қўйиб қўлади. Шунинг учун ҳам бизнинг барча инвесторлари ва ширкатларимизнинг ҳаётда баъзан қўйиб қўлади. Ҳақиқатни рақобатчиликнинг дини қўйиб қўлади.

Table with 6 columns: No, Ob'ektlar nomi, Ob'ektlar nomini beruvchi kompaniya nomi, Kompaniya nomi, Hozirgi boshqaruvi, Hozirgi boshqaruvi, Hozirgi boshqaruvi. The table lists various real estate objects and their management companies.

ШУШУ ОБЪЕКТАРГА НАЪДИНДА ВАҚАТ БОЛА-ЛАР БОЛМАЙ ТАШЛИШ ДУШ ТАЛАН ОТИЛАДИ. Бу ҳақда бизнинг барча инвесторлари ва ширкатларимизнинг ҳаётда баъзан қўйиб қўлади. Ҳақиқатни рақобатчиликнинг дини қўйиб қўлади.

Аҳоли ва Тошкент вилояти сайловчилари диққатига! Депутатга савол йўқлиги! Депутатга савол берилди. Жорий йилнинг 9 сентябр куни сайловчиларнинг савол-жавоблари бўлиб ўтди.

Тошкент вилояти «Сувоқова» ДУК. Ширкатнинг ҳаётдаги ҳар бир иншоотида ҳам ҳақиқатни рақобатчиликнинг дини қўйиб қўлади. Шунинг учун ҳам бизнинг барча инвесторлари ва ширкатларимизнинг ҳаётда баъзан қўйиб қўлади.

Ширкатнинг ҳаётдаги ҳар бир иншоотида ҳам ҳақиқатни рақобатчиликнинг дини қўйиб қўлади. Шунинг учун ҳам бизнинг барча инвесторлари ва ширкатларимизнинг ҳаётда баъзан қўйиб қўлади.

Ширкатнинг ҳаётдаги ҳар бир иншоотида ҳам ҳақиқатни рақобатчиликнинг дини қўйиб қўлади. Шунинг учун ҳам бизнинг барча инвесторлари ва ширкатларимизнинг ҳаётда баъзан қўйиб қўлади.

Ширкатнинг ҳаётдаги ҳар бир иншоотида ҳам ҳақиқатни рақобатчиликнинг дини қўйиб қўлади. Шунинг учун ҳам бизнинг барча инвесторлари ва ширкатларимизнинг ҳаётда баъзан қўйиб қўлади.

ТАШКЕНТСКАЯ ПРАВДА

Шанхай с февраля 1934 г.

Областная
общественно-политическая газета
3 марта
2018 года
СУББОТА
№ 18 (3404)
www.tjpp.uz

Илановление
Президанта Республики Узбекистан

О МЕРАХ ПО КОРЕННОМУ СОВЕРШЕНСТВОВАНИЮ СИСТЕМЫ ФИНАНСИРОВАНИЯ ПРОИЗВОДСТВА ХЛОПКА-СЫРЦА И ЗЕРНОВЫХ КОЛОСОВЫХ

В целях создания условий для развития хлопководства и зернового хозяйства в Республике Узбекистан необходимо принять комплексные меры по совершенствованию системы финансирования производства хлопка-сырца и зерновых колосковых культур. В частности, необходимо:

1. Улучшить условия кредитования сельскохозяйственных предприятий и фермеров. 2. Поддерживать развитие кооперативов в аграрном секторе. 3. Увеличить объем государственных инвестиций в аграрный сектор. 4. Совершенствовать систему страхования сельскохозяйственных рисков.

Эти меры направлены на повышение эффективности производства и доходов сельхозпроизводителей. Их реализация позволит обеспечить устойчивый рост аграрного сектора экономики Республики Узбекистан.

Илановление
Президанта Республики Узбекистан

О МЕРАХ ПО СОВЕРШЕНСТВОВАНИЮ УСЛОВИЙ ПЛАТЫ ТРУДА ОТДЕЛЬНЫХ КАТЕГОРИЙ РАБОТНИКОВ ГОСУДАРСТВЕННЫХ ДОШКОВЫХ ОБРАЗОВАТЕЛЬНЫХ УЧРЕЖДЕНИЙ

В целях улучшения условий оплаты труда работников государственных дошкольных образовательных учреждений необходимо:

1. Увеличить ставки заработной платы для работников дошкольных учреждений. 2. Внедрить новые системы оплаты труда. 3. Улучшить условия труда и охраны здоровья работников.

Эти меры направлены на повышение мотивации и качества работы государственных дошкольных образовательных учреждений.



Встреча с представителями строительной отрасли.



Встреча с представителями аграрного сектора.

НОВЕЙШИЕ ТЕХНОЛОГИИ И ОБОРУДОВАНИЕ ДЛЯ СТРОИТЕЛЬНОЙ ОТРАСЛИ
Выставочный сезон в столице стартовал сразу с двух масштабных выставок на территории ИСБ «Узбекистан» «Землянка» и «Аристократ».

ПЕРЕДОВЫЕ РАЗРАБОТКИ УЧЕНЫХ ДЛЯ ЖЕНЩИН-ФЕРМЕРОВ
В столице в отеле Sheraton Tajikistan прошла выставка передовых разработок ученых для женщин-фермеров.

От края сердца
ДОРОГА В БУДУЩЕЕ НАЧИНАЕТСЯ С ДЕТСТВА
В рамках проекта «От края сердца» реализуется программа по развитию дошкольного образования.

В 10 городах Республики Узбекистан
Реализуется программа по развитию дошкольного образования.

НАВРУЗ – ПРАЗДНИК ВЕСНЫ И ОБНОВЛЕНИЯ

Сегодня все мы живем с приятным ощущением приближающегося праздника Навруз.

В этот день принято дарить подарки и поздравлять друг друга. Праздник Навруз символизирует обновление и надежду на лучшее будущее.

Конференция



ПЕРЕДОВЫЕ РАЗРАБОТКИ УЧЕНЫХ ДЛЯ ЖЕНЩИН-ФЕРМЕРОВ

Всего в рамках конференции было проведено более 10 семинаров, посвященных различным аспектам ведения сельского хозяйства...

В рамках конференции были проведены семинары, посвященные различным аспектам ведения сельского хозяйства...

В рамках конференции были проведены семинары, посвященные различным аспектам ведения сельского хозяйства...

В рамках конференции были проведены семинары, посвященные различным аспектам ведения сельского хозяйства...

НОВЕЙШИЕ ТЕХНОЛОГИИ И ОБОРУДОВАНИЕ ДЛЯ СТРОИТЕЛЬНОЙ ОТРАСЛИ

Специально для строителей создана новая линейка оборудования, включающая в себя все необходимое для современного строительства...



Успешно освоив и внедрив новейшие технологии, строители смогут повысить эффективность своей работы...

РЕКЛАМА И МАРКЕТИНГ ДВИГАЮТ ТОРГОВЛЮ ВПЕРЕД

В условиях жесткой конкуренции на рынке товаров и услуг реклама и маркетинг становятся ключевыми факторами успеха...

СОБЛЮЖЕНИЕ ЦЕНТРАЛЬНОГО БАНКА РЕСПУБЛИКИ УЗБЕКИСТАН

Table with 2 columns: Name of bank and its assets in million US dollars. Includes Central Bank of Uzbekistan, National Bank of Uzbekistan, and others.

Вниманию населения и предпринимателей Ташкентской области!

В соответствии с постановлением Кабинета Министров Республики Узбекистан от 20.02.2018 года...

Ташкентская областная организация ЦОД Республики Узбекистан и органы государственной власти...

Table with 3 columns: No., Name of company, and Address. Lists various companies in the Tashkent region.

ГРУП "СУВОКАВА" Ташкентской области

Группа компаний "Сувокава" занимается строительством и эксплуатацией объектов недвижимости в Ташкентской области...

Table with 2 columns: Name of project and its location. Lists various construction projects in the Tashkent region.

Appendix 4: Example of presentation provided during Public Consultation

Ташкент вилоятининг Чирчиқ ва Янгиюл туманларининг ишлов аҳолисини сув билан таъминлаш учун сув олиш иншоотларини қайта таъмирлаш лойиҳаси

Янгиюл тумани 2013

Лойиҳани бошлаш амиллари:

- 1. Ташкент вилоятининг Чирчиқ ва Янгиюл туманларида сув таъминоти таъмироти;
- 2. Сув олиш иншоотларини қайта таъмирлаш;
- 3. Сув олиш иншоотларини таъмирлаш ва таъмирлаш;
- 4. Сув олиш иншоотларини таъмирлаш ва таъмирлаш;

Меъёрий асослар:

- 1. Сув олиш иншоотларини таъмирлаш ва таъмирлаш (2013 йил 1 августдан 2014 йил 31 июльгача);
- 2. Сув олиш иншоотларини таъмирлаш ва таъмирлаш (2014 йил 1 августдан 2015 йил 31 июльгача);

Режа:

1. Сув олиш иншоотларини таъмирлаш;
2. Сув олиш иншоотларини таъмирлаш;
3. Сув олиш иншоотларини таъмирлаш;
4. Сув олиш иншоотларини таъмирлаш;

Лойиҳа тугрисида маълумот

- 1. Лойиҳа Ташкент вилоятининг Чирчиқ ва Янгиюл туманларида сув таъминоти таъмироти;
- 2. Лойиҳа Ташкент вилоятининг Чирчиқ ва Янгиюл туманларида сув таъминоти таъмироти;

Лойиҳадан кутиладиган натижалар:

- 1. Сув олиш иншоотларини таъмирлаш ва таъмирлаш;
- 2. Сув олиш иншоотларини таъмирлаш ва таъмирлаш;
- 3. Сув олиш иншоотларини таъмирлаш ва таъмирлаш;
- 4. Сув олиш иншоотларини таъмирлаш ва таъмирлаш;

Лойихадан кутиладиган натижалар (давоми):

- 2-инженериянинг 20-25 ми қавати - янги қават қўйиш ва янги қават қўйиш 10 та қаватдан.
- Қўйиладиган сув таъминоти 20000 куб м/кунга қўйиладиган қаватдан.
- 3 та сув минораси (2 та янги таъмир қилинган ва янги қўйиладиган, 1 та янги қўйиладиган) таъмир қилинади.
- Сув таъминоти қавати қўйиладиган ва янги қават қўйиладиган қаватдан 20000 куб м/кунга қўйиладиган қаватдан.
- 3 та сув минораси - 2 та янги таъмир қилинган ва янги қўйиладиган, 1 та янги қўйиладиган қаватдан.
- 3 та сув минораси - 2 та янги таъмир қилинган ва янги қўйиладиган, 1 та янги қўйиладиган қаватдан.
- 3 та сув минораси - 2 та янги таъмир қилинган ва янги қўйиладиган, 1 та янги қўйиладиган қаватдан.

№	Аҳоли пунктини ном	Қурилиш		Ном
		қайта	янги	
1	Иккинчилик			Аҳоли пунктини номдан тўғри 10-15 км. 100-150 м. қаватдан тўғри ўқимдан
2	Тўғрилик			
3	Иккинчилик			
4	Ушкентлик			
5	Тўғрилик			
6	Иккинчилик			
7	Қўйиладиган			
8	Иккинчилик			
9	Иккинчилик			
10	Қўйиладиган			

№	Аҳоли пунктини ном	Қурилиш		Ном
		қайта	янги	
10	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
11	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
12	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
13	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
14	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
15	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
16	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
17	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
18	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
19	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
20	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
21	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
22	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
23	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
24	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
25	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
26	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
27	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
28	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
29	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан
30	Иккинчилик			100-150 м. қаватдан тўғри ўқимдан

Атмосфера хавосига таъсири

Таъсирлар:

- 1 та
- 1 та
- 1 та



Янгийул тумани

Янги қуриладиган:

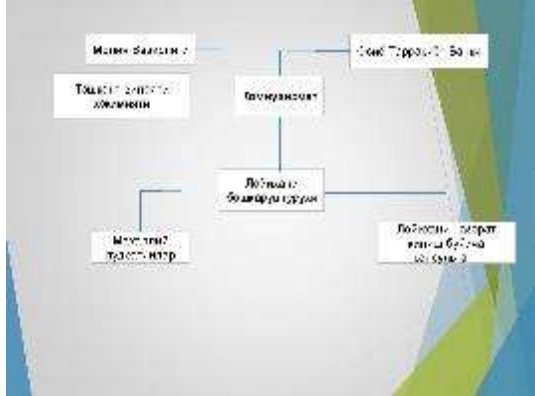
- 4 та УРВ – Нурабад, Бойбур, Шураксай, Оқунбойбоев
- 3 та сув минораси – Габова, Қанқобули, Янгийул, Дустанж

Қайта таъмирлаш:

- 3 та УРВ қайта таъмирланади – Бозсу, Қожиқабод, БЗ-3

111111 ушбга саноатни уриштирилади

№	Аҳоли пунктини ном	Қурилиш		Ном
		қайта	янги	
1	Иккинчилик			УРВ "Қожиқабод"
2	Иккинчилик			
3	Иккинчилик			
4	Иккинчилик			
5	Иккинчилик			
6	Иккинчилик			
7	Иккинчилик			
8	Иккинчилик			
9	Иккинчилик			
10	Иккинчилик			



Атмосфера хавосига таъсири

Шомиқун сурат: ўлчоо натижалари





Атмосфера хавосига таъсири (асбест чангни ташлаши)



Лойиханинг сувга таъсири (чора-тадбирлар)

- Ёт маҳсулларини, ёниги маддаларни махсус ёпилган жойларда санлангани,
- Мўл климатриани, текинмага ёниги махсус инновацион участкаларда яналга осирга
- Осма суларни йилгадан ба уз вағида олиб чиқиб кетилган талабга жавоб беридиган рағида ташкил илвалани



Атмосфера хавосига таъсири Чора-тадбирлар:



- Су салиб инана,
- Мағири ба ёричадан хароқилани ба ёричадан мағириба
- Ёри мағириба таъриб ёричадан мағириба ёричадан мағириба ёричадан мағириба
- Текинмага мағириба ёричадан мағириба ёричадан мағириба ёричадан мағириба
- Ёричадан мағириба ёричадан мағириба ёричадан мағириба ёричадан мағириба



Сувга таъсири



- Текинмага мағириба ёричадан мағириба ёричадан мағириба ёричадан мағириба
- Катта мағириба ёричадан мағириба ёричадан мағириба ёричадан мағириба
- Текинмага мағириба ёричадан мағириба ёричадан мағириба ёричадан мағириба



Лойиханинг флора ва фаунага таъсири

- Даракларнинг мағириба ёричадан мағириба ёричадан мағириба ёричадан мағириба
- Мағириба ёричадан мағириба ёричадан мағириба ёричадан мағириба ёричадан мағириба



Лойиханинг флора ва фаунага таъсири

- Қурилиш ишларини олиб бориш жараёнида дараклардан имтиёсчилик тарафат юзалиш
- Чимчиқларни сақлаш ва уш мантида бағриариф юклиш уриятлиган тартлида аналга охирилади




Лойихани тупрокка таъсири

1. Чимчиқларнинг тарқоқиб ётиши ва тупроқнинг уш мантида олиб чиқилиши ва натижада тупроқнинг кучли ва мазали чимчиқлар билан яфлагани
2. Ошро тупроқнинг тарқоқилиши натижада мавқуд тупроқнинг сифати бузилади
3. Тарқоқиб равнақда қаришларни олиш
4. Ер эришти нисолалар




Ижтимоий-иқтисодий муҳитга таъсири

1. Аҳоли яшаган пунктларда дариш-олиш олишлари қилиниш - давлат вақити ГСДП, бузилиш вақити қилиниш
2. Қарилыш ишлари олиб бериш жараёнида тупроқнинг кучли ва мазали чимчиқлар билан яфлагани
3. Янгилик уш мантида олиш вақити қилиниш
4. Ошро тупроқнинг тарқоқилиши натижада мавқуд тупроқнинг сифати бузилади
5. Тарқоқиб равнақда қаришларни олиш



Ижтимоий-иқтисодий муҳитга таъсири

- Лойиха яшаган пунктларда олиш вақити қилиниш
- Қарилыш ишлари олиб бериш жараёнида тупроқнинг кучли ва мазали чимчиқлар билан яфлагани
- Янгилик уш мантида олиш вақити қилиниш




Ижтимоий-иқтисодий муҳитга таъсири

- Қурилиш ишлари олиб бериш жараёнида тупроқнинг кучли ва мазали чимчиқлар билан яфлагани
- Қарилыш ишлари олиб бериш жараёнида тупроқнинг кучли ва мазали чимчиқлар билан яфлагани
- Қурилиш ишлари олиб бериш жараёнида тупроқнинг кучли ва мазали чимчиқлар билан яфлагани
- Қурилиш ишлари олиб бериш жараёнида тупроқнинг кучли ва мазали чимчиқлар билан яфлагани
- Қурилиш ишлари олиб бериш жараёнида тупроқнинг кучли ва мазали чимчиқлар билан яфлагани





Маданий мъроросга таъсири

1. Қарилыш ишлари олиб бериш жараёнида тупроқнинг кучли ва мазали чимчиқлар билан яфлагани
2. Янгилик уш мантида олиш вақити қилиниш
3. Қарилыш ишлари олиб бериш жараёнида тупроқнинг кучли ва мазали чимчиқлар билан яфлагани



Шикоятлар билан ишлаш механизми

- Шикоятларнинг олиш вақити қилиниш жараёнида олиш вақити қилиниш
 - Сувоқлар натижада шикоятлар туш ва натижада олиш вақити қилиниш
 - Шикоятлар натижада олиш вақити қилиниш жараёнида олиш вақити қилиниш
 - Шикоятлар натижада олиш вақити қилиниш жараёнида олиш вақити қилиниш
- Шикоятлар олиш вақити қилиниш жараёнида олиш вақити қилиниш
- Шикоятлар олиш вақити қилиниш жараёнида олиш вақити қилиниш

Мурожат учун адреслар

- Ташкият вақити қилиниш - Сувоқлар - Чимчиқ тупроқда олиш вақити қилиниш
 - Тел: (99870) 603-15-34, 603-33-99
- Ташкият вақити қилиниш, УЭА - Қириққилма - олиш вақити қилиниш
 - Тел: (99871) 150-56-00

Appendix 5: Picture from Public Consultation

Giving the presentation on project overview and conduction of the IEE results

Cninaz District March 17, 2018



Yangiyul District March 10, 2018



Yangiyul District March 17,2018



Discussing the description of proposed project activities and answering questions
Chinaz District March 17, 2018



Yanditul District March 10, 2018



Yangiyul District March 17, 2018



Chinaz District May 19, 2018





Appendix 6: Examples of noise analysis



Таблица 1
 Результаты измерений шума на объектах исследований

№	Объекты исследований	Точки измер.	Эквив. уровни звука, дБА	ПДУ для жилой застройки	Превышения
1.	РВУ «Маданият»	1.	43	55	-
		2.	43		-
2.	РВУ «Сутбулак»	1.	43	55	-
		2.	43		-
3.	РВУ «Эшонобод»	1.	43	55	-
		2.	43		-
4.	РВУ «Урикзор»	1.	54	55	-
5.	РВУ «Гайрат»	1.	56	55	1
6.	РВУ «Янгиобод»	1.	52	55	-
		2.	52		-
7.	РВУ «Кутарма»	1.	42	55	-
8.	РВУ «Чиназ»	1.	65	55	10
		2.	65		10
9.	РВУ «А.Тимур»	1.	65	55	10
		2.	65		10

IV. ЗАКЛЮЧЕНИЕ

Выполнены исследования по изучению шумового режима на 9 объектах исследований в Ташкентской области согласно ГОСТ 20444-85. Шум. Транспортные потоки. Методы измерения шумовой характеристики. на соответствие их нормативным требованиям по СанПиН РУз №02067-09 «Санитарные нормы и правила по обеспечению допустимого шума в помещениях жилых, общественных зданий и на территории жилой застройки». На двух объектах: РВУ «Чиназ» и РВУ «А.Тимура» эквивалентные уровни звука составляли 65 дБА, что превышает ПДУ для территории жилой застройки населенных мест на

10 дБА. Оно обусловлено более интенсивным движением различных видов автотранспорта (легковые, грузовые машины, мотоциклы), а также сельскохозяйственной техники: колесные трактора с прицепами и без, грейдеры и др., вблизи этих объектов.

V. Использованная нормативно-методическая литература, материалы.

1. ГОСТ 20444-85. Шум. Транспортные потоки. Методы измерения шумовой характеристики.
2. СанПиН РУз №02067-09 «Санитарные нормы и правила по обеспечению допустимого шума в помещениях жилых, общественных зданий и на территории жилой застройки

VI. Ответственный исполнитель

Зав. лабораторией физических факторов,
канд. мед. наук, ст. н. сотр.



МАГАЙ М.

Appendix 7: Water quality analysis

O'ZBEKISTON RESPUBLIKASI
FAVQULODDA VAZIYATLAR
VAZIRLIGI
HUZURIDAGI
GIDROMETEOROLOGIYA XIZMATI
MARKAZI
(O ZGIDROMET)



REPUBLIC OF UZBEKISTAN
MINISTRY OF EMERGENCY
SITUATIONS
THE CENTRE OF
HYDROMETEOROLOGICAL
SERVICE
(UZHYDROMET)

ATMOSFERA, YUZA SUVLAR
VA TUPROQ IFLOSLANISHNI
MONITORINGINI
OLIB BORISH XIZMATI (IMH)
100052, Toshkent shahar,
Bodomzor yo'li 1-tor ko'chasi, 72
Telefonlar: 237-15-47, 235-86-14
Faks: 237-15-47
Telegraf manzili: Toshkent ГИМЕТ

ATMOSPHERE, SURFACE WATER AND
SOIL POLLUTION MONITORING
SERVICE (PMS)
72, 1 st Bodomzor yuli st.,
Tashkent 100052
Republic of Uzbekistan
Telephones: 237-15-47, 235-86-14
Fax: 237-15-47
Telegrams: Tashkent GIMET

2018 yil 03 «06» № 06-08/01-33

sonli xatga

Директору
“Nazar Business and Technology” MCHJ
Халмирзаеву М.И.

Представляем результаты анализа проб воды.

Компонент	Канал Жун Арик	Янгибот	Куторма
Взвешенные вещества, мг/л	31,0	56,0	15,0
pH	7,66	7,65	8,05
Жесткость, мг-экв/л	6,90	7,80	18,5
Хлориды, мг/л	17,4	28,5	33,6
Сульфаты, мг/л	209	326	839
Гидрокарбонаты, мг/л	123	162	274
Минерализация, мг/л	455	700	1505
ХПК, мг/л	4,98	6,23	12,5
БПК5, мг/л	3,04	0,99	3,00
Азот аммонийный, мгN/л	0,31	0,61	0,47
Азот нитратный, мгN/л	0,91	1,31	2,17
Азот нитритный, мгN/л	0,019	0,036	0,017
Фосфаты, мг P/л	0,100	0,108	0,321
Нефтепродукты, мг/л	0	0	0
ДДЕ, мкг/л		0	0
ДДТ, мкг/л		0	0
ДДД, мкг/л		0	0

Начальник СМЗ Узгидромета

М.А.Плоцен

Голотюк, 235-86-14

O'ZBEKISTON RESPUBLIKASI
FAVQULODDA VAZIYATLAR
VAZIRLIGI HUZURIDAGI
GIDROMETEOROLOGIYA XIZMATI MARKAZI
(O'ZGIDROMET)

ATMOSPHERA, YUZA SUVLAR
VA TUPROQ IFLOSLANISHINI
MONITORINGINI
OLJUB BORISH XIZMATI (IMH)
100052, Toshkent shahar, 52
Bodomzor yo'li 1-top ko'chasi, 72
Telefonlar: 237-15-47, 235-86-14
Faks: 233 61 17
Telegraf manzili: Toshkent GIMET



REPUBLIC OF UZBEKISTAN
MINISTRY OF EMERGENCY SITUATIONS
THE CENTER OF
HYDROMETEOROLOGICAL SERVICE
(UZHYDROMET)

ATMOSPHERE, SURFACE WATER AND
SOIL POLLUTION MONITORING
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72, 1st Bodomzor yuli str.,
Tashkent 100052,
Republic of Uzbekistan
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Fax: 233 61 17
Telegram: Tashkent GIMET

2018 18.01 № 06-08/01-23

Индивидуальному консультанту
По экологии и охране окружающей
среды Азиатского банка развития
Холмирзаевой М.

Центр гидрометеорологической службы при Министерстве по чрезвычайным ситуациям Республики Узбекистан (Узгидромет) в ответ на Ваше письмо № 9422 - 02 от 19.12.2017 г. направляет Вам ежегодные данные химического состава воды в створе р. Чирчик (г. Чиназ) за 2014-2017 годы, р. Чирчик (ниже г. Газалкент) за 2014-2016 годы, а также по качеству атмосферного воздуха города Янгйюль за 2016-2017 годы.

Приложение: 10 л.

Начальник СМЗ

М.А.Плоцен

Ежегодные данные по химическому составу воды

2014 год

р. Чирчик г. Чиназ

Показатель	январь	февраль	март	апрель	май	июнь	июль	август	сентябрь	октябрь	ноябрь	декабрь
Расход реки (м ³ /с)	-	-	147	23	7,5	72	20,5	23	38	55	62	103
Взвешенные в-ва (мг/л)	8	24	20	18	20	67	10	13	24	22	21	18
pH	7,28	7,38	7,4	7,14	7,41	7,19	7,54	7,16	6,86	7,21	7,5	7,15
Жесткость (МГ-экв/л)	6,8	5,6	5,7	9,2	9,7	3,45	6,2	10,1	9,3	7,8	6,9	5,1
Хлориды (мг/л)	35,2	21,3	24,7	11,2	40,4	7,19	23,7	34,9	37,6	34,1	29,5	18,2
Сульфаты (мг/л)	155	134	153	322	341	42,5	200	335	287	262	247	194
Гидрокарбонат (мг/л)	193	191	199	244	239	148	175	236	241	244	192	195
Na (мг/л)	18,1	21,8	33,5	43,5	58,2	3,3	36,7	40,8	40,5	60,5	53,6	62,8
K (мг/л)	1	2	3	2	3	0	2	2	2	3	3	3
Ca (мг/л)	72,1	66,1	72,1	106,2	114,2	42,1	78,2	59,1	118,2	96,2	88,1	62,1
Mg (мг/л)	38,94	27,99	25,56	47,43	48,66	16,41	27,94	86,95	41,37	36,48	30,45	24,33
Минерализация (мг/л)	523,8	468,7	515,8	780,9	849,8	264	550,3	797,8	772,7	738	652,6	564,5
XПК (мг/л)	9,19	6,6	8,22	9,92	12,4	5,91	12,6	12,1	13,1	13,7	7,61	8,25
БПК ₅ (мг/л)	0,45	2,07	0,56	1,27	3,27	2,02	2,79	0,47	0,59	1,01	0,38	1,19
Азот аммонийный (мгN/л)	0,33	0,01	0,01	0,03	0	0,03	0,02	0,04	0,03	0,05	0,09	0
Азот нитритный (мгN/л)	0,021	0,003	0,007	0,058	0,106	0,005	0,033	0,007	0,035	0,033	0	0,002
Азот нитратный (мгN/л)	2,37	1,01	1,12	1,03	1,21	1,01	1,53	0,69	1,13	0,38	2,03	1,14
Сумма азота (мгN/л)	2,721	1,023	1,137	1,118	1,316	1,045	1,583	0,737	1,195	0,463	2,12	1,142
Фосфаты (мг/л)	6,8	5,6	5,7	9,2	9,7	3,45	6,2	10,1	9,3	7,8	6,9	5,1
Cr - VI (мгк/л)	0	0	0	0,7	2,3	0	1,9	0	0,3	0	0	0
Pb (мгк/л)	0	0	0	0	0	0	1,4	0	0	0	0	0
Hg (мгк/л)	0	0	0	0	0	0	0	0	0	0	0	0
Cd (мгк/л)	1,3	0,66	0,38	0	0	0	0,24	1,5	0,9	0	0,66	1,02

As (мгк/л)	0	0	0	0	0	0	0	0	0	0	0	0
Нефтепродукты (мг/л)	0	0	0	0	0	0	0	0	0	0	0	0
ДДБ (мгк/л)	0	0	0	0	0	0	0	0	0	0	0	0
ДДГ (мгк/л)	0	0	0	0	0	0	0	0	0	0	0	0
ДДД (мгк/л)	0	0	0	0	0	0	0	0	0	0	0	0

р. Чирчик г. Газалкент (ниже города)

Показатель	январь	февраль	март	апрель	май	июнь	июль	август	август	октябрь	ноябрь	декабрь
Расход реки (м ³ /с)	172	145	108	106	267	520	46,8	281	203	121	180	128
Взвешенные в-ва (мг/л)	2	7	16	20	8	3	6	8	3	3	4	6
pH	7,62	7,62	7,62	7,62	7,62	7,62	7,62	7,62	7,62	7,62	7,62	7,62
Жесткость (МГ – экв/л)	2,3	1,7	2,65	3,5	2,35	1,8	2,05	1,95	2,2	3,3	2,65	3,8
Хлориды (мг/л)	2,55	3,12	2,55	4,55	2,68	2,66	2,13	2,93	1,59	6,93	1,07	3,73
Сульфаты (мг/л)	17,9	36,3	18,9	37,2	20,4	45,8	12,5	15,1	14,4	32,7	20,4	59,8
Гидрокарбонат (мг/л)	115	108	140	192	128	65,1	94,5	86,9	96,1	149	133	133
Na (мг/л)	2	22,2	3,6	13,9	6,7	7,7	0	0	0	1	1	3,1
K (мг/л)	0	1	0	0	0	0	0	0	0	0	0	0
Ca (мг/л)	28,1	20	30,1	50,1	38,1	26,1	27,1	22	29,1	38,1	33,1	44,1
Mg (мг/л)	10,92	8,54	13,96	12,16	5,46	6,05	8,48	10,36	9,09	17,01	12,14	19,45
Минерализация (мг/л)	179,6	202,3	211,6	311,9	203,1	155	146,3	138,7	151,2	245,4	201,8	267,7
XПК (мг/л)	-	1,55	6,38	4,3	3,99	5,24	3,4	2,78	2,42	5,96	4,81	3,44
БПК ₅ (мг/л)	0,3	0,4	0,48	0,41	0,48	0,4	0,49	0,4	0,32	0,5	0,33	0,33
Азот аммонийный (мгN/л)	0,02	0,02	0,02	0	0,03	0	0,02	0,11	0,04	0,01	0,05	0,1
Азот нитритный (мгN/л)	0	0	0	0,004	0	0	0,001	0,003	0	0	0,004	0,002

2015 год

р. Чирчик г. Чиназ

Показатель	январь	февраль	март	апрель	май	июнь	июль	август	сентябрь	октябрь	ноябрь
Расход реки (м ³ /с)	-	-	40	24,4	139	37	17,3	25,5	38	42	131
Взвешенные в-ва (мг/л)	14	9	33	32	63	96	22	28	25	41	69
pH	6,75	7,82	7,74	6,85	7,27	7,16	7,46	7	7,32	7,5	7,47
Жесткость (МГ - экв/л)	4,8	5,2	5,3	8,4	5,8	3,2	9,4	9,6	8	7,8	3,85
Хлориды (мг/л)	17,6	21,1	18,6	33	20,8	6,93	24,2	38,9	33,1	24,4	12,7
Сульфаты (мг/л)	181	113	132	303	173	45,7	408	345	341	188	101
Гидрокарбонат (мг/л)	152	195	184	231	216	145	256	266	210	231	179
Na (мг/л)	45,8	23,1	25,8	60,7	45	9,9	98,8	64,2	84,5	15,6	38,9
K (мг/л)	3	2	2	3	2	0	5	3	3	3	3
Ca (мг/л)	60,1	68,1	60,1	92,2	70,1	25	40,1	96,2	92,1	92,2	33
Mg (мг/л)	21,9	21,91	27,98	46,2	27,99	23,74	89,97	58,36	41,4	38,9	26,79
Минерализация (мг/л)	485,9	450,3	455,8	770,6	556,6	261,6	930,7	875,9	807	597	406,8
ХПК (мг/л)	3,44	9,62	7,56	9,8	4,58	5,61	12,2	11,9	9,69	12,6	8,24
БПК ₅ (мг/л)	0,12	5,81	1,58	3,98	1,86	1,91	2,83	1,28	2,72	1,94	0,58
Азот аммонийный (мгN/л)	0,4	0,02	0,25	0	0	0	0,05	0,01	0,05	0,27	0
Азот нитритный (мгN/л)	0,069	0,158	0,02	0,01	0	0,047	0,047	0,139	0,002	0,031	0
Азот нитратный (мгN/л)	1,02	1,37	1,2	0,33	0,38	1,21	1,94	0,96	0,44	0,88	2,81
Сумма азота (мгN/л)	1,489	1,548	1,47	0,34	0,38	1,257	2,037	1,109	0,492	1,181	2,81
Фосфаты (мг/л)	0,066	0,041	0,065	0,136	0,065	0,015	0,044	0,09	0,044	0,062	0,038
Cr - VI (мг/л)	0	0	0,5	0,9	0	0	0	0	0,4	0,3	0,5
Pb (мг/л)	0	3,4	0	0	0	1,1	0	0	0	0	0

**Качество атмосферного воздуха в г. Янгюль за 2016-2017 гг.
среднесуточная концентрация (в мг/м³)**

Наименование примеси		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Пыль	2017	0	0	0	0	0	0	0	0	0	0	0	0
	2016	0	0	0	0	0	0	0	0	0	0	0	0
SO ₂	2017	0,002	0,001	0,002	0,002	0,002	0,002	0,001	0,001	0,002	0,001	0,002	0,001
	2016	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,001
NO ₂	2017	0,01	0,01	0,01	0,01	0,02	0,02	0,01	0,01	0,01	0,01	0,01	0,01
	2016	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,02	0,02	0,02	0,02	0,01

Предельно - допустимая концентрация (ПДК с.с.):

Пыль - 0,15

Диоксид серы (SO₂) - 0,05

Диоксид азота (NO₂) - 0,04

Appendix 8: Asbestos-Containing Materials Management Plan

Asbestos-Containing Materials Management Plan

The Asbestos-Containing Materials Management Plan (ACMMP) describes and evaluates the risk of contractors (and others) encountering asbestos-containing material (ACM) at the Project construction sites during the implementation stage of the project; and it provides a procedure for dealing quickly and safely with any ACM that may be found.

The ADB *Safeguard Policy Statement* (SPS) requires that ADB-funded projects apply pollution prevention and control technologies and health and safety measures that are consistent with international good practice, as reflected in international standards such as the IFC/World Bank *Environmental, Health and Safety General Guidelines* (2007). If national legislation differs from these standards, the borrower is required to achieve whichever is more stringent. There is national procedure Sanitarian Norms and Rules (SNR) of RUz # 0300-11 dated from 2011 “Organization of collection, inventory, classification, disposal, storage and recycling of industrial waste in the conditions of Uzbekistan” covering disposal of ACM³⁷ in Uzbekistan. However, the procedure does provide clear description of handling ACM, therefore, the ACMMP follows the World Bank Guidelines.

The main principles of the ACMMP are as follows:

- A. Prompt recognition of ACM;
- B. Prompt and effective action to contain and deal appropriately with the ACM (including safe management and disposal); and
- C. Maintaining the safety of site personnel and the general public at all times.

The ACMMP is designed for use by the Project’s Project Coordination Unit (PCU) to manage the ACM risk over the project as a whole, and by contractors to deal efficiently with any ACM they or their workers encounter. The procedural element of the ACMMP is therefore designed to provide straightforward instructions that can be easily and quickly understood without the need for specialist knowledge and without referring to other sources.

PROTOCOL FOR HANDLING AND DISPOSAL OF ACM AT STWSDP SITES

Source

This protocol was developed from guidance given by the UK Health and Safety Executive (HSE), which complies with European Union (EU) legislation and the UK *Control of Asbestos Regulations* (2012). For further information see the HSE website: <http://www.hse.gov.uk/asbestos/essentials/>

Applicability

The Project ACMMP applies to all project construction sites and any related areas (eg workshops, parking lots, storage or disposal areas, etc. used by Project contractors). Contractors employed by Project are legally responsible for their construction sites and related areas and must follow the provisions of the Project ACMMP within those locations. Specifically, this protocol must be used to ensure the safe handling, removal and disposal of any and all ACM from those areas.

³⁷ Uzbek Sanitary Norms SanPiN 0233-07 “National standards “Sanitarian Norms and Rules on Work Hygiene and Environment Protection during production and usage of ACM” was one of a number of pieces of legislation deregulated in the 1980’s. Notwithstanding their lack of legal status, as the most recently-available local standard, the regulations were referred to in preparing the ACMMP and the protocol for handling and disposal of ACM (see Section 3) incorporates soil covering requirements from the SanPin.

Immediate Action

On discovering ACM on an Project site the contractor must:

- a) Stop all work within a 5 m radius of the ACM and evacuate all personnel from this area;
- b) Delimit the 5 m radius with secure fencing posts, warning tape and easily visible signs warning of the presence of asbestos;
- c) If the site is in an inhabited area, place a security guard at the edge of the site with instructions to keep the general public away;
- d) Notify the PMC and Environmental Supervisors and arrange an immediate site inspection; also notify the PCU.

The PCU must:

- e) Notify the Territorial Department of the State Sanitary Epidemiological Service.

Equipment

To remove asbestos from a construction site, contractors must provide the following equipment:

- a) Warning tape, sturdy fence posts and warning notices;
- b) Shovels;
- c) Water supply and hose, fitted with a garden-type spray attachment;
- d) Bucket of water and rags;
- e) Sacks of clear, strong polythene that can be tied to close;
- f) Asbestos waste containers (empty, clean, sealable metal drums, clearly labelled as containing asbestos).

Personal Protective Equipment (PPE)

All personnel involved in handling ACM must wear the following equipment, provided by the contractor:

- a) Disposable overalls fitted with a hood;
- b) Boots without laces;
- c) New, strong rubber gloves;
- d) A respirator is not normally required if there are only a few pieces of ACM in a small area, and if the ACM is damp;
- e) In large or heavily contaminated areas, a disposable respirator is needed (not a dust mask) with an Assigned Protection Factor of 20 or more (eg a respirator with a P3 filter);
- f) There must be no smoking, eating or drinking on a site containing ACM.

Decontamination Procedure 1: Removing small pieces of ACM

- a) Identify the location of all visible ACM and spray each lightly but thoroughly with water;
- b) Once the ACM is damp, pick up all visible ACM with shovels and place in a clear plastic bag;
- c) If ACM debris is partially buried in soil, remove it from the soil using a shovel and place it in the plastic bag;
- d) Insert a large label inside each plastic bag stating clearly that the contents contain asbestos and are dangerous to human health and must not be handled;

- e) Tie the plastic bags securely and place them into labelled asbestos waste containers (clean metal drums) and seal each drum;
- f) **Soil that contained ACM debris must not be used for backfill** and must instead be shovelled by hand into asbestos waste containers;
- g) At the end of the operation, clean all shovels and any other equipment with wet rags and place the rags into plastic disposal bags inside asbestos waste containers.

Decontamination Procedure 2: Removing ACM-contaminated backfill

- a) If soil containing ACM debris has inadvertently been used for backfill this must be sprayed lightly with water and shovelled out by hand to a depth of 300 mm and placed directly into asbestos waste containers (ie not stored temporarily beside the trench);
- b) Any ACM uncovered during the hand shovelling must be placed in a clear plastic bag;
- c) Once the trench has been re-excavated to 300 mm, if there is no visible ACM remaining, the trench may be refilled by excavator using imported clean topsoil.

Decontamination Procedure 3: Removing AC pipes or large pieces of ACM

1. If AC pipes or other large pieces of ACM are uncovered during excavation in an undamaged condition and they can be re-covered by soil and left in place in the ground undisturbed, this should be done. If AC pipes or other large pieces of ACM need to be removed from site:

- a) Inform the city Toza Hudud of the nature and size of the large ACM and arrange for them to dig a suitable cavity at the disposal site to receive and bury the material;
- b) Sprinkle the ACM thoroughly with water, ensuring that any broken or damaged areas in particular are thoroughly wetted;
- c) Inform excavator and truck drivers of the dangers associated with ACM and instruct them to remain inside their cabs with the windows closed throughout the operation.
- d) Lift the material by excavator into a dump truck, without causing additional breakage and with as little disturbance as possible;
- e) Cover the bed of the truck with a secure tarpaulin and transport the ACM to the disposal site with as little disturbance of the carried material as possible;
- f) Manual assistance should be limited to securing the tarpaulin if possible, and personnel providing such assistance should wear PPE as indicated in Section E;
- g) At the disposal site, tip the ACM directly into the prepared cavity and arrange for it to be covered with soil immediately.

Disposal

2. ACM should be disposed of safely at a local hazardous-waste disposal site if available, or at the city municipal dumpsite after making prior arrangement for safe storage with the site operator.

- The Contractor must arrange for the disposal site operator to collect the sealed asbestos waste containers as soon as possible and store them undisturbed at the disposal site.
- At the end of construction Contractors must arrange for the disposal site operator to bury all ACM containers in a separate, suitably-sized pit, covered with a layer of clay that is at least 250 mm deep.

a) Personal Decontamination

At the end of each day, all personnel involved in handling ACM must comply with the following decontamination procedure:

- At the end of the decontamination operation, clean the boots thoroughly with damp rags;
- Peel off the disposable overalls and plastic gloves so that they are inside-out and place them in a plastic sack with the rags used to clean the boots;
- If a disposable respirator has been used, place that in the plastic sack, seal the sack and place it in an asbestos waste container;
- All personnel should wash thoroughly before leaving the site, and the washing area must be cleaned with damp rags afterwards, which are placed in plastic sacks as above.

b) Clearance and Checking-Off

- The decontamination exercise must be supervised by PMC site supervisors (engineering or environmental).
- After successful completion of the decontamination and disposal, the PMC should visually inspect the area and sign-off the operation if the site has been cleaned satisfactorily.
- The contractor should send a copy of the completion notice to the PCU, with photographs of the operation in progress and the site on completion.

TRAINING

PMC's Environmental Specialist will conduct training on ACCMP implementation for Contractors staff and PCU. The training will include a session focusing on ACM, which covered:

- a. Risks of contact with ACM (in general and the STWSDP risk assessment);
- b. Responsibilities for dealing with ACM on STWSDP construction sites;
- c. The STWSDP ACMMP and the Protocol for site clean-up;
- d. Awareness-raising for the contractors' workforce.

COST ESTIMATE

Costs incurred by contractors in implementing the ACMMP are included in their budget in EMP budget.

Appendix 9: Chance finds procedure

1. Purpose

Construction sites could be considered as subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found in the course of development work. The procedure set out here covers the reporting and management of such finds.

Scope: The “chance finds” procedure covers the actions to be taken from the discovery of a heritage site or item, to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

Compliance: The “chance finds” procedure is intended to ensure compliance with relevant provisions of the Law of RUz “On protection and Use of Objective of the Archeological Heritage”(2009). The procedure of reporting set out below must be observed so that heritage remains reported to the Ministry of Archeology are correctly identified in the field.

2. Responsibility

Operators/Workers - To exercise due caution if archaeological remains are found

Foreman/construction site manager - To secure site and advise management timeously

Contractor’s manager - To determine safe working boundary and request inspection

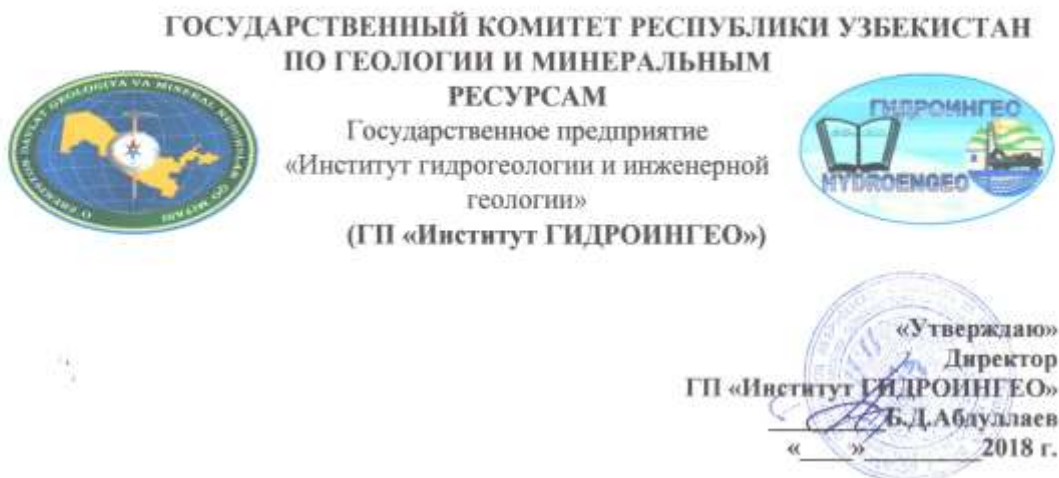
Archaeologist: To inspect, identify, advise management, and recover remains

3. Procedure

MITIGATION/MONITORING ACTION	RESPONSIBILITY	SCHEDULE
Should a heritage site or archaeological site be uncovered or discovered during the construction phase of the project, the “change find” procedure should be applied. The details of this procedure are highlighted below:	Person identifying archaeological or heritage material	When necessary.
<ul style="list-style-type: none"> • If operating machinery or equipment: stop work • Identify the site with flag tape • Determine GPS position if possible • Cease any works in immediate vicinity 	Person identifying archaeological or heritage material	
<ul style="list-style-type: none"> • Report findings to foreman • Report findings, site location and actions taken to superintendent 	Foreman/construction site manager	

<ul style="list-style-type: none"> • Visit site and determine whether work can proceed without damage to findings • Determine and mark exclusion boundary • Site location and details to be added to project GIS for field confirmation by archaeologist 	Contractor's manager	
<ul style="list-style-type: none"> • Inspect site and confirm addition to project GIS • Advise the Ministry of Archeology (MoA) and request written permission to remove findings from work area • Recovery, packaging and labelling of findings for transfer to National Museum 	Archaeologist	
<ul style="list-style-type: none"> • Should human remains be found, the following actions will be required: <ul style="list-style-type: none"> ➤ Apply the change find procedure as described above. ➤ Schedule a field inspection with an archaeologist to confirm that remains are human. ➤ Advise and liaise with the (MoA) and Police ➤ Remains will be recovered and removed either to the National Museum or the National Forensic Laboratory. 	Archaeologist Representatives of Khokimiyat and Ministry of Archeology Police	

Appendix 10: Conclusion of hydrogeological expedition



Гидрогеологическое заключение

по имеющимся эксплуатационным запасам и по качеству подземных вод на
участке «Алмазар» и «Чиназ» Чиназского района Ташкентской области.

И.о. зам. директора по науке



Ю.А. Отакулова.

Ташкент-2018 г.

6.1.Подсчет запасов

Ранее на данной территории были выполнены разведочные работы Алмазарской ГПП (1958-65гг), с целью разведки подземных вод и подсчета эксплуатационных запасов на участках Батрацкий и Ниязбаш Чирчикского месторождения для водоснабжения объектов Калининского, Янгиюльского и Чиназского районов Ташкентской области. По результатам исследований ранее был рекомендован проектный линейный водозабор состоящий из 27 эксплуатационных скважин, глубиной 50-60м, подсчитаны ЭЗПВ на участке Ниязбаш – для водозаборного сооружения ВУ-1 утверждены протоколом ГКЗ № 933 от 30.10.1983г и составили по категориям А+В – 141,7 тыс.м³/сут, в том числе по категории А-66,7 тыс.м³/сут, по категории В-75,0 тыс.м³/сут.

В 2015 году II-Ниязбашской ГПП на водозаборе «ВУ-I» проводились разведка с переоценкой Эксплуатационных запасов подземных вод (ЭЗПВ) в четвертичных отложениях участка Ниязбаш (ВУ-1) в связи с изменением водохозяйственных условий и оценкой ЭЗПВ на отдельных локальных участках Чирчикского месторождения для хозпитьевого водоснабжения населённых пунктов Янгиюльского и Куйичирчикского районов. По водозабору были получены следующие показатели:

Подсчет запасов произведен отдельно для двух блоков. Для каждого блока расчет понижений произведен методом учета потоковой составляющей дебита водозабора, а для блока II, кроме того, просчитан вариант с учетом влияния реки с поправкой на кольматацию русла. Прогнозные понижения для отбора заявленной потребности во всех случаях находятся в допустимых пределах. Расчетный водоотбор обеспечен естественными ресурсами.

Расчетная производительность водозабора в количестве 90,3 тыс.м³/сут.(1045,1 л/с), полученная на основании гидродинамических расчетов при допустимом понижении, относится к запасам категории А+В+С₁. Данный отбор обеспечен расходом потока подземных вод долины р.Чирчик и минимальным меженным расходом реки. Качество воды соответствует О'z Dst 950:2011 «Вода питьевая».

6.1. Calculation of deposits

In 1958-65 exploration works with the purpose of exploration of groundwater and calculation of operational reserves in the Batratsky and Niyazbash areas of the Chirchik deposit for water supply of the Kalinin, Yangiyul and Chinaz districts of the Tashkent province were carried out by Almazar hydrogeological department (HGD). Based on the results of the studies, a design of linear water intake consisting of 27 production wells with a depth of 50-60 m was previously recommended, and the operational reserves of ground water intake in Niyazbash site was calculated - for the water intake VU-1 approved by the GKZ protocol No. 933 dated from October 30, 1983. The approved amounts were divided by categories A + B – 141.7 thousand m³/day, including category A-66.7 thousand m³/day, category B-75.0 thousand m³/day.

In 2015

In 2015, the II-Niyazbash HGD carried out a reconnaissance study with the re-evaluation of the Operational groundwater resources in the Quaternary sediments of the Niyazbash section (VU-1) due to changes in water management conditions and assessment of operation sources (deposits) of ground water (OSGW) at selected local sites of the Chirchik deposit for drinking water supply of settlements of Yangiyul and Kuyichirchik districts.

The reserves are calculated separately for two blocks. For each block, the calculation of the declines was made using the method of accounting for flow component of the withdrawal rate of the water intake. In addition, for Block II an option taking into account the influence of the river with the correction for bedding was calculated. Forecast declines to select the claimed demand in all cases are within acceptable limits. The estimated water supply is provided by natural resources.

The design productivity of VU-1 water intake in the amount of 90.3 thousand m³ / day (1,045.1 l / s), obtained on the basis of hydrodynamic calculations with an acceptable reduction, refers to the reserves of category A + B + C1. This selection is provided by the flow rate of the groundwater in the Chirchik river valley and the minimum flow of the river. The water quality meets national standards for drinking water to O'z Dst 950: 2011 "Drinking water".