Initial Environmental Examination

August 2014

UZB: Djizzak Sanitation System Development Project

Prepared by the Uzbekistan Communal Services Agency for the Asian Development Bank.

INITIAL ENVIRONMENTAL EXAMINATION (IEE)

UZBEKISTAN
UZB: Djizzak Sanitation System Development Project (46135-002)

July 2014

Prepared by the Consultant UNICON for the Uzbekistan Communal Services Agency (UCSA)

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Item	Units	Definition
ADB		Asian Development Bank
dBA	dBA	A measure of audible (the human ear) noise
DCWSSC		Djizzak City Water Supply and Sewerage Company
DSSDP		Djizzak Sewerage System Development Project
DRWSSE		Djizzak Regional Water Supply and Sewerage Enterprise
EA		Executing Agency
EARF		Environmental Assessment and Review Framework
ECA		Environmental Consequences Assessment
EIA	na	Environmental Impact Assessment
EIS		Environmental Impact Statement
EMiT	na	EMP: Mitigation Table
EMoT	na	EMP: Monitoring Table
EMP	na	Environmental Management Plan
Glavgosekoexpertiza	na	The Environmental Assessment Department within Goskompriroda, operating at both the central and oblast levels.
Goskompriroda (GOZ)	na	Uzbek National Environmental Management Agency
GOU		Government of Uzbekistan
GRC		Grievance Redress Committee
IEA		Initial environmental assessment
IEE		Initial environmental examination
IRTM		Inter- regional trunk main
KMK (SNIP)	na	Any one of hundreds of Uzbekistan's legal standards and rule
L/c/d		liters per capita per day
MFF		Multitranche Financing Facility
MOF		Ministry of Finance
NO_2	mg/cm^3	Nitrate or Nitrogen Dioxide
PDC		Project Development Consultant
PEIA	na	Preliminary Environmental Assessment, Screening or Terms of Reference Document prepared as a 1^{st} step of the Uzbek environmental assessment process
PIU		Project Implementation Unit (manages each subproject)
PMC		Project Management Consultant
PMU	na	Program Management Unit, existing and managing this MFF project
PPTA		Project Preparation Technical Assistance
PSE		Personal Safety Equipment
RoU		Republic of Uzbekistan
REA		Rapid Environmental Assessment (and screening)
SP_{10}	micrograms/m^3	Suspended particulate matter , with particles ≥ 10 microns in size, and a danger to lungs
WWTP or WWTP		Sewage Treatment Plant
SIAK		Goskompriroda water quality lab in Djizzak
SWSS		Second Water Supply and Sanitation Project
UCSA		Uzbekistan Communal Services Agency
WDC		Water distribution center ; a large pump house treating , re-pressurizing and distributing water to various communities
WSSSIIP		Water Supply and Sanitation Services Improvement Investment Program
WTP		Water Treatment Plant
WWTP		Wastewater Treatment Plant

EXECUTIVE SUMMARY

1. The Uzbekistan Communal Services Agency (UCSA), the project proponent and executing agency, is implementing the project preparatory technical assistance (PPTA) to prepare the Second Water Supply and Sanitation Investment Program (SWSSP), addressing urgent national water supply (potable water) and wastewater treatment problems. The proposed SWSSP is a priority in Uzbekistan's poverty reduction strategy, and is highlighted in ADB's Uzbekistan Country Partnership Strategy 2012-2016, and its Road Map and Investment Program 2020, for the water supply and sanitation sector. It was agreed that one of the outcomes of the PPTA is preparation for the Djizzak Sanitation System Development Project (DSSDP).

2. The feasibility study for the proposed DSSDP includes preliminary engineering designs, a sector performance assessment, a financial and economic analysis, as well as mandatory environment and social safeguards documentation. The DSSDP is located in Djizzak and Uch Thepa cities of Djizzak Region. There are three main project components: (i) construction of new wastewater treatment plant (WTTP) in Djizzak region, (ii) construction and reconstruction of sewerage collector network for around 49 km; and (iii) rehabilitation of the 2 existing pumping stations and construction of 1 new pumping station.The overall project will be implemented over five years (2014-2019) and WWTP work will require 2 years to build[1].

3. The DSSDP has undergone an environmental screening, classifying it as a category B project in accordance to the ADB Safeguard Policy Statement (SPS) 2009. Therefore, an initial environmental examination (IEE) was prepared with a defined scope of study based on the rapid environmental assessment. Data and information used to prepare the IEE are mostly secondary, however field observation and both primary air and water quality analyses were carried out. The assessment of impacts is based on an in-depth feasibility study, in which a detailed cost estimate has also been prepared. Finally, general specifications for the new WWTP, the sewer trunk and collectors, their reconstruction and rehabilitation, and the pumping station reconstruction have been completed.

4. As part of IEE preparation, the public consultation was carried out on 22 April 2014. The public consultation was attended by local authorities, and also affected people. The public consultation forum was able to provide participants information about the proposed project, the project schedule, and information on potential environmental impacts and mitigation measures as part of IEE preparation. The discussion revealed that participants have no objection to the project. The public consultation summary is attached in Annex 2. During the consultation, the Project grievance redress mechanism was also explained to the participants to ensure that they have information on the procedure they need to follow to submit a complaint.

5. The IEE for the DSSDP has been completed and is presented in this report. The IEE authors identified 27 mitigation and monitoring actions to be taken by UCSA, PMU, PIU, the contractor(s), The Djizzak Regional Water Supply and Sewerage Enterprise (DRWSSE) and the Djizzak City Sewerage Company (DCSC), at varying times, starting during the preconstruction period and extending into a number of operating period years. Each mitigation action was matched with a monitoring and reporting task, permitting easy compliance monitoring by the PMU, the Project Development Consultant (PDC) the

[1] It will actually be built in two stages, first for 30,000 m^3/d treatment capacity then upgraded to 60,000m^3/d by 2030

contractor and system operators. A compliance monitoring checklist template is included as Annex 4 of this IEE in order to assist with this requirement.

6. UCSA established that in Djizzak, there is very weak environmental technical capacity and non-functioning facilities necessary for a new WWTP to operate properly. To address these gaps, four sets of training sessions will be organized and delivered during the preconstruction and construction period of the project. This training will include environmental management plan implementation, compliance monitoring, environmental record keeping, and briefing in Uzbekistan environmental legislation. Given the importance of having pre-treated industrial effluent discharging to the new WWTP, a special briefing session covering treatment requirements and Decree No. 11/2012 will be delivered to the area industrial enterprises soon after construction begins

7. Given the lack of facilities or staff to carry out the mandatory WWTP effluent monitoring UCSA will initiate a monitoring program starting as soon as the loan has been signed and the project is mobilized. This surface water quality sampling program will be designed to track the condition of the sewage water discharge/collectors, including the Ulgursay Canal, Tukursoy, and Kly Canals, before the WWTP is built, during construction and once the WWTP is operation. Once the facility is operational, DCSC will be required to complete monthly water quality monitoring of the influent and effluent.

8. The existing derelict WWTP will be fully dismantled. Since none of the existing facilities will be used for the new WWTP, the due diligence environmental audit was not performed. Nonetheless, the IEE also provides recommendations for dismantling the existing WWTP. The dismantling works will involve disposing nearly 20,000m^3 of sludge and water that needs to be tested before any disposal takes place, as the sludge could be toxic, i.e. contaminated with chromium (Cr^3), in which case, special disposal procedures must be followed. UCSA will be required to test for the presence of toxic materials in the sediment to be taken from the old WWTP sedimentation tanks.

9. Nearly all the building materials from the existing WWTP will be broken down and removed to be recycled and reused. UCSA will follow the traditional steps of announcing the availability of these materials and letting local businesses take them away in a first-come-first-serve basis. However, the contractor awarded the demolition work will be required to identify any pipes or other structures that contain asbestos, then undertake a hazardous materials disposal program for these items according to RoU law.

10. The Environmental Management Plan (EMP) provides a guidance that during the pre-construction period, and as soon as a contractor has been selected, UCSA, in cooperation with DRWSSE, the police and the contractor(s) will prepare a traffic management plan to keep congestion due to sewer construction to a minimum and to restore access from home to local streets for local people, as quickly as possible after sewer pipe placement is complete.

11. A tree cutting and replanting plan will also be prepared in order to prevent or keep to an absolute minimum the removal of mature trees from the construction sites, as these trees are essential for providing shade and to help attenuate dust during the hot dry summers. UCSA will lead the development of this plan and instruct the contractor on the cutting limits as well as the penalties for illegal or accidental tree removal (as defined in the IEE).

12. While the WWTP construction will take place in a rural setting with no nearby dwellings or people to be impacted, the work to lay the sewer pipes will be in largely urban areas along local Djizzak streets, where dust, noise, and protection of the urban landscape is essential, To that end, UCSA, through its PMU, PIU, PDC, and local authorities will set out the operating limits in residential areas for the contractor: namely no work between the hours of 7 p.m. and 7 a.m., the use of low noise construction machinery and the maintenance of all

haul roads to reduce dust. Loud equipment such as jack hammers will be restricted between 5:30 p.m. and 7 a.m.

13. Once collector sewers have been placed, the contractors will be required to immediately rehabilitate and fully landscape all disturbed areas, and reestablish preconstruction conditions unless the site was already contaminated. UCSA will require its PIU and the PDC to monitor. PDC will undertake regular interviews with local residents to check that the rehabilitation is done satisfactorily.

14. The work with the pumping stations includes relocation of one station, the full rehabilitation of two others, and the construction of a new station. Essential for the successful upgrading of the three stations will be the careful clean-up of the area subjected to years of flooding and contamination with raw sewage. The boundary of the clean-up area will be determined with the cooperation of local residents and contaminated soils will be buried or tilled into the ground and the area fully re-landscaped. The rehabilitated pumping stations will be housed in buildings protected from the elements, be provided with a reliable power supply and be maintained according to a strict schedule implemented by the PMU, DRWSSE, and Djizzak City.

15. The monitoring of the contractor's work and the implementation of the mitigation actions defined in the IEE's EMP will be essential if the predicted project impacts are to be avoided or minimized. The PDC will therefore be required to conduct quarterly compliance monitoring reviews, in addition to the regular monthly inspections completed by the PIU, working with the contractor.

16. The chemical-mechanical sewage treatment process produces nutrient rich sewage sludge which will be pumped into a number of sludge ponds, requiring management and periodic cleaning. Within the first year of operations, UCSA will instruct DRWSSE to prepare a sludge management procedure, and implement it.

17. The total estimated cost for the implementation of the EMP over a 7-year period will be approximately $650,000, excluding contingency.

18. This WWTP and sewer collectors are urgently needed and every effort should be made to expedite it and put the facility into operation. This was a view expressed by all participants of the consultation session. It will have overwhelmingly positive impact, affecting thousands of families, by improving their standard of living and household health.

19. With the completion of the IEE and the implementation of its EMP, UCSA will have taken all necessary actions to ensure that this project is completed in an environmentally competent manner, in keeping with international and national safeguard standards. Nonetheless, continuous monitoring will be required to ensure that the EMP is implemented credibly and updated as required. On this basis, it could be concluded that further environmental assessment study would not be required.

Foreword

Up to the year 2004 the water supply and sewerage systems had been operated by the Djizzak City Municipal Water Supply and Sewerage (WSS) Company also abbreviated as "Suvokova". After 2004, a separate "Djizzak Okavasuv" (Uzbek abbreviation for sewerage enterprise, hereinafter referred to as Djizzak City Sewerage Company - DCSC) was established. This organization is responsible for sewerage services and treatment of wastewater in Djizzak City.

The Djizzak Province Governor Decree No. 83[2] promulgated further to the institutional reforms recently enforced in the water supply and sanitation sector in Uzbekistan,[3] [4] has instituted a "Single Provincial Water Supply Enterprise and its Djizzak City and District branches". The newly constituted provincial Enterprise is to replace the former "Provincial Vodokanal" and will be in charge of distributing water supply and managing sewerage within the whole Djizzak province. As a consequence, the water supply and sewerage Companies (formerly Vodokanals) operating within the District will be "District Branches" under the Provincial Water Supply (and Sewerage) Enterprise (DPWSSC).

[2] Djizzak Province Governor Decree No. 83 of 3 March, 2014 on "Establishment of the Single Regional Water Supply Enterprise and on Merging the City and District Water Supply Enterprises"

[3] Letter of Deputy Minister of Finances to Cabinet of Ministers No. MA/15-03-31-14/68 dated 03 March 2014 on Reform of Vodokanal Structure

[4] Instruction of Prime Minister No. 3/8960 dated 04 March 2014 on application of the letter of Ministry of Finances No. MA/15-03-31-14/68

I. INTRODUCTION

A. The Proponent and Purpose of the IEE

1. The Uzbekistan Communal Services Agency (UCSA), the project proponent and executing agency, is implementing a project preparatory technical assistance (PPTA) to prepare the Djizzak Sanitation System Development Project (DSSDP), addressing urgent national water supply (potable water) and wastewater treatment problems. The proposed SWSS is a priority in Uzbekistan's poverty reduction strategy, and is highlighted in ADB's Uzbekistan Country Partnership Strategy 2012-2016, and its Road Map and Investment Program 2020, for the Water Supply and Sanitation Sector. It was agreed that one of the outcome of the PPTA is preparation of Djizzak Sanitation System Development Project.

2. This PPTA includes work to complete technical feasibility studies with preliminary engineering designs, a sector performance assessment, a financial and economic analysis, as well as mandatory environment and social safeguards reporting. Under this PPTA, an international consultant has been retained to assist the UCSA in preparing the Initial Environmental Examination (IEE) for submission to ADB.

3. An existing ADB-supported PMU within UCSA has been designated to manage the PPTA, and is overseeing its completion.

4. An Initial Environmental Examination for the Djizzak Sanitation System Development Project (DSSDP) has been completed and is presented in this report.

B. Project Status and Documentation

5. The proposed DSSDP project is now under the preliminary designed, and PPTA aims to provide UCSA to prepare all required document to enable ADB for processing this proposed project as loan that expected to be approved in 2014.

6. This IEE was prepared during the project's feasibility study. The proposed DSSDP has undergone an environmental screening, and was classified as a category B project. This IEE is prepared as part of the feasibility study, assessments of the existing physical works, the technical and administrative capacity of the agencies involved, as well as economic and financial analyses have been undertaken. A detailed cost estimate has also been prepared. Finally, general specifications for the new wastewater treatment plant (WWTP), the sewer trunk and collectors, their reconstruction and rehabilitation, and the pumping station reconstruction have been completed. Once completed, the DSSDP will be ready for detailed design and construction. The option for executing the DSSDP by using modality design-build operate facility is also being considered at this stage of the PPTA.

C. Extent and Boundaries of the IEE

7. This proposed project is located in Djizzak city and Uch-Tepa District Center of Djizzak Region. The WWTP is located in Djizzak Region near the former WWTP facility that will be demolished. The reconstruction and new construction of the sewer system will be located in Djizzak and Usthepa cities. The WWTP will discharge its treated sewer into the Ulgursay Sewer Canal, which flows through 6.4 km passing through open field and pasture lands until it intersect a major drainage canal, eventually ending in Aydar Lake (Aydarkul).

8. For the WWTP, the boundary is a 1 km radius around the facility, and for the sewer and pumping station work, the boundary varies from 40m centred over the alignment for the large diameter sewers and pumping stations to 10m for the smaller diameter sewers. At the existing pumping stations there has been chronic spillage of wastewater, and as such an area extending beyond these boundaries will need to be rehabilitated.

9. The existing DSSDP will be demolished, and the new DSSDP will be constructed and located about 750 meters south of the existing DSSDP facility. On this basis Environmental Audit Compliance for the existing facility would not be carried out. However, the IEE will include recommendations on how to safely demolish the existing facility.

10. Predictions of the project's future effects on the natural and human environmental will be limited to the 2 construction years and years 1, 3, and 5 of the operating period, since once in operation, its impact will be overwhelmingly positive.

D. Content of the IEE and Methodology Applied

11. This IEE was prepared according to the approach, format, and content suggested in Annex 1 of the ADB's SPS 2009. Surface drainage, surface water quality, issues associated with the demolition of the existing wastewater treatment facility, and issues dealing with the industrial effluents discharging into the municipal sewage system, were given special emphasis. A consultation and information disclosure session was held on 22 April 2014 and details are described in Chapter VII.

E. Policy, Legal and Administrative Framework

12. The Law on Environmental Protection (1992) established a legal, economic, and organizational framework for environment protection.[5] The State Committee for Nature Protection (Goskompriroda) is a primary environmental regulatory agency, and reports directly to the Parliament. Goskompriroda is responsible for supervising, coordinating, and implementing environmental protection and controlling the usage and renewal of natural resources at the central, regional, and district levels. The mandate of Goskompriroda is based on the Regulation of the State Environmental Committee of the Republic of Uzbekistan (1996).

13. Glavgosekoexpertiza (SEE) is the State Ecological Expertise Department of Goskompriroda that evaluates environmental impact reports and provides the clearance for environmental assessment documents. Any environmental assessment prepared as part of this project will need a review and clearance by SEE at the national level as well as by region-level officials.

14. When evaluating sewage treatment projects, the following general legal instruments are relevant:

- Law on Ecological Expertise (*Environmental Assessment*). 25/05/02 No. 73-11 Law on Introduction of Amendments into the Law on Environmental Protection and On Specially Protected Environmental Areas (5-6/05/94) New Laws of the Republic of Uzbekistan. 10th Edition, p.242. (*Biodiversity*)
- Law on Water Pollution. 1999
- Law on Ecology Security (Safety), 2005
- Law on Health Safety and Environment, May 6, 1993 (Occupational Health and Safety) and KMK 301012-2000-Health Safety in Construction.
- SanPin 0172-02; Sanitary rules and norms for protection of groundwater, from all pollution sources and conditions in Uzbekistan
- SanPin 173-04: Sanitary rules and norms for protection of surface waters in the territory of Uzbekistan
- SanPin 120-01: Sanitary Norms of permissible noise levels in workplaces
- SanPin 127-02: Sanitary Regulations for inventory, classification. Storage and disposal of industrial waste.

[5] At present Uzbekistan uses a more reactive, as opposed to preventative, approach to management of environmental impacts of development projects.

- SanPin 141-03: Working condition standards governing the hazards and risks in the workplace, environment and the severity and intensity of the work to be undertaken

15. The Law on Ecological Expertise *(Environmental Assessment)* 25/05/02 No.73-11 addresses Environmental Assessment and by applying the Annex 1 of the Cabinet of Ministers Resolution No 491. 31/12/01, one can establish the category of assessment most suited to a project. Resolution 491 defines four categories of projects and their associated environmental assessment requirements. Category I and II projects require a preliminary EIA (PEIA) defining how and to what extent the required EIA will be conducted, followed by a complete EIA. Category I and II projects are undertaken and evaluated at the central level only and they involve a three stage process

16. The assessment of Category III project PEIAs is under provincial jurisdiction with no central Glavgosekoexpertiza involvement. Category III environmental assessments are also based on three stages but may end with only a PEIA, given that the evaluation and decision by the expert committee is often a reduced assessment requirement. The Category III process is most similar to the ADB`s IEE. Category IV project are exempted from any EIA requirements, other than the submission of a project description and proof of Category IV status.

17. Specific to water sector projects, the following legal environmental requirements shall be complied with:

- Law on Water and Water Use (1993),
- Cabinet of Ministers Resolution No. 385 3/08/93 on Approval of "Temporal Procedure for Limited Water Use in the Republic of Uzbekistan",
- Cabinet of Ministers Resolution No. 174 7/04/92 "Regulation on Water Protection Zones of Water Reservoirs and other Water Basins, Rivers, Trunk Canals and Collectors as well as Sources of Drinking, Household and Spa Water Supply.

18. According to Annex 1 of Resolution 491, and if one considers the Phase II capacity of 60,000 m^3/ day treatment capacity, the WWTP would require completion of all three stages of the RoU environmental assessment process. Given that this project is now limited to 30,000 m^3/day, the Category II process is acceptable and therefore matches the ADB requirement.

19. Sewage treatment plants and related structures must adhere to the following standards:

- KMK (CNR) 2.04.03.97 Sewerage. Outside networks and Structures Tashkent 1997;
- ShNK 4 (CNR) 4.02.04-04 Wells 4 Manual. Tashkent 2005;
- Construction Norms and Regulations (CNR or SNiP) 3.01.01-97 and CNR 3.05.03-97 [related to land protection];
- CNR 2.01.03-96. “Civil Works within the seismic areas; and
- Construction Norms and Regulations 2.01.03-96 and 3.04.02-97. Corrosion protection of buildings to prevent effects of quality of ground water [high alkalinity].

20. Maximum allowable concentrations of major pollutants in wastewater are regulated by Uzbekistan’s Rules of Industrial Wastewater Admission to Urban Sewerage Systems. In parallel with this is the industrial wastewater treatment requirement standard SanPiN No. 0056-96 Sanitary Rules and Norms of Surface Water Protection and Rules for Protection of Surface Water from Wastewater Contamination. The Resolution 11/2012 defining requirements for industries intending to discharge their wastes into WWTPs, is also highly relevant.

21. Sewerage systems designs must comply with Goskompriroda’s RD 118.027.714.24-93: Instruction on Environmental Impact Assessment Procedure during Site Selection,

Development of Feasibility Study and Designs of Economic Facilities and Complexes. The Instruction stipulates, inter alia, that the designs must take into account the outcome of any approved environmental impact assessment.

22. The recent resolution No:14/January 2014 requires the institution such as The Djizzak Regional Water Supply and Sewerage Enterprise (DRWSSE) to have a laboratory facility that enables it to test effluent quality, including tests for toxic materials and heavy metal content. Having a DRWSSE laboratory is an UCSA priority since regular testing will ensure that the new WTTP will operate effectively.

II. DESCRIPTION OF THE PROJECT

A. Type of Project and Category

23. The proposed Project will involve the construction of WWTP and rehabilitation of the existing sewerage networks. The ADB identified this project as a Category B undertaking, meaning the requirement for the preparation of an IEE. The IEE consultant carried out assessment to comply with undertake a rapid environmental assessment and screening (REA) of the WWTP for this Project, and confirmed a similar conclusion that the Project should be categorized as a B project.

B. Need for Project

24. One of the important Millennium Development Goals (MDGs) for Uzbekistan as described in its plan is to provide clean water and sanitation for all. Many of Uzbekistan's health issues are associated with contaminated drinking water and specifically inadequate waste treatment. This is acute in many of the second tier cities such as Djizzak where over 160,000 people now live and less than 40% have indoor sanitary systems where the household is connected to a functioning sewage system. Conditions such as diarrhea, hepatitis, helminths such as hook worm and pinworms, typhus and skin diseases such as scabies continue to plague the public, costing millions of Soum each year.

25. In Djizzak, the WWTP stopped functioning in 2003 and ceased all operations in 2006, thus allowing untreated sewage to discharge into the environment for more than 13 years. The new WWTP and its associated facilities, such as new pumping stations and more sewer connections are urgently needed. The participants at the consultation fully supported this conclusion and they were eager to have the facility in place.

C. Project Details

26. The proposed DSSDP will have three major components: (i) the construction of a new sewage treatment facility and will be called wastewater treatment plant (WWTP) (ii) the rehabilitation of four pumping stations, with one being moved to rural setting, and (iii) the replacement of 17 km and the construction of 46 km of sewage collector mains. This project will include minimal land acquisition and resettlement, because the sewerage networks (reconstruction and construction of existing sewer trunk) and collector pipes will be placed along public roads, therefore minimizing and avoiding land acquisition. The WWTP will be located on 30 ha of low fertility agricultural land, near the old WWTP (Photo 1).

27. Details of the WWTP and pumping station work are:

- Construction of the new mechanical-biological conventional sewage treatment facility (with a design capacity for treating 60,000 m^3/d, but initially build for only 30,000m^3/d, to be location on about 30 ha of rural agricultural land
- Closure of the Kalkhabad pumping station site and construction of a replacement station to a new location in a semi-rural setting >500m removed from any residential

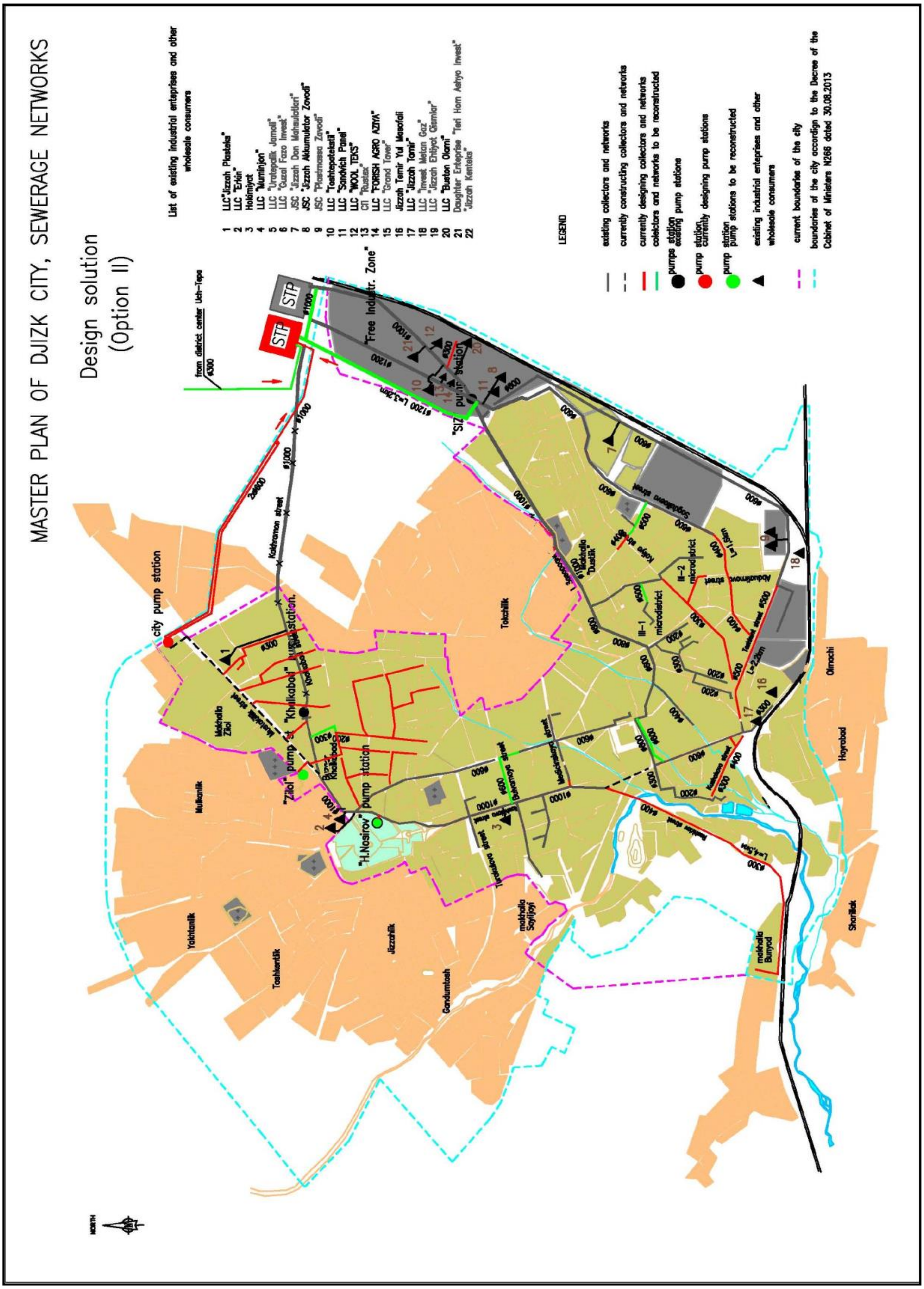
areas. The new station will have a capacity to pump 900 m^3/d of the wastewater to the new treatment plants;

- Reconstruction of the Zilol, H.Nosirov, and Uch-Tepa pumping stations with capacity of 54, 54, and 140 m^3/h, respectively; and,
- Reconstruction of existing sewer pipes with a total length of 16.75 km, from 500-1200mm in diameter and the construction of another 45.77 km of new sewers ranging in diameter between 150 and 1500mm.

28. The components of the work likely triggering environmental problems were identified as the following:

- the construction of the new treatment facility, which will be located about 750 m to the west of the existing derelict plant, and about 1 km away from any residential or commercial structures,
- the clean-up, decommissioning and reconstruction of the Khalkhabad pumping station, and construction at a new site, the repair and upgrading of the Zilol, H.Nosirov and Uch-Tepa pumping stations;
- the laying of over 62.5km of sewer pipes requiring deep trenches to accommodate sewer pipes of varying diameter; and;
- the complete decommissioning of the existing WWTP.

29. The mechanical-biological process WWTP preferred by UCSA (Figure 1), will produce considerable quantities of sludge which will have to be treated. This process will be completed by piping the sludge to a series of sludge ponds. Leachate from the sludge ponds will be collected by a subsurface drainage system and pumped back to the WWTP for a second round of treatment. Then the remaining sludge will need to be disposed of unless it is tested for metals and other toxics, and if found to be acceptable, used as fertilizer on non-consumable agricultural crops such as cotton.



Map 1. Djizzak Wastewater Treatment Facility Layout and location of 21 industries.

30. Given that sewer pipes are traditionally placed at 1.5–1.8m below ground in the middle of streets and along the shoulders, the environmental assessment focused on the impacts associated with construction works such as dust, access restriction, traffic congestion, water quality, and noise monitoring. There is also need for some tree removal and for that a tree inventory and replanting plan will be completed by UCSA, once the corridor details are defined.

31. The construction of the WWTP and related facilities and related sewage works will take two years,[6] with the start of construction scheduled for early 2015.

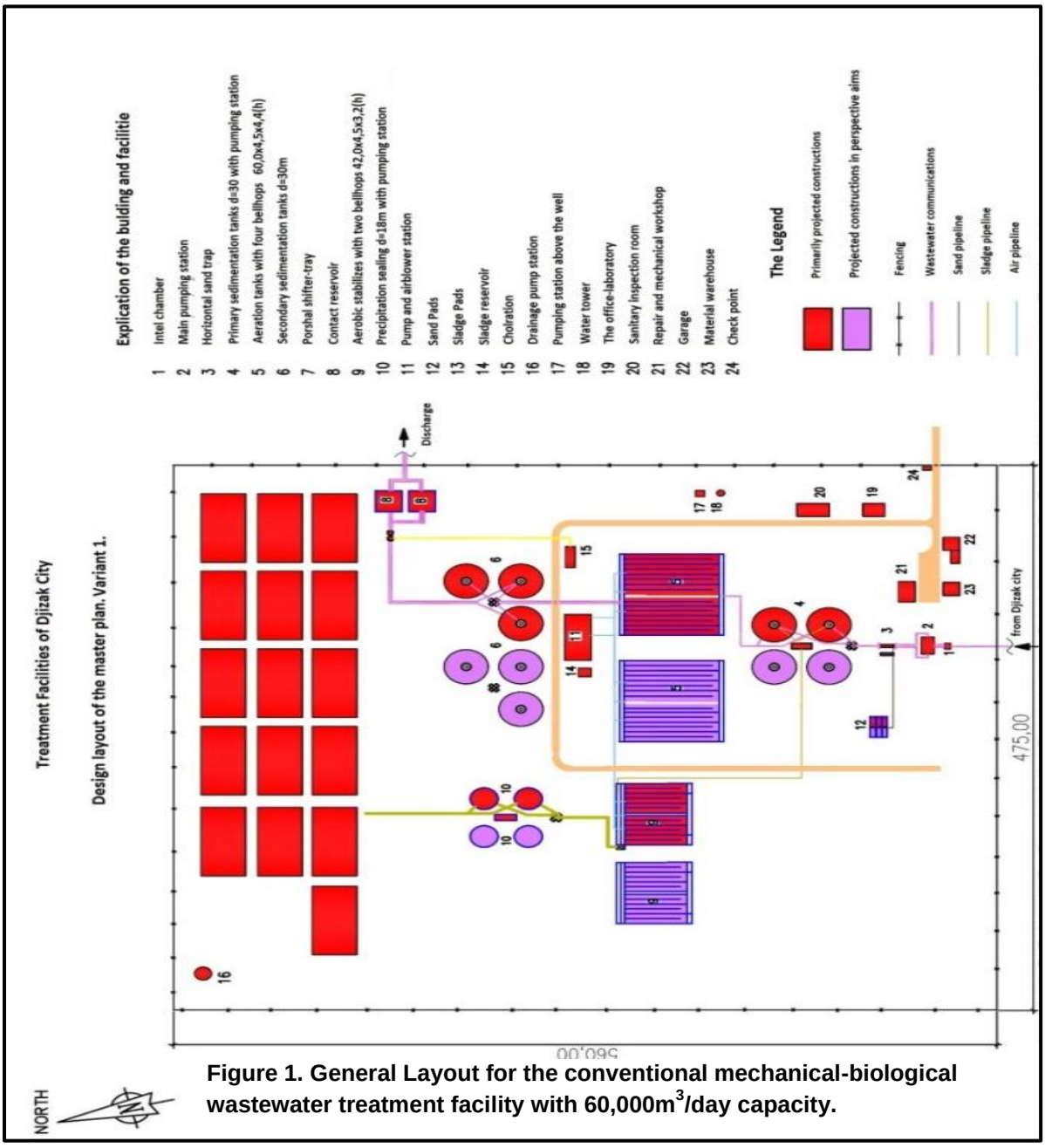


Figure 1. General Layout for the conventional mechanical-biological wastewater treatment facility with 60,000m^3/day capacity.

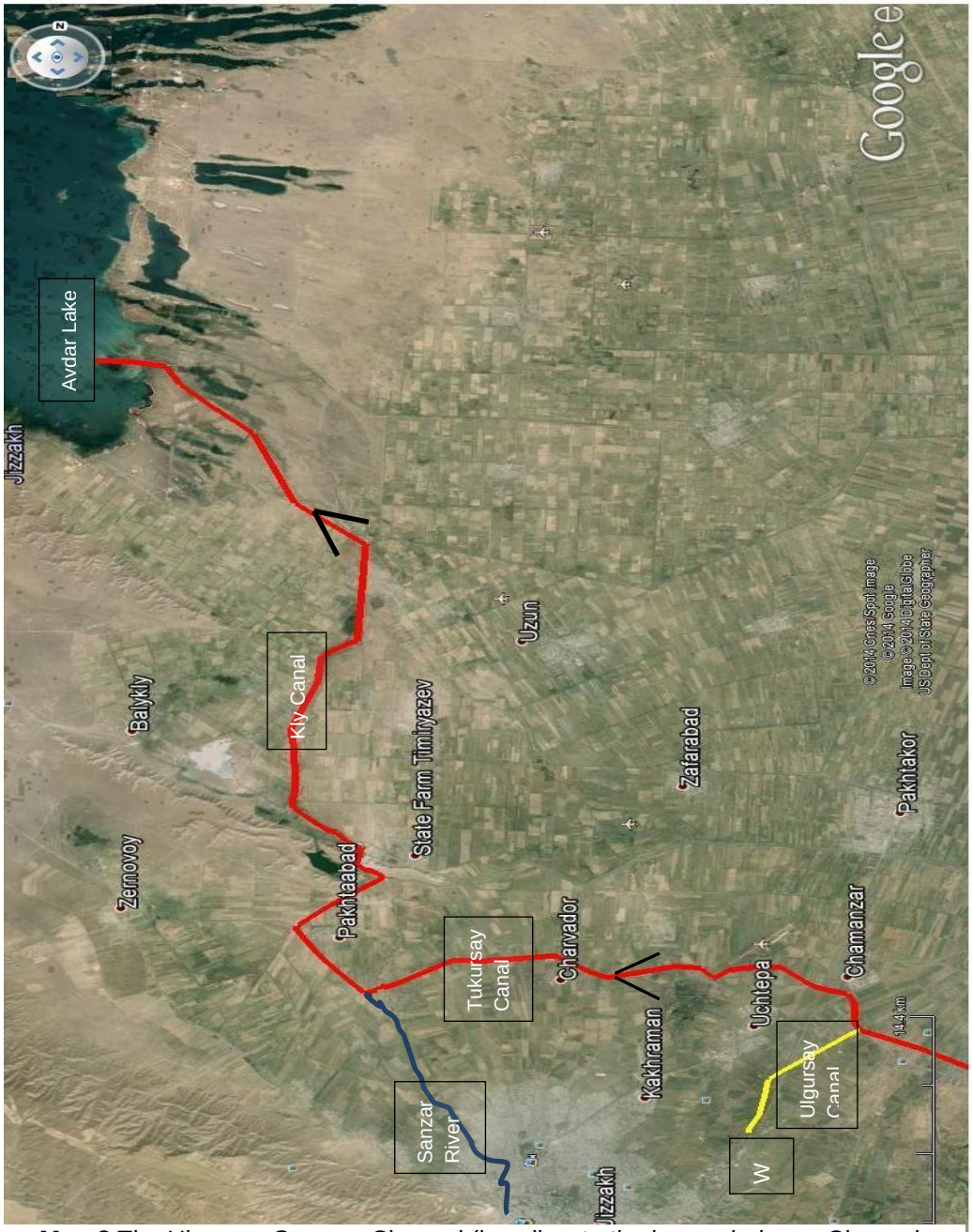
[6] The WWTP has an ultimate design capacity of 60,000m^3/day, but will be built initially to the 30,000 m^3/day processing capacity.

1) The Pumping Stations

32. Of the four pumping station included in the works, three will be fully reconstructed (but not relocated) and the grounds where chronic spills occurred will be cleaned and rehabilitated. The Khalkabad Pumping Station, where chronic and major leak exists will be totally closed and restored. The new pumping station will be constructed in the western outskirt of Djizzak City.

2) The Ulgursay Sewage Canal

33. In 1980, when the existing WWTP was under construction (it opened in 1982), the Ulgursay sewage canal was dug to carry treated WWTP wastewater to the main drainage canal system carrying waste water and surface drainage water to Aydar Lake (Aydarkul), more than 65 km to the northeast. The 6.7km long earthen canal was dug to convey the



Map 2 The Ulgursay Sewage Channel (in yellow to the larger drainage Channel (red line) into Aydar Lake, approximately 67 km to NW.

treated sewage and since around 2006 has been carrying the raw sewage (occasionally chlorinated) to the main drainage canal system (Map 2).

34. This main channel (Kly) carries surface drainage from agricultural fields, many smaller communities, some industrial enterprises and drainage from the shallow aquifer, into Aydar Lake. Ten water quality samples have been taken at varying distances from the WWTP effluent discharge and the test results are discussed in the IEE (Table 4).

35. Key parameters especially heavy metals and oil and grease were not measured.

36. The new Decree No 11 (See Annex 6) stipulates that the WWTP effluent must be tested by the Djizzak, Oqavasuv laboratory on a monthly basis. This monitoring activity is now underway. However, based on an audit of the facility (11-12 April 2014) it does not actually exist, since there is very limited staff, outdated and poorly functioning equipment and, limited technical capacity. Until the new Djizzak sewage company lab is in place. The Djizzak sewerage company will arrange with Goskompriroda`s Special Inspection and Analytical Control Laboratory (SIAK), based on Djizzak, to undertake this sampling[7] for a monthly fee.

3) The Industrial and Commercial Enterprises

37. Beyond the more than 49,000 household discharges, the Djizzak Sewage Treatment facility now receives or will receive effluent from 22 non-residential enterprises, ten of them being commercial facilities such as restaurants, repair shops, and small hotels (Table 1). Then other 11 industries produce effluents which if discharged without pre-treatment would cause the new WWTP system to break down, terminating sewage treatment.

Table 1. Effluent Discharged in m^3/month, by 21 enterprises into the Djizzak WWTP

	Name of enterprise	Activity	Volume of production or services	Dyeing shops	Effluent treatment facilities	Ground-water wells on property
1	"Jizah Pasteks" LLC	Production of cotton yarn and knitted fabric	Processing of 12,000 tons/yr of cotton, production of 8, 500 tons/yr of yarn and 4, 000/tons/yr of knitted fabric.	No	No	Yes
2	LLC "Erkin"	Park	Entertainment park	No	No	Yes
3	"Viloyat Kengashlar Uyi"	Administrative building of deputies of provincial Council	Maintenance of building	No	No	Yes
4	LLC "Muminjon"	Restaurant	Organization of	No	No	Yes
5	LLC “Uratepali Jamoli”	Cafe	Cafe	No	No	No
6	LLC "Guzal Fazo	Restaurant	Restaurant	No	No	
7	JSC "Jizah Don Mahsulot	Purchase of grain in Uzbekistan, processing, sale		No	Only sediment tanks	Yes

[7] It is proposed that, with donor assistance for equipment and technical capacity building, that facility will be operating more or less when the new WWTP is inaugurated.

	Name of enterprise	Activity	Volume of production or services	Dyeing shops	Effluent treatment facilities	Ground-water wells on property
8	JSC "Jizah Akkumulator Zavodi"	Production of car batteries	150,000 nnits/year	No	Treatment facilities by Trimmer	Yes
9	JSC "Plastmassa Zavodi"	Polyethelene films, pipes, plastic products for domestic	Production 1818 tons/year oi polyethylene film, 1684 tons of	No	No	Yes
10	LLC "Jizzah Toshtepa Tekstil"	Production of knitted cloth	1 200 tons/year	Yes	Aeration and settling tanks	Yes
11	LLC "SENDV1C H PANEL"	Production of cotton plates for snadvich-panels based on basalt heat insulation, mineral-cotton and heat	750 000 km^2/year	No	Only sedim ent tanks	Yes
12	LLC "Tayorlovchi WOOL TEKS"	Primary processing of wool		No	Only sedi-	
13	Rustex invest	Production of		No	No	Yes
14	JSC "FORISH AGRO AZIYA"	Storage of fruits		No	No	
15	JSC "Grand Taver"	Hotel		No	No	Yes
16	"Temir Yul Masofasi"	Food and entertainment Service on train		No	No	
17	JSC "Jizzah Tamir"	Supply of components of		No	No	Yes
18	JSC Invest Metan Gaz	LNG Gas filling		No	No	
19	JSC Jizzah Ehtiyot	Spare parts trading		No	No	
20	JSC Buston Olami	Processing seeds of cotton and production of cotton seed	2 800 tons of cotton oil/year	No	Only sediment tanks	Yes
21	Teri Horn Ashyo Invest	Purchase and processing of skin of cattle		No	Only sedime nt tanks-	Yes
22	Jizzah Kenteks	Production of cotton yarn	7 500 tons/year	No	No	Yes

Source: Djizzak City Sewerage Enterprise, Oqavasuv, March 2014. ___= pre-treatment required

38. According to RoU Decree No.11 (2010 and 2012), these industries require pre-treatment; and they are cotton cloth weaving and dying factories (No.1,10,13 & 21), a tannery (No. 21), a lead-acid battery factory (No. 8), a gypsum wallboard manufacturer (No. 11), a raw wool cleaning and sorting plant (No. 12), a plastic bottle factory (No. 9), and a flour mill and edible oil production plant (No. 7 and 20). These industries have been identified by numbers on Map 1, and are mostly near the new WWTP site. Decree No. 11 mandates the sewerage company to collect and test effluent monthly, but with oversight from

Goskompriroda's Djizzak Special Inspection and Analytical Control Laboratory (SIAK). The sewerage company does not have such a facility and SIAK's equipment is old, outdated and not functioning properly (based on site inspection of SIAK 12- 13 April, 2014). Despite that, SIAK continue to conduct sampling and analyses as best as possible albeit intermittently. Decree 11 is therefore not being implemented effectively.

39. **Industrial Effluent Pre-treatment and Quality.** There are 22 commercial and industrial enterprises, scheduled to discharge their wastewater into the new municipal sewage system. According to RoU Decree 11 and its earlier Norms and Rules (No. 0127-2002 and 0128-2002), these industries must not only pre-treat their effluent to meet RoU industrial effluent standards, but must submit effluent quality testing reports to the sewerage company and Djizzak Goskompriroda monthly, have installed gate valves where the effluent enters the municipal sewage works; and which can be closed by the sewerage company. Each industry must also have as flow meter that accurately records the actual volume being discharged.[8]

40. In March 2014, based on a request from UCSA and the sewerage company, the SIAK lab collected samples of the industrial effluent discharges from the 11 facilities of concerned and tested for 14 parameters, but was unable to record flows. The outcome (Table 2) indicated that 4 of the 11 had reported pre-treatment, yet none of this seemed to make much difference. For example, the sediment pond system of the leather processing factory was completely clogged, reflecting the test result showing that 7 of the 13 test parameters did not meet RoU standards.

41. All 11 industries are now discharging untreated non-compliant effluent into sewers connected to the WWTP. The test results show that even the industries with stated pre-treatment facilities, >50% of the test results do not meet RoU standards. These results underscore an urgent need to establish a functioning laboratory and to strengthen the sewerage company function to push the industries to comply with Decree 11 which provides all the necessary legal means to control and manage industrial effluents.

[8] Most industries have constructed tubewells for extracting water beyond what is obtained from the municipal piped water. Therefore, providing discharge volumes based on the piped water intake is not accurate. It is for this reason that meters at the outflow must be installed—as mandated in Decree 11.

Table 2. Quality of effluent for 11 industries planning to discharge wastewater into the new sewage treatment plant

	RoU standard	LLC Jizzah Plasteks	JSC Jizzah Don Mahsulot-lari	JSC Jizzah accumul ator zavodi	JSC Plastmass a Zavodi	Jizzah Toshtepa Tekstil	LLC SENDVIC H PANEL	LLC Tayorlovchi WOOL TEKS	Rustex invest	LLC Buston olami	Teri Hom Ahsyo Invest	Kenteks
ID No. on Map		1	7	8	9	10	11	12	13	20	21	22
pH	6.5-8.5	7.4	7.5	7.8	7.8	7.6	7.3	7.85	7.7	7.7	7.8	7.6
BOD_5 (mgO/L)	11.3-22.6	7.6	8	8	7.4	8	7	8.5	8.2	8.2	8.4	8.2
BOD_{20} (mgO/L)	15-30	8	26	46	54	10	22	46	36	46	45	34
COD (mgO/L)	500	130	320	340	180	140	160	208	320	200	210	316
CL (mg/L)	350	**728**	300	350	380	744.4	280	996	1100	140	1000	1080
SO4 (mg/L)	100	**680**	350	330	300	740	302	360	240	320	380	236
Cr3 (mg/L)	0.5	-	-	-	-	-	-	-	-	-	30	-
PO4 (mg/L)	2.5	1.3	1.7	1.7	1.3	1.5	1.1	1.6	1.5	1.9	1.7	1.4
NO3 (mg/L)	45.0	16	85	56	76	18	25	118	55	65	120	54
NO2 (mg/L)	3.3	0.01	1.9	4.3	1.9	0.00135	0.09	1.8	4.6	2.2	1.9	4.4
NH4 (mg/L)	2.5	50	12	8.5	6.8	54	1.5	9.4	17	8.7	9.5	16
TSS (mg/L)	500	200	430	400	460	230	300	1008	380	420	1100	378
TDS (mg/L)	2000	2800	1600	1800	1400	3006	1560	2380	1200	2020	2400	1196
Pr-Treatment:	Required as per Decree No. 11	None	None	Trimmer pre-treat. system	None	1-yr old Pre-treatment exists but no details	None	None	None	Sedi-mentation tank exists	Settling tanks on site but not main-tained	None

Sample Date	:March , 2014
No. Samples Collected	: To be determined. but based on specific RoU Standard
Sample Collection Agency	:Goskompriroda-Djizzak
Laboratory Name	:Goskompriroda-Djizzak Laboratory (SIAK)

Source: field samples by SIAK, March 2014. Note: 111 = non-compliance with standard

42. To address this gap, UCSA will, during year 1 of construction, request the provincial water and sewerage enterprise to organize a 1-day workshop with the 11 industries defined in Table 2 and review with them Decree 11 and the requirements for reporting, testing, and the installation of gate valves and flow metering systems as defined in detail in the decree and its appendixes.

D. Subproject Layout and Components of the Work

43. The facility and ancillary structures for the WWTP will occupy > 36ha of land, including the oxidation ponds and an access road (Map 1). The treated sewage will be discharged to the Ulgursay drainage ditch, which extends in a north-easterly direction (Photo 1) for about 6.7km, before emptying into a larger drainage channel that extends north-westward past industrial enterprises, agricultural operations, and communities, before emptying in the eastern arm of Aydar Lake, some 60km away (Map 2). En route the volume of water being transported quadruples in volume[9] (based on inspection of 2013 Google satellite imagery).

44. The trunk and collector sewers, pumping stations, manholes, and access point form an arc around the new WWTP extending some 30 km in a mostly urban and semi urban setting. These facilities will require linear corridors from 5 to 20 wide, mostly in the middle or close to the shoulder of existing roads, facilitating sewer connections from roadside dwellings. Four pumping stations will be either fully rehabilitated or relocated and rebuilt (See Map 1).

1) Demolition of Existing Sewage Treatment Plant and Associated Structures

45. The demolition of the existing sewage treatment facility will be undertaken in three stages:

(i) Pre-demolition analysis of standing water and soil material in WWTP sedimentation tanks and soils in immediate vicinity to establish potential hazardous conditions, including a survey or the presence of asbestos (SanPin No.0158-04, 2004) as an insulator of pipes and in the buildings;
(ii) Demolition of all above ground structures using conventional means, and recycling and reuse of all concrete and steel and timber; removed by contracted waste management firms; and,
(iii) Treatment, if needed, and collapsing of all underground (buried) piping and sewers and backfilling with clean materials from around the construction site (once treated old sewers will be left in the ground, unless concerns are raised by Goskompriroda or the local community).

46. The old sedimentation tanks have an estimated 19,313 m^3 (31,800 t) of accumulated water/sludge which needs to be tested and hauled away to a landfill site by truck. In addition the thousands of tons of concrete and metal from the facility will be also hauled by truck.

47. Demolished concrete and other masonry works as well as the metallic waste is not recycled according any specific regulation. Instead, the practice is to announce the demolition and the availability of these materials in a local newspaper at which point people and agencies in need of such material, will very quickly appear and remove everything, at their own cost. The cost to UCSA will be the demolition and securing of the site to permit safe access to concrete and steel waste haulers, as well as the cleaning up of the underground sewer system and finally the landscaping of the old site.

[9] Water quality analyses completed at the WWTP discharge point and where the water enters Arday Lake are provided in Chapter 3(A) of this IEE. No other data are available

48. There is no plan to disturb the existing 12 sludge ponds (Photo 1) unless this is required by Goskompriroda. The ponds located along the east bank of the Ulgursay Canal, are now well stabilized with grassed cover (Photo 2) The new WWTP will include new sludge ponds.

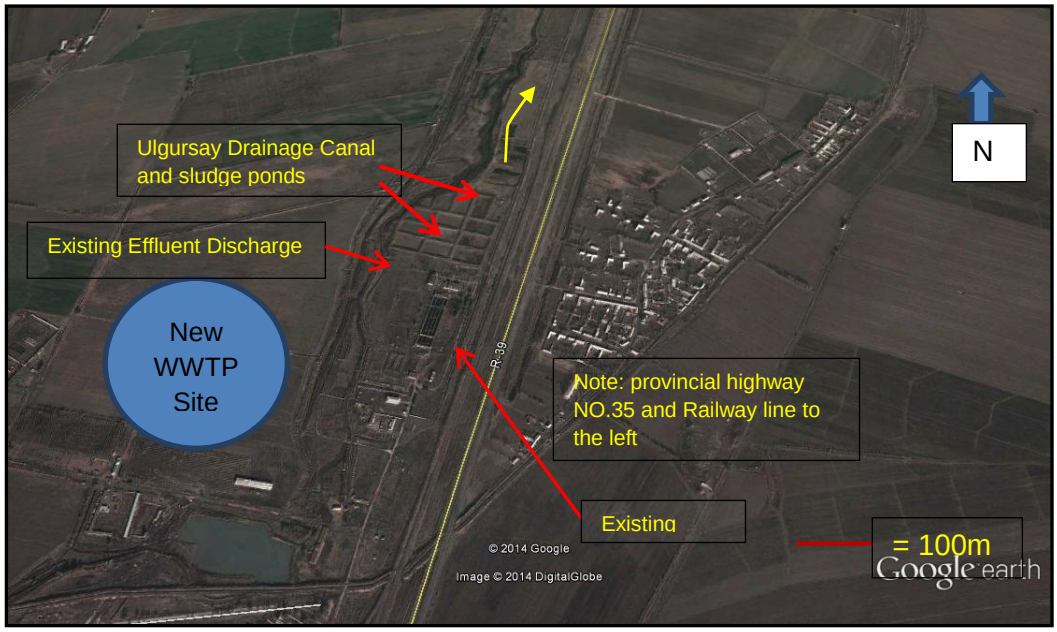


Photo 1. Aerial Photo showing existing WWTP, discharge canal, and site for new plant.

Photo 2. Existing and abandoned WWTP Sludge Pond

III. DESCRIPTION OF THE ENVIRONMENT

A. Physical Resources

1) Geography and Climate

49. Djizzak province is located in the central part of Uzbekistan between the Sirdarya and Zeravshan rivers, occupying 21,200 km^2, much of it semi-desert, converted to dry land agriculture land use. It borders with the Republic of Kazakhstan in the North and Sirdarya province in the South-East and the Republic of Tajikistan Navoi and Samarkand provinces in the West.

50. The climate of Djizzak city is continental with cold winter and hot summer. Average annual temperature is $+13^o$ C, with summer averages exceeding 40^o C. The level of rainfall is low, up to 200 mm. per year. Average annual relative humidity is ≤30 %.

51. In the area of Djizzak city, westerly, northern and north-west winds coming from Tamerlan Gates[10] prevail. Average annual wind speed is 2.5 - 6 m/sec.

52. Cold air entering from northern part of the province causes sharp fluctuations in temperature. Frosts occur even in late spring, and damages fruit trees and crops. Level of precipitation is law (200 - 400 mm/year). Seismic zoning of the province territory belongs to the 7-seismic magnitude zone (The zones range from 1 to 9 with 9 being the worst).

2) Air Quality and Noise

53. **Air Quality**. To obtain ambient air quality data for Djizzak, all known sources were contacted and Uzhydromet responded by indicating that the agency monitors 25 industrial cities across the country and since Djizzak was not an industrial city it was not included. Uzhydromet suggested that the best surrogate would be Samarkand, the closest city for which there are data. These data are also marginal and none of the standard parameters such as PM10, PM2.5, CO or volatile organic compounds (VOC) were monitored. The data (Table 3) provided were for the Djizzak areas and showed that most of the pollutants tested were within permissible standards.

Table 3. Average annual concentration of pollutants in atmospheric air of the Djizzak Area

Parameter	2008	2009	2010	2011	Permitted Concentrations (daily average)
Ammonia (mg/m^3)	0.06	0.06	0.04	0.04	0.12
Nitrogen dioxide (mg/m^3)	0.18	0.18	0.18	0. 18	0.06
Sulphur dioxide (mg/m^3)	0.02	0.02	0.02	0.02	0.02
Phenol (ug/m^3)*	4.9	4.9	2.1	7.1	7.0
Anhydrous hydrogen fluoride (ug/m^3)*	3.2	3.2	3.2	3.2	8.0

Source Uzhydromet, Tashkent Database, * Units normally defined as micrograms/m^3 or ug/m^3

54. Since this project will have no significant effect on air quality, the baseline data do not need to be extensive. During construction a few pieces of heavy equipment and trucks will be used to carry out the work. The decommissioning of the old WWTP will generate some dust but with manual dismantling and dust control along the haul road in and out of the site, these temporary problems should be well controlled.

[10] The Tamerlan Gate" is a narrow gorge in mountains located at the south-western entrance to Djizzak city where highways and railways pass through

55. **Noise.** Djizzak has no noise monitoring program and therefore a short sampling program was completed in and around the existing WWTP and near the highway separating the WWTP and the closest settlement. The daily average at the location where the effluent discharges into the Ulgursay canal was reported as 30dBA. This is technically impossible given that quite rural farmland has an average sound level of 42dBA. A reassessment of these data using information from the literature on rural unoccupied land suggested a level of 44 dBA.

56. Midway between the existing WWTP and the highway to the East, the noise level decreased, again not to the level reported by the DCWSSC survey team but rather by a few dBA to around 40 dBA. However, at the side of the highway, closest to the WWTP, or roughly 250 m from the WWTP a reading of 60 dBA was recorded. The combination of road and railroad creates a somewhat noisy condition along the eastern border of the project area.

57. Noise level in and around sewerage treatment plant area (around 1 km radius), according to Djizzak Provincial Health Department in April 2014 averages around 50 dBA, well within the national standards in Uzbekistan which is 65-70 dBA in the day and 50 dBA at night (KMK 12.01.08-96)

3) Topography, Geology, Soils and Hydrology

58. Aside from the mountains on its eastern border, Djizzak province is a semi desert dryland, much of it in the Arnasy Depression, a flat expanse, which through vast irrigation has become an important dryland agriculture area. The eastern mountains are snow-capped and provide much of the local water in many small streams which, as soon as they reach lower elevation, are diverted for irrigation purposes.

59. Geomorphologic structure of these soils is loess (red)-like loam, interspersed with lenses of sand and gravel from 2 to 40 m thick. Water-saturated pebblestone is found in deeper layers and the soils are subject to subsidence.

60. Shallow aquifer groundwater is located at 3 -5 m depths in a few areas, but more often at depths of 10-20 m. Ground water is recharged by infiltration from irrigation waters and precipitation. Groundwater has high TDS levels and is saline making it unfit for use on concrete production or for safe consumption[11].

61. The hydrology of Djizzak is dominated by the network of built canals and collectors which carry water diverted from all mountain runoff waters, as well as effluent discharged from WWTP, industries and general surface runoff from precipitation. This system of artificial canals has reshaped the provinces surface hydrology, resulting in the formation of the Aydarkul, located along the northern border of the province.

4) Surface Water

62. The main sources of surface waters of Djizzak province are the Sanzar and Zaaminsu Rivers. The Sanzar River is the largest in Djizzak province and flows from Chumkurtau Mountains at 3300 meters for 123 km at which point it has been diverted into the Kly Canal. It has a catchment area of 2,600 km^2, and is fed by snow melt and has an average annual water flow of 6.9 m^3/sec.

63. In Djizzak City the river turns northward and as it passes Kly Village it is diverted into the Kly Canal, much of it being used for irrigation. The Kly is also a collector for wastewater and ends up discharging its flow into the Aydar Lake (Map 2).

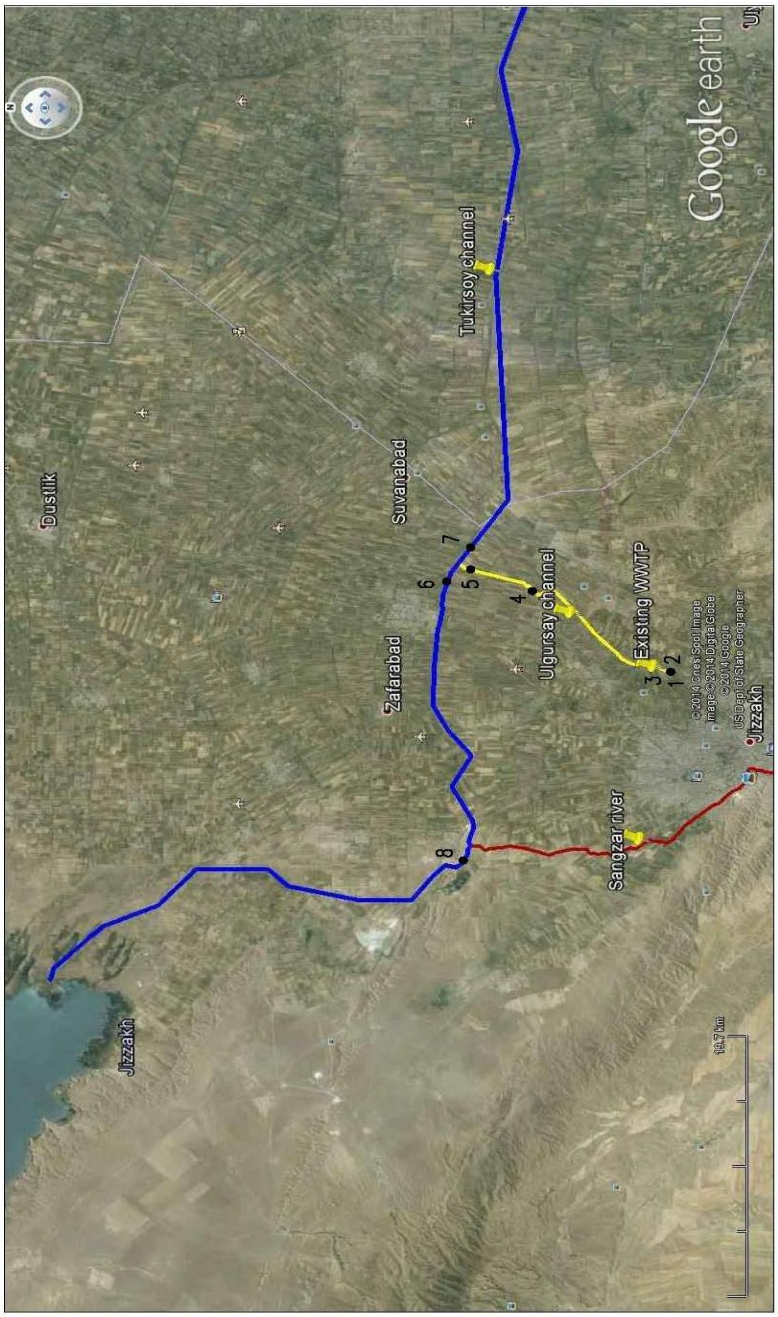
[11] Djizzak has an above average incidence of both kidney stones and gallstones, both associated with highly mineralized drinking water (RoU Health Ministry statistics, 2014)

64. The Zaaminsu River is the second largest river of the province, but since it is totally outside the potential influence zone of the project, is not addressed further in this IEE.

65. Much of Djizzak province was a semi desert and salt pan area, converted to agricultural production of mainly cotton and wheat, via a massive irrigation system developed during the Soviet era.

66. The highly saline Aydar Lake exists due to collector-drainage waters as well as discharge of excess water of Chardara water reservoir. Despite being a manufactured, the lakes averages 28 km wide and when there is water, 160 km long and averaging 12.5 m deep. Between 2006 and 2011, the mineralization (alkalinity) of Aydar Lake doubled, increasing from 1 to 2 g/l.

67. In March and again in April 2014 a set of water samples were taken from the area's rivers and canals (Map 2) to establish an indication of existing conditions. Ten stations were established and tests were performed for 15 parameters (Table 4).



Map 3. Location of Water Quality Stations shown in Table 4.

Table 4. Surface water quality at the WWTP, the Ulgursay canal and six other stations

Sample Site No.	Description of Location	Date	pH	Dissolved Oxygen	COD	BOD5	Total Suspended Sediment	Mineralization	Ammonium ions	Nitrites	Nitrates	Chlorides	Sulphates	Water alkalinity	Chromium (Cr^3) March 2014	Iron	Phosphates
1	WWTP-Influent	24/04/2014	9.3		960	37.8	780	2500	20	0.5	45	402.5	451.2	12		0.01	17
2	Aeration Tank location within WWTP	24/04/2014	8.4		920	32	600	2000	16	0.4	44	333.1	400	11.2		0	17
3	WWTP-discharge into Ulgursay	24/04/2014	9.4		800	36	760	2100	14	0.38	45	384.6	440	11.2	0.002	0.02	15
4	Ulgursay Canal 3.5km d/s	24/04/2014	8.5		600	40.6	820	2600	22	0.1	45	194.3	470.4	12		0.05	22
5	Ulgursay Canal 5km d/s	24/04/2014	9.9		240	30.6	300	2000	20	0.05	44	333.12	470	9.6		0.01	6
6	UlgursayCanal at point of discharge into Buston Collector	24/04/2014	9		320	32	280	2200	16.5	0.05	44	444.1	590	10		0	1.25
7	Collector Buston	24/04/2014	8.4		720	36	100	2600	1.6	0.04	39.4	749.5	624	8		0	0
8	Tukursay Canal	24/04/2014	7.8		400	22	100	1300	0.4	0.04	38	124	600	8.8		0	0
9	Sanzar River Where it discharges to Kly Canal in Djizzak City	Mar-14	7.1	3.6	10	2.6	13	470	0.28	0.003	3.4	74					0.11
10	Kly Collector Canal as it discharges to Aydar Lake	Mar-14	7.2	3.8	12	2.8	14	508	0.32	0.004	3.6	78					0.14
National standard			**6.5-8.5**	**>4**	**100**	**25**	**70**	**1500**	**10**	**0.2**	**10**	**250**	**600**	**NA**	**0.0**	**2.5**	**4**

Measurements exceeding the RoU Standard = Note: Oqavasuv reported that sewage effluent quality data for at least 20 years, starting for 2007 and earlier, were available. On further investigation Oqavasuv reported that these data has been lost and thus were not available.

68. The results suggest that the canals are badly contaminated with nearly every one of the pollutants tested exceeding national standard, in some cases by as much as six times. The two March 2014 samples appear to show much better conditions and are likely not reliable, since stations 1 to 8 all discharge into the Kly collector, therefore making the exceedingly clean conditions reported for the Kly Collector as it enters Aydar Lake unlikely.

69. As an indication of the state of surface water quality and the high benefit of this project, data on chemical and bacterial conditions of selected water bodies across the country used for drinking purposes were collected and graphed. The first graph plots the percentage of potable water sources across 15 provinces between 2007 and 2011 where the national drinking water standards are not met (Figure 2). In that regard Djizzak is one of the best with less than 5% of the water being unfit to drink.

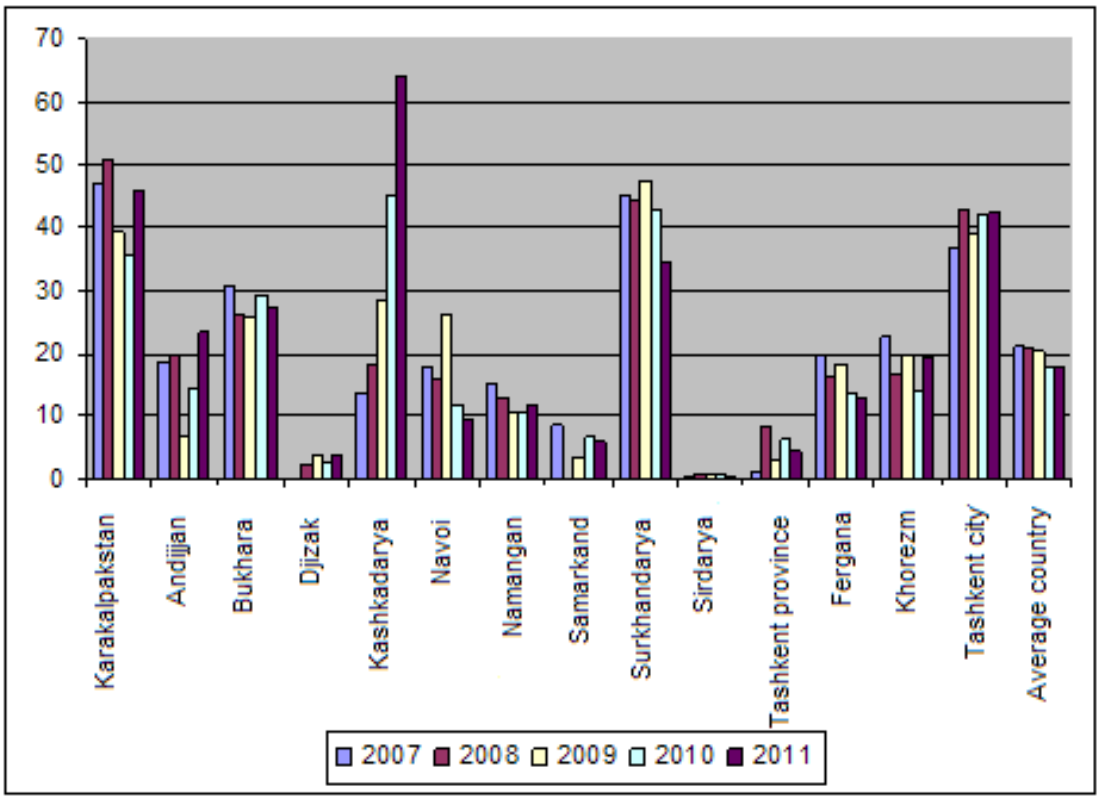


Figure 2. Percentage of potable water supplies not meeting national quality standards

Source: National Report on Environment and Use of Natural Resources in Uzbekistan», State Nature Protection Committee of Uzbekistan, Tashkent: Chinor ENK, 2013.

70. The second graphic (Figure 3) shows the percentage of the same water supplies and the percentage with e-coli[12] contamination, requiring treatment before the water is rendered potable. In this regards Djizzak appears to fare well as only around 10% of the drinking water supplies are excessively contaminated with e-coli.

[12] Escherichia coli, the species of bacteria commonly referred to as ecoli or E. coli

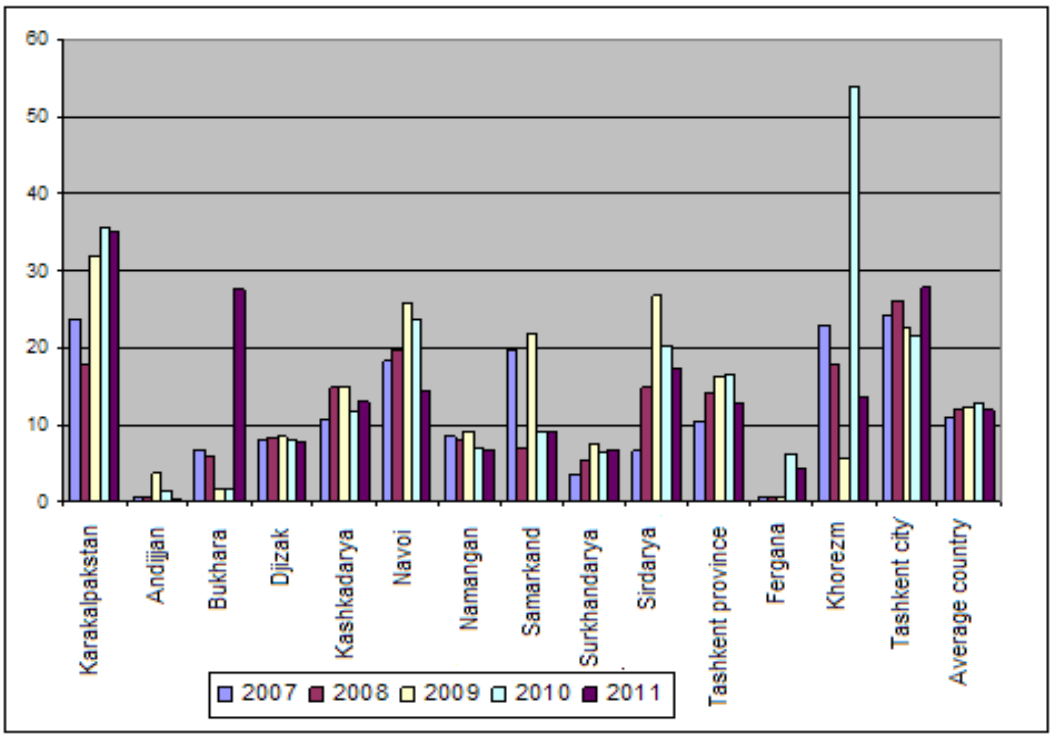


Figure 3. Percentage of potable water supplies with excessive e-coli levels.

Source: National Report on Environment and Use of Natural Resources in Uzbekistan», State Nature Protection Committee of Uzbekistan, Tashkent: Chinor ENK, 2013

5) Groundwater

71. Water for Djizzak province and specifically Djizzak city is supplied from ground water sources located along the Sanzar and Zaamin Rivers as well as some springs. In 2011, total volume extracted was 57.7 million m^3. Ground water aquifers are recharged via precipitation infiltration, mountain runoff, and irrigation channel infiltration. This latter source is of concern since heavily polluted waters are often discharged into these irrigation/drainage canals, as for example the Ulgursay canal which has been discharging untreated sewage into the collectors (Map 2) since 2006. The main sources of groundwater pollution in Djizzak are public utilities, agricultural production practices, industrial plants, and poorly functioning wastewater treatment plants (National Report on Environment and Use of Natural Resources in Uzbekistan. Tashkent, Chinor ENK, 2013).

72. Due to the diversion of the Sanzar River's water (Map 2) for irrigation, the downstream wells now suffer. Water levels are decreasing and hardness of the water increases markedly affecting the taste and potability. In some of ground water wells (Promzona, Kurgan, Saribazar, Uch-Tepa, Sanzarselskiy, and Devon areas) mineralization (total alkalinity) level from 1150 to 2050 mg/L, and hardness level of 8.0 to -18.6 mg-equivalent/L (Table 5) have been recorded. These levels render water unsafe to drink, and if consumed, may lead to kidney and gallstones.

73. Water intakes in Djizzak city are of good quality and fit for human consumption with proper treatment.

Table 5 . Groundwater Quality in Djizzak City Promzona

Parameter	Unit of Measure	National Standard for Groundwater	Ground water (in industrial zone)
Temperature of water	^{o}C	18	17
Smell	Scale: 0=best & 5=worst	2	0
Black Smoke	Scale: same	2	0
Color of water	Scale: same	20-25	0
Turbidity	Point	1,5-2	0
pH	mg/L	6-9	6,8
Ammonium nitrogen	mg/L	0	0
Nitrite	mg/L	3	0
Nitrate	mg/L	45	45
Total hardness (Calcium Cations, Ca and Mg)	mg-eqv/L	7-10	10
BOD5	mg/L	2.0-2.5	1.28
Sulphates	mg/L	400-500	160.8
Chlorides	mg/L	250-350	35
Dry residual (concentration of calcium cations, Ca and Mg)	mg/L	1000-1500	720
Calcium	mg-equiv/L	-	4.5
Magnesium	mg-equiv/L	-	5.5
Alkalinity ($CaCO_3$)	mg/L	-	5.2
Residual chlorine	mg/L	1.5	0.6
Iron	mg/L	0.3-1	0.1
Copper	mg/L	1	0

Source: Data of Djizzak City Suvoqova; Promzona is 3.5 km from Djizzak City wastewater treatment facility.

6) Ecological Resources

74. **Flora and Fauna -** Uzbekistan pays great attention to biodiversity and its maintenance. Among the first conventions to which the Republic joined is the Convention on Biological Diversity (1995). Convention "On Conservation of Migratory Species of Wild Animals" (1998), the Convention on Wetlands of International Importance especially as Waterfowl Habitats (2001). In Djizzak province there is Zaamin Mountain-Juniper State Nature Reserve and Zaamin National Natural Park which are located in the northern part of Turkestan mountain range. These protected areas are 1760-3500 meters above sea are the habitat for the white-clawed bear, bearded vulture, black stork, but are located 55 km from the subproject area. There is no special biodiversity protection zones within the agricultural lands allocated for new construction or along the sewer alignment.

75. **Critical Habitat: Environmentally Sensitive Areas, Rare and Endangered Flora and Fauna and Protected Areas -** The project area does not contain any of these features. For many kilometres around the WWTP and along the sewer collectors, the area is urban landscape with buildings, roads and road shoulders (the WWTP site is in a rural setting, in a cotton field). Along the shore of the Ulgursay sewage effluent canal there are mostly agricultural agro-industrial and small farming enterprises.

7) The Pumping Stations

76. The three pumping stations to be either fully rehabilitated or in the case of Khalkabad, moved to a site 500m from any habitation, have chronic and serious leakage problems, going on for years. This has resulted in untreated sewage leaking into local curb side drainage ditches and flooding onto lawns and into open urban spaces for hundreds of meters downstream of the stations. The Khalkabad station actually had a fountain of sewage

spraying onto the road and flooding the local area. In other words all three sites are badly contaminated, and contaminating the local communities with raw sewage. In addition to reconstruction a major rehabilitation effort and clean-up of the drainage areas downstream of all pumping stations will be completed. Drainage ditches and areas where sewage flooded the land will be cleaned and sanitized of sewage waste and the area fully re-landscaped making it safe for public use.

A. Economic Development

77. Djizzak city was founded in 1926, and is the administrative centre of the province. The municipality covers about 9,640 ha of land. Its existing population is around 163,000 and has a growth rate of about 1.5% per year.

78. Within the last 3-5 years its dominant agricultural base is being slowly matched by industries, such as weaving facilities, utilizing the locally grown cotton and wool to make raw as well as dyed fabric. In other words, other industries are being established to process the raw materials produced in the province. The government has designated Djizzak as an economic growth centre for the country and as such conditions will continue to improve.

1) Agricultural and Mineral Development

79. The project area is mostly in an urban setting and as such there is no appreciable agricultural or mineral development affected by the project. The 36 ha[13] of land required for the new WWTP are located in a fallow cotton field, which will be purchased for the construction of the facility. The relocated pumping station is in an open area in Djizzak's urban fringe and while there are goats grazing at this site now, it is being rapidly transformed to urban space.

2) Transportation (road, rail air)

80. Djizzak's road transportation system boasts a set of paved main streets and unpaved secondary streets throughout the city. While this is not very satisfactory for local residents it will make the job of place of sewers and rehabilitation of roads much easier. The city has informed UCSA, that those streets where main collectors will be placed and which are not already paved will be asphalted as part of the city's urban improvement scheme. Djizzak also has a modern train station and freight terminal, linking it with services in larger centres across the country. The nearest airport is Samarkand.

3) Power Sources and Transmission

81. The city is supplied by power from the national grid provided mostly by the Sirdarya Hydropower Station, with supplies 1/3rd of the country's power. Plans are for a new 150 MW diesel fuelled plant in the Djizzak area. By 2017 the demand by industry will be 128 kwh/person and 136 kwh/person for households. The province has a number of high voltage transmission lines as well as large substations. As the industrial sector grows, encouraged by both the national and provincial government, so will the demand for power.

4) Industries and Employment

82. Djizzak is rapidly expanding its industrial base, witness the 22 relatively new industrial enterprises (Table 1) the new WWTP will need to service. Employment rate among the employable is around 14.5%, a rather low figure. At present income is lower than the national average, and 63.5% of the population have an income of around 144,000 USZ per month, which is considered Uzbekistan`s poverty income level. With the rapid expansion of

[13] The final area has not been finalized and as such this number may not be the same as reported elsewhere.

industries these figures will improve so long as the government provide adequate capacity building; since otherwise businesses will have to bring in outside skilled labour.

B. Social, Cultural Development and Quality of Life Values

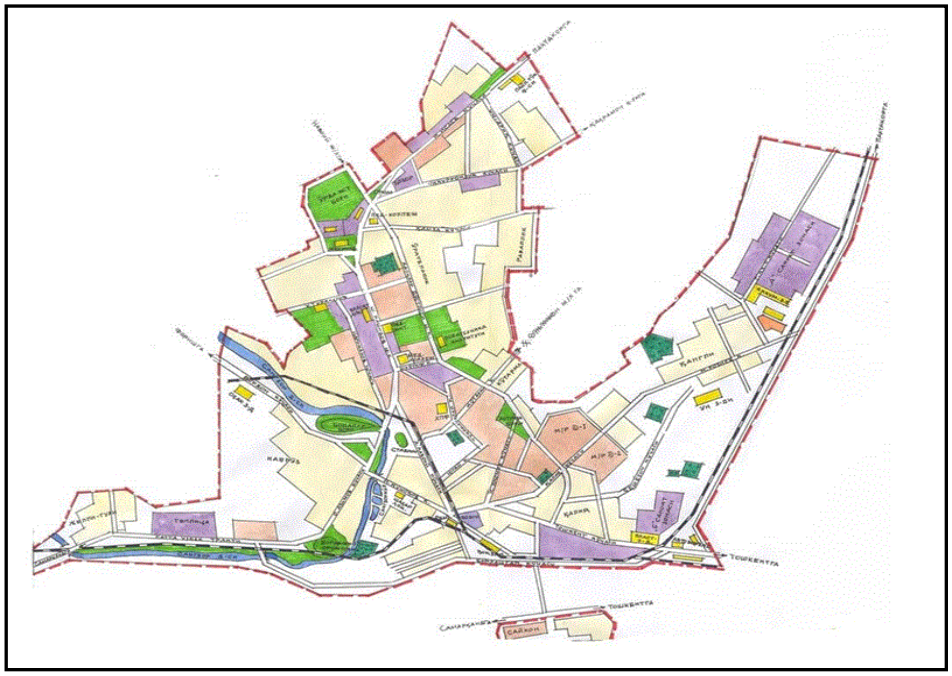
1) Socioeconomic Profile

83. Djizzak region is located in central Uzbekistan between the Sirdarya and Zarafshan rivers, about 200 km from Tashkent. It has an area of 21,200 km^2, 4.8% of the country's total area, and an arable area of 1.3 million ha. Regional population exceeded 1.2 million people in 2012 with a population density of 56.8 people per km^2. The region comprises 12 administrative districts, 6 cities, 8 urban-type settlements and 100 rural community assemblies (villages). 47.7% of the regional population lives in urban areas. The average age of the population was 26.4 years (2011).

84. There are two tertiary educational institutions, 75 vocational colleges, 4 academic lyceums, 553 secondary schools (including specialized), 166 kindergartens, and 39 non-school educational institutions in the region. Health infrastructure in the region includes 63 hospitals (including 14 private ones), 272 polyclinics, 14 resorts, 124/174 rural medical centres, and 139 first-aid/ambulance units.

85. Djizzak city (Map 4) is the administrative centre of Djizzak region with a population of 162,500. It is expected that the city population of Djizzak city in 2020 will reach 169,800 (+12.8 %) and 236,000 by 2030. The total area of the city is 9640 ha. Of them, 3,517 ha are agricultural lands, 1,333 ha are occupied by houses (13.8%), and 233 ha by municipal buildings and roads. Within the territory of the city, a Specialized Industrial Zone (SIZ), "Djizzak", was created in March 2013. The land area reserved for the SIZ is 244 ha. About 87.8% of the city population is Uzbek. The other major ethnic groups include Russians (3.9%), Tajiks (1.7%) and others (6.6%). The city is divided into 35 urban mahallas (Figure 1). There are 2,560 small business enterprises in the city, including 38 farms with average areas of 38 ha, 10 industrial enterprises, and 32 joint-venture enterprises. The social infrastructure includes 26 kindergartens, 30 schools (including two specialized), 2 musical schools, 9 vocational colleges, 3 academic lyceums, and 2 universities. There are 22 clinics in the city.

Map 4. Mahallas of the Djizzak city (as of 2012).



86. According to Djizzak City's sewerage C-Tmpany, the coverage of the city population with centralized water supply is 94%, and with sewerage services 23.6% (35% in Uch-Tepa settlement). 12,781 households with 38,359 people are served in Djizzak city, and 4,235 people in Uch-Tepa settlement. 68% of the current volume treated by the city is residential, 18.1% from the government organizations, and 13.9% from other users.

2) Standard of Living and Community Health

87. Djizzak is a middle to low income community, based on RoU data, Poverty in the subproject area is due to factors such as a lack of employment opportunities and inadequate provision of water supply and sanitation services. Positive impacts from the Djizzak subproject are likely to include improvement in the quality of life, time-saving and reduced workload particularly for women, improved household and personal hygiene, and improved health status of adults and children particularly through a reduction in the incidence of infectious diseases.

88. Public health is the most important factor in the socio-economic development of the state and society. It is generally accepted that human health is determined by three main factors: genetics, quality of living and environmental factors. Therefore, the health indicators, the epidemiological situation, changing patterns of disease are directly dependent on condition of the environment. The national situation is improving (Table 6) while conditions in Djizzak are not as good (Table 7).

89. Dysentery incidence in three provinces of the country varies between 64 and 228 people per 100 000 people according to the Ministry of Health of Uzbekistan (Table 6).

Table 6. Number of acute dysentery cases per 100000 people

Provinces	2006	2007	2008	2009
Djizzak province	124.8	79.0	136.3	79.0
Samarkand province	100.9	64.0	100.4	64.0
Sirdarya province	220.0	182.4	227.6	182.4
Total the country	133.9	120.8	122.2	80.7

Source: Statistics Yearbook, State Statistics Committee of Uzbekistan, Tashkent 2013.

Table 7. Water-Quality related disease incidence in Djizzak city (No. / 100,000 people).

Disease	2009	2010	2011	2012	2013
Gallstone	270	284	264	283	300
Urolithiasis (Kidney Stones)	119	116	128	134	141
Viral hepatitis	128	120	123	152	468
Acute intestinal infections	209	199	200	223	453

Source: Data of State Epidemiological Surveillance of Djizzak province and Djizzak city health department.

90. Data for the period 2009-2013 on the incidence of four other water-borne diseases were obtained from the Djizzak Health Department and suggest a steady rise in incidences (Table 7), underscoring the urgency of better water treatment. The rise in gallstones and urolithiasis is more associated with highly mineralized water and therefore speak to the importance of the other tranches (potable water treatment) of the overall project.

91. Goskompriroda reported that in 2013 in Djizzak Province 12% of potable water tests (likely an under estimate) did not meet nation standards due to bacterial contamination (National Report on Environment and Use of Natural Resources in Uzbekistan, State Nature Protection Committee of Uzbekistan, Tashkent: Chinor ENK, 2013)

92. Condition of sewage treatment facilities, networks and collectors in Djizzak city is particularly worrisome (Table 8) because of possible negative impact on ecological and epidemiological situation of the city and region. Operated equipment is outdated, wastewater treatment plants do not function, and untreated waste waters are discharged directly to channel such as the Ulgursay. Goskompriroda reports that the provision of sewage treatment is far below the need. There are no facilities for additional treatment of wastewater and sludge, leading to not just water but agricultural soil contamination.

Table 8. Effluent discharged into sewerage treatment plants and treatment efficiency

Province	Years and '000.m^3/day			Average treatment efficiency of treatment facility, %
	2008	2010	2011	
Djizzak	7.2	7.1	7.2	33
Samarkand	121.7	56.3	121.7	61
Sirdarya	13.5	18.9	13.5	8

Source: National Report on Environment and Use of Natural Resources in Uzbekistan, State Nature Protection Committee of Uzbekistan, Tashkent: Chinor ENK, 2013

C. Human Settlement in the RoW

93. At the time of preparation of this IEE, the LARP had not been undertaken and as such no data are available. However, permanent acquisition of around 30 ha of land will be needed to construction of new Wastewater Treatment Plant and reconstruction of sewer network and construction one new pumping station. Additional temporary t land acquisition may be required during construction and reconstruction of 45.8 km of sewerage collectors (and most probably additional 16.7km existing collector) and establishment of associated sanitary corridor. Whether permanent or temporary, land acquisition will be required in association with reconstruction and construction of project component for DSSDP.

94. There will be no loss of dwellings and shelters given that the Wastewater Treatment Plant site, including the alignment for the access road, is in an open and cultivated field. Some residential land may be temporarily affected during the construction of new sewage collectors (see Section IV [H]-3).

D. Archaeological and Historical Features and Sites

95. Based on discussions with the Djizzak Sewerage company and the Administration's office, there are no archaeological sites or historical or culturally important features or sites within a 1 km radius of the WWTP and within 200 m (centred over the alignment) of any of the sewer construction corridors. The city does have important sites, about 10 km from the project affected areas, in the northern part of the eastern planning area at the site of a former fortress "Urda". It is a memorial complex dedicated to victims of Djizzak uprising. The other site is located in the industrial area "B" which is a hilly area called "Kaliya Tepa".

IV. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

96. This subproject will have a large positive impact on Djizzak, bringing sanitary sewage services to many thousands of families, and business enterprises. Some temporary impacts associated with construction works will occur. To deal with those impacts, the most important mitigation measures are proposed, and described in the environmental management plan (EMP) section. The EMP is provided in detail in Annex 3.

A. Preconstruction Period

97. The activities during pre-construction stage will play important role in avoiding and minimizing impacts during construction and operation of this proposed WWTP. The most important activities during pre-construction stage are: (i) finalizing the design of WTTP by taking into account potential impacts during construction and operations; (ii) procurement of civil works by incorporating all requirement to implement mitigation measures in the contract document for supervision construction management consultants (PDC)/engineer, and contractor; and (iii) establishment of institutional arrangement by having qualified environment specialist in the sewerage company, and Executing Agency in this case is UCSA with its Project Management Unit to ensure that mitigation measures are implemented. UCSA and its PMU need to fully understand their responsibility during pre-construction period, since it is during this phase that future impacts can be prevented and associated costs avoided. If the PDC is brought into the project early, the preconstruction tasks could be undertaken jointly by the PMU and the PDC.

98. **Finalizing the detail design**. The EMP lists nine preconstruction mitigation and monitoring actions. Land will be required for the new plant (for about 30 ha) as well as for the installation of new sewer mains, collectors, and pumping stations (for about 6 ha). The construction will temporarily damage urban streets, require removal of trees, and generally disrupt living conditions. The incorporation of sensitive construction planning as defined in the EMP into detail design will help to avoid and minimize negative effects that often plague WWT system installations. The detail design needs to incorporate the mitigation measures for following impacts:

(i) **Traffic congestion.** *(EMP No. 1.6)* Major road disruption will take place during the installation of many kilometers of sewer mains and collectors, placed mostly in or near the center of project roads. This will require major diversions or even road closures. To avoid severe traffic congestion and disruption of commerce, a traffic management plan will need to be prepared with the cooperation of the police, and passed to the contractor for modification, and then implementation.

(ii) **Excessive Cutting of Trees**. *(EMP No. 1.8)* Most collector sewers will be replaced or newly installed will be buried along road shoulders, which have many mature trees. Therefore, a careful tree inventory (some of this has already been completed as part of the Resettlement Plan work) and cutting plan will be required in order to keep to an absolute minimum the removal of trees., Mature trees vital for shade, given that summer daytime temperatures in Djizzak can rise to over 40^{o}C and trees can reduce this heat by as much as 10^{o}C. The cutting plan will be accompanied with a replanting program, with input from local residents and district forest departments, concerning replacement species (if the trees cut cannot be replaced with the same species); and,

(iii) **Local Community Access Blockage.** *(EMP No. 1.7)*The construction work will result in a large number of temporary blockages of the access between hundreds homes and travel streets. The contractor will have to carefully manage this to restore access as quickly as possible. Therefore, an important pre-construction task will be for the PMU to establish the sequence for notification of work to come, the work schedule and restoration of access to all households and businesses affected, such that this disruption is known ahead of time, is as short as possible and the re-

established access is at least as good as prior to construction. This basic plan needs to be handed to the contractor for them to adjust to their work schedules and implement it.

(iv) **Matching industrial effluent with WWTP treatment Capability**. The quality of intake waste water will need to be carefully checked to be sure it conforms to the treatment limits of the new WWTP, including the treatment of sludge coming from the sludge ponds and therefore minimizing the chances of facility breakdown due to unacceptable influent quality.

99. **Procurement of civil works**. UCSA will need to confirm that all relevant environmental actions as defined in the EMP are reflected in the bidding document that will be offered to the contractor and consultant/engineer, and bid evaluation has to include the evaluation or assessment whether contractor, or consultant/engineer could implement the required EMP. Lastly, the contract document should include item works to implement EMP and reflected well in the bill of quantities. UCSA also responsible to ensure that all environmental documents are available in adequate quantities, have been translated and have been distributed to all key stakeholders including the local Governments, water and sewerage companies, Mahalla and also PIU, the PDC as well as the contractor. UCSA will establish the contact point for complaints and grievances (see Grievance Redress Section V), such as a community relations person within the PIU and to be named by the contractor.

100. **Institutional Arrangement.** To ensure the EMP requirement will be incorporated in the detailed design and procurement stages, UCSA will need to have an environment specialist as soon as the project is implemented,. The weak technical capacity (as defined in more detail in Chapter XI) (*EMP No. 1.1*) of the PMU, PIU, water and sewerage companies, Djizzak Environment Agency and the contractor(s), will require the delivery of two short training workshops, one targeting the oversight agencies and the second the contractor and the day-to-day managers of the work (the PIU and the PDC) and covering basic environmental management and the implementation of the EMP. This training will need to be completed during project preparation but before mobilization of the contractor and this training could be delivered by the PDC.[14]

101. Very few data exist, for tracking the changes in the water quality of the influent and effluent of the existing sewage treatment facility and the water quality of the intake wastewater to the treatment plant, and in the Ulgursay sewage discharge canal. ADB requires these data as due diligence results, to indicate existing and future conditions in the discharge waters. To that end a monitoring program will be initiated by UCSA and continued into the Operating period of the facility.

102. As soon as the loan is secured, UCSA will recruit environment specialist who has experience in working on similar projects, and who will later work closely with the environment specialist of the PDC. The environmental specialists from UCSA and PDC need to work closely with the Djizzak SIAK, to carry out the monthly monitoring of water quality as describe in the *EMP No. 4.0.*

103. Five sampling stations will be established:

(i) WWTP inflow
(ii) WWTP outflow at the Ulgursay canal
(iii) midway down the Ulgursay, between the discharge and where it empties into the Tukursoy drainage canal,
(iv) in the Tukursoy upstream of where the Ulgursay empties into it, and

[14] This detail is as yet not fixed, and will be decided by UCSA at the start of the preconstruction period.

(v) 200m downstream from where the Ulgursay empties into the Tukursoy Canal.

104. These stations will be located using a GPS and become permanent monitoring stations, Three water samples will be collected monthly at each location and tests will be performed for at least the following parameters:

(i) Location and date/time of sample collection
(ii) Volume flow (m^3/min.)—*actual measurement*
(iii) H_2O temperature
(iv) pH
(v) BOD5
(vi) COD
(vii) Total Kjeldhl Nitrogen (TKN)
(viii) Total Phosphorus
(ix) Total Suspended Solids (TSS)
(x) Heavy metals: Cr, Cd, Zn. Pb, Hg, Ni, Mn, and As
(xi) E-coli
(xii) Iron
(xiii) Chloride
(xiv) Sulphate.

105. These data on the water quality will need to be reviewed to provide inputs for detailed design and also to monitor continually the environmental quality to ensure pollution or contaminant level is still at the acceptable level. Therefore, it is vital to have a good system for recording and storing data by location and date, such that a comparison by data, station and parameter is possible.

106. The PDC environment specialist will determine the schedule of the water quality monitoring. At least, that monitoring will be done monthly throughout the preconstruction period, the construction period and into the operating period. If 3 years of operating period sampling is included, the monitoring program will last for 70 months, involving the collection of 1,050 samples and for each the completion of around 20 tests. At an average cost of USD290 per sample, including handling and shipment to Tashkent or Samarkand, assuming that there is no qualified lab in Djizzak, the total estimated cost will be around USD 304,500.00 (see Annex 5). This total does not include data analysis and record keeping, which would be completed by the DCWSSC, with copies going to UCSA, the PDC and the ADB. However, after carrying out three months monitoring, the schedule and parameters may be revised to adjust for changing environmental conditions.

107. Once the new WWTP begins to operate the sewerage company is required, under Decree 11, to monitor the influent and effluent quality at the WWTP on a monthly basis, for the life of the treatment plant.

B. Construction Period

108. The environmental impacts associated with construction work will need to be managed carefully. Therefore, it is also important to properly identify who is doing what to minimize impacts and monitor during this period as described in the EMP (Annex 3). Prior to the start of construction, the day to day management of the work will be delegated by the PMU to the Djizzak project PIU. The PIU will then work with contractor, the PMU and the PDC to complete the construction. After receiving notice to proceed to mobilize resources, the contractor will be required to submit the environmental site management plan (ESMP)[15],

[15] The ESMP is also often known as a Construction Environmental Work Plan, or Environmental, Health and Safety Plan

incorporating principles laid out in the EMP. The ESMP will include a work schedule showing where and how the mitigation and monitoring measures will be integrated into the construction work schedule. The PDC on behalf of PMU will approve the ESMP.

109. The existing WWTP is about 350m from the nearest occupied structure located in a small rural community separated from the WWTP project area by a railway line and district highway. The proposed new WWTP is more than 1 km from any occupied structures. Therefore, the environmental impacts from construction of WWTP will be confined in the project areas. The transportation of construction equipment and materials will be mostly along the highways that have direct access to the project areas. However, the environmental impacts from construction and reconstruction of sewer networks and pumping stations will directly impact the communities along the sewer networks and nearby the pumping stations. Although the sewer networks (mains and collectors) will be placed along the shoulders of urban streets, these constructions works will be in the residential areas of Djizzak and Uch-Tepa District Center (Map 1). The environmental impacts associated with construction works will include the followings:

110. **Inadequate construction camp/working camp, and storage areas site selection and management.** The area selected for construction camp, and storage areas for construction materials and equipment should be selected carefully with adequate distance from public social infrastructures such as market, medical clinics/hospitals, sport centre, school, and public offices. The working camp/storage areas should be adequately fence or safety ribbon telling the public that there is danger and it is a construction worksite. It is important to The EMP (*No. 2.4, 2.6, 2.7, 2.8 & 2.9)* provide a guidance to maintain construction camp and storage areas to avoid and minimize environmental impacts.

111. **Unacceptable storage, handling use and disposal of all petroleum products.** The unacceptable storage, use and disposal of petroleum products such as fuels, lubricants, work camp kitchen oils used during the work and waste oils from maintenance will be carefully managed. The contractor will be required to manage all fuels, lubricants and waste materials according to national standards, and more importantly according to the best practices to avoid polluting or contaminating surrounding work camp/storage areas. To avoid ground water contamination, the areas for handling fuel, oil and other lubricant should be cemented, and spillage and leakage of oil and lubricants should be collected and disposed in accordance to the local regulation, and in a manner that will not cause further contamination.

112. Laying the sewerage networks will involve excavation works that will create noise, dust, localized air pollution, and generating unwanted excavated soil. The preparation of foundation works for the new WWTP will also generate similar but very localize noise, dust, and air pollution, as well as unwanted excavated soil. The EMP *No. 2.1, 2.2, 2.4* provides a guidance on how to minimize and avoid these impacts. It is important to ensure that contractor(s) and sub-contractors use construction equipment that generates low noise and vibration, and is well maintain to avoid emitting black sooty exhaust. The mitigation measure for these issues will be for the PDC and PIU to check on and enforce equipment maintenance, and to complete visual inspections, confirming how well equipment is maintained and that a dust suppression program using watering trucks has to be implemented.

113. **Transporting construction materials and spoiled materials for disposal.** These activities will create a nuisance. Therefore, it is important to consult local authority to seek approval on route that allow to be used for transporting these materials. In addition, The contractor will need to inspect roads used for the transport of earthworks every day, making sure that debris waste materials and earth has not fallen off the back of trucks, generating safety concerns and dust; and that immediate clean up occur if problems are noted. All such trucks will need to be equipped with covers or nets preventing spillage and reducing wind-blown dust from vehicles.

114. **Noise**- *(EMP No. 2.2).* Some construction material will also be fabricated by supplier outside the WWTP project areas and will need to be trucked through residential areas, creating noise, dust and intermittent traffic congestion. Route selection and timing of these movement, coupled with the measures defined in paragraph 112, will help to minimize these annoyances. There will be no mobile aggregate of concrete batch plant operations[16] and therefore little noise other than from excavation equipment. Working in urban communities especially residential areas is categorized as working in sensitive sites. Contractors will be required to mitigate noise, dust and other air emissions constantly. This will be achieved through the use of low noise construction equipment (e.g., jackhammers[17] used to break up asphalt and concrete during the sewer work), strict control over working hours, and the installation of temporary noise barriers, such as plywood/foam board barriers at highly sensitive receptors such as playgrounds and in front of hospitals. Limiting the operation of high-noise equipment during the sewer placement to between 0700 and 1730 hr, will help to reduce noise annoyance.

115. Further PDC will conduct field noise surveys using a handheld sound-pressure meter at each active construction site, at least once a month. The PDC has to give strict instruction to the contractor on how to mitigate the excessive noise, if any violation of local standard is observed.

116. **Dust-** *(EMP No. 2.1)* will be another significant, albeit temporary problem, both in terms of what is generated by the construction work and that created by truck hauling excavation materials from the work corridor and bringing in fresh materials when burying the sewer line. Preventing trucks from losing material on the roads, vigilant haul road cleaning, and dust suppression at the worksite will be important mitigation actions to be implemented during the construction period..

117. **Pollution Controls Defined in Contractor Agreement.** *(EMP No. 2.1).* It is important to include in the contractor's contract agreement that the contractors have to use sound equipment, and regularly maintained to avoid the emissions of black smoke and high levels of suspended particulate matter from the contractors fleet. Although, these emissions will not be a serious long term health threat, it will create temporary disturbance to people living nearby the project areas. Therefore, it is obligation of the contractor to manage these potential impacts.

118. **The tree cutting and replanting plan-** *(EMP No. 2.3)* The tree management plan prepared during the preconstruction period (EMP No. 1.8) will be given to the contractor at the start of construction and a consultation with roadside residents completed. During this time the PIU will review the limits specified in the plan, and where possible, minimize or eliminate all tree cutting along urban streets. This plan will be monitored constantly by the PIU, since this was a major complaint voiced at the public consultation session.

119. Consultations with tree owners will be completed, and compensation for the loss of trees will be paid for as defined in the LARP. The approval for the contractors to proceed will only be given to the contractor, after the affected people are compensated by UCSA for the loss their trees. The PIU will also be responsible to minimizing tree cutting. If contractor needs to acquire additional land, and this could involve additional tree cutting, the contractor will need to inform the PIU. The plan will be monitored constantly by the PIU, since

[16] The existing access road to the WWTP is now degraded and potholed gravel road, badly in need of repair. The total 700m length will need to be reconstructed, requiring either asphalt of concrete.

[17] Chicago Pneumatic Breaker Hammers, mail@chicagopneumatic.com ; Sullair Breaker Hammers, sullaircompressors@sullair.com ; Makita HM1810 Breaker Hammer, http://www.makita.comAtlas Copco Breaker Hammers; contact 1-800-732-6762 ; Wacker Neuson Breaker Hammer EH 65 Breaker Hammer ; www.wackerneuson.us/en

excessive tree cutting was a major complaint voiced at the public consultation session, and described as a major failure during previous environmental mitigation action.

120. **Traffic control and access management plans.** *(EMP No. 2.5)* The traffic control and access management plan prepared during the preconstruction period will need to be given to the contractor before mobilization. If it is not prepared, the contractor and PIU has to prepare traffic management plan for areas affected by the construction works. A meeting confirming understanding and the implementation of these plans, involving the PIU, the local police and the contractor(s) will need to take place and be recorded. UCSA, working with the PMU will make certain this takes place.

121. **The landscaping should be undertaken during the construction period to ensure that adequate post construction landscaping.** will be in place *(EMP No. 2.11)* The long sewer construction/placement corridors, up to 20m wide, will have significantly disturbed ground and piles of excavation wastes littering the countryside. As each section of the sewer placement is completed, the contractors will be required to undertake immediate landscaping and remediation with plants and seedling trees to stimulate rapid recovery and returning the construction zone to preconstruction conditions as quickly as possible.

122. **Capacity Building.** *(EMP No. 2.8)* Given the importance of capacity building this item is repeated from the preconstruction discussion. The contractor(s) must be competent enough to implement the 11 EMP actions and to fully understand and adhere to the environmental specifications found in their construction contract. The PMU and PDC will prepare and deliver workshops (Table 10) totalling around 1.5-2.0 days, on environmental management and EMP implementation in relation to construction work, targeting the contractor, the PIU and hopefully District water supply and sewerage enterprise staff who will be responsible for carrying on the mitigation and monitoring actions during the operating period. The contractors will be required to have at least two people attending these sessions, who will be responsible for environmental safeguards during the construction period.

123. **Reporting.** *(EMP No. 2.10)* During the construction period the contractor will be required to file monthly progress reports, in which will be a section on environmental safeguards where actions during the past month will be briefly mentioned. In addition the contractor will be required to complete a quarterly compliance monitoring checklist, using the EMP table to create the list and checking off the work completed. A blank checklist for use by contractors is provided as Annex 4. The quarterly checklist will also include information on specific issues resolved such a complaints about access, traffic and noise.

124. PDC will assemble the quarterly reports, add noise measurements data and observations on dust and air pollution. The PMU will submit to ADB the following environmental monitoring report: (i) prior commencement of civil works, the PMU will submit a report describing the recruitment of environment specialist, the incorporation of environment requirement into the bidding and contract document, and the receipt of the positive opinion from Ecological Expertise of Nature Protection Committee; (ii) during construction period, PMU will be required to submit a semi-annual environmental monitoring report, describing the implementation of EMP, including both mitigation and monitoring tasks, reporting on whether any unexpected impacts occurred and how these were handled, and a record on any complaint received from affected people.

125. **Rehabilitation of the Pumping Stations.** *(EMP No. 2.13)* The three existing pumping stations to be rehabilitation have been leaking untreated sewage into the community

Photo 3. Zilol Pumping station

roadside drainage ditches, onto roads and even roadside grassed areas for year (Photo 3). In addition to the engineering work to repair upgrade, and for Khalkabad move the pumping station, a complete area-wide pollution clean will be undertaken. Based on feedback from local residents and a visual survey of the area affected by the sewage flooding, a rehabilitation area will be marked and all will be cleaned, disinfected if needed, then fully re-landscaped. The pumping stations should be virtually free of methane and ammonium odour and housed in aesthetically pleasing structures (Photo 3), protected from the elements and provided with a safe power supply.

126. **Training/Breifing for Industrial Enterprises**. *(EMP NO. 2.14)* At least 22 enterprises will be discharging wastewater into the new WWTP. Of these at least 11 will be discharging materials that must, under the law (Decree 11) have pre-treatment and specific discharge conditions complied with. The information collected to date indicated that none of these industries have effective pre-treatment and none have the necessary equipment installed to permit adequate monitoring by the sewerage Company. This finding raised serious concerns and UCSA will work closely with the sewerage Company, SIAK and its PMU to address this gap. A one-day briefing seminar (see Table 10) to review Decree 11(Annex 6) and discuss the timing of pre-treatment and the need to have this operational before discharge will be allowed will be prepared. This workshop will be delivered at the start of the last year of construction, giving the industries plenty of lead time to complete the necessary installations.

C. Operating Period

127. At the end of the construction period the contractor will provide the WWT facility operator with a construction period mitigation and monitoring summary—which can be a more detailed compliance monitoring checklist (see Annex 4), plus some text. The responsibility for implementing the five operating period mitigation and monitoring measures will be with the sewerage Company, who will operate the new facility under the District water supply and sewerage enterprise.

128. The construction of the WWP and main sewer collectors and connections to users, will leave behind a scarred corridor, susceptible to erosion, visually unattractive, particularly in the densely populated urban areas, and very often with poorly repaired excavation sites in the middle or sides of existing roads. The contractor will be required to rehabilitation this area, however the sewerage Company will be required to follow up a rectify problems. The

following potential impacts were identified and associated mitigation measures need to be undertaken:

(i) **Inadequate EMP completion -** *(EMP No. 3.3)* Contractors frequently forget to prepare the EMP completion report at the end of their contract. The PIU and PDC need to insure that this report is prepared and that the contractor has complied with requirements in the EMP. The PIU and/or the PDC needs to pass this material to the water and sewerage Companies and advise them to continue to implement activities started during the construction period, such as the management of the tree replanting effort and the continuation of any road rehabilitation.

(ii) **Unacceptable Effluent Quality (***EMP No. 3.1***)-** A monthly effluent monitoring and reporting program (see paragraph 104 and Annex 5),as specified by RoU Norms will be required and enforced by the sewerage Company, with summary reports submitted semi-annually to the Provincial water supply and sewerage enterprise, and to ADB if required. Samples will be taken at the WWTP inflow site and where the treated effluent is discharged into the canal. As a minimum the following parameters will be measured and recorded in mg/L, except i), ii), iv), and xi):

(i) Location and date/time of sample collection
(ii) Volume flow (m^3/min.)—*actual measurement*
(iii) H_2O temperature
(iv) pH
(v) BOD_5
(vi) COD
(vii) Total Kjeldhl Nitrogen (TKN)
(viii) Total P
(ix) Total Suspended Solids (TSS)
(x) Heavy metals: Cr, Cd, Zn. Pb, Hg, Ni, Mn, and As
(xi) E-coli
(xii) Iron
(xiii) Chloride
(xiv) Sulphate.

129. **Sludge Pond Operations**- *(EMP No. 3.4)* The Djizzak sewerage Company will be required to confirm the safe operation of sludge ponds and proper draining and recycling of leachate back to WWTP for treatment. A monthly check on odour and general conditions of the sludge ponds will be recorded and semi-annual samples taken of the sludge pond leachate and tested for the parameter shown above. The Djizzak sewerage Company will be required to prepare annual environmental monitoring reports showing the test results. UCSA will include the Djizzak sewerage Company monitoring results in its Project Completion Report that need to be submitted to ADB. The monitoring program will be carried out continually, on a monthly basis for the life of the WWTP, as prescribed by Decree 11/2012 and as modified by agreement between the sewerage company and the Djizzak Goskompriroda (SIAK). In addition, the WWTP operator will need obtain an operating permit from Nature Protection Committee (NPC), and comply with all conditions of clearance.

130. **Need to have a modern laboratory facilities.** The DRWSSE needs to continue to monitor the intake water to the Djizzak WWTP to ensure its effectiveness. In addition, sludge and effluent from WWTP needs to be routinely monitored, maintained and submitted to the Djizzak Nature Protection Committee. In this context, the requirement of DRWSSE to have modern facility of laboratory to enable test on toxicity and heavy metal content is now unavoidable. The recent Cabinet Minister Resolution no:14/2014 has required that laboratory such as DRWSSE should have facility to test toxicity and heavy metal content.

131. During the first operating year the Djizzak sewerage Company will have to prepare a sludge management and disposal plan, focusing on testing to see how much of the material can be used in agriculture. These tests will be for toxic and hazardous material content such as chromium and cadmium. This plan will be submitted to UCSA, and should be part of report to be submitted to NPC for obtaining a permit for disposing and utilizing sludge from WWTP.

132. **Pumping Station Clean Up**. *(EMP No. 3.5)* Within the first year of operations, the Djizzak sewerage Company will need to file a clean-up report for all three pumping stations in terms of the work done, rehabilitation completed, and landscaping concluded. This report with photos of the improved facilities will be filed with UCSA and made available to ADB.

D. Irreversible and Irretrievable Impacts

133. No irreversible or irretrievable impacts due to the project were identified. Excessive and widespread tree cutting along the sewer construction corridor, while not irreversible, will require decades for full recover as seedlings grow to maturity. Therefore, when a contractor illegally cut trees (based on the tree management plan prepared during the pre-construction period and given to the contractor) a penalty will be imposed and replanting and payment of compensation as described in the Government Resolution specified in the LARP.

134. The Ulgursay canal has been receiving raw sewage since 2004 and this impact cannot be reversed and is not the result of the project. However, with a new WWTP the discharge of raw sewage into the Ulgursay will cease.

E. Demolition of the existing WWTP and Proposed Mitigation Measures

135. **The Demolition of the Existing Sewage Treatment Facility-** *(EMP No. 2.12)* As described in paragraph 46 and 47, the existing WWTP contains potentially dangerous materials namely the sludge/sediment material sitting in the bottom of the sedimentation tanks, as well as asbestos lined building and piping materials. Before disposal of the > 19,313 m^3 of water in the tanks, 16 water samples of the liquid will be collected (four per tank) and tested for the standards sewage parameters as defined for Decree 11. Records of the tests must be filed with UCSA. To establish heavy metal levels in the sediment in the tanks, 16 sediment samples of the material found in the tanks will also be tested (see Section E below). These results will dictate the type of disposal, e.g. hazardous material disposal, to be undertaken.

136. Based on available design drawings, an inventory of items were asbestos was used will be completed and these items will be treated as hazardous materials and disposed of according to the RoU norms defining the disposal of asbestos (SanPin No.0158-04, 2004). UCSA will require these records from the contractor and a note on quantities and disposal method and location.

137. The demolition of the concrete structures will be completed in an orderly manner, avoiding generation of excessive dust where possible. At all times proper Occupational Health and Safety measures will be followed, and workers will have all necessary Personal Safety Devices such as hard hats, safety goggles and ear protectors. Additional details are provided in paragraph 138.

138. Other potential impacts associated with the demolition of the existing WWT facility involving >19,000 m^3 of 7-year old sludge, and thousands of tons of concrete , steel and iron, as well as proposed mitigation measures will be:

(i) **Dust and Noise-** The demolition will result in considerable dust and will likely lead to unacceptable, albeit temporary, high levels of PM_{10} and $PM_{2.5}$ in the air breathed

in by workers. Therefore, all workers undertaking the demolition will be issued dust masks by the contractor(s) and their use will be enforced by the contractor and the PIU. Demolition crews and haulers not wearing dust masks when on site and equipment is operating will not be allowed to work on site. The crane or wrecking equipment will be fitted with water spray device that can wet down dusty areas—and conditions. **The work will be noisy** and all workers will be required to wear ear plugs or some form or noise protective device. Further contractors will be encouraged to use low noise equipment, such as low-noise jackhammers.

(ii) With > 20,000 m^3 of **materials to haul away**, truck traffic will be intense, coming and leaving the demolition site taking away the recyclable, reusable and non-recyclable waste, generating dust, localized air pollution and traffic congestion. To mitigate this the PIU and PDC will work with the contractors and all subcontractors to establish haul routes and a program or road cleaning and dust suppression at all times. This plan will be prepared prior to the start of demolition. The truck fleet used to haul the materials will be required to provide a vehicle inspection certification for the year the work is carried out in. That certificate will certify road worthiness and compliance with basic emission standards, such as black smoke and soot.

F. Environmental Enhancements

139. The benefit of the projects will be very significant and extensive. There will be a major reduction of pollution from the sewage effluent as it will be fully treated by the new treatment plant and the sewage will be piped away from homes to the WWTP in a sanitary manner. This will mean water with much of the nutrient load, pathogens and bacteria removed, and a far cleaner effluent discharged into Ulgursay sewage canal.

140. There will be a reduced risk of drinking water, and well contamination downstream and the reduced risk of the spread of communicable disease, downstream in the Ulgursay effluent discharge canal. Households with sanitary sewage services will see a significant reduction in waterborne, pathogen and fungal diseases, particularly among children. This improvement should significantly reducing health care costs per family. The burden of maintaining a sanitary home, which falls on the women, will be lowered, due to the sanitary toilet and washing facilities.

G. Social Sector Impacts

1) Social Assessment

141. The social assessment showed clearly that that the benefits of the new WWT facility far outweighed any mostly temporary negative impacts i.e., noise, dust and access restriction, occurring during the 2-year construction period. During the consultation, people in the communities to received new sewer connections expressed great approval for the project and wished it to be completed as quickly as possible.

2) Poverty Impact

142. There will be a requirement for around 36 ha of farmland, which will be compensated according to the existing regulation (as defined in the LARP) guaranteeing compensation at market value (including any crop losses). Therefore, it is not expected that the land acquisition will trigger any poverty impacts. In fact, there will be benefits since much of the construction workforce will be hired locally, providing better paying secure jobs for >2 years, and any labour force from outside Djizzak will bring revenues to local business owners. Further, the cleaner healthier conditions will reduce sick days and improve worker productivity.

3) Resettlement

143. No households will be relocated since the majority of the sewage collector placement will be along streets, specifically along the shoulders and in the middle of the streets. However, there will be a requirement for temporary land occupation and the permanent acquisition for the new WWTP. The LARP report covers all the requirements for compensating losses based on the Government and ADB's requirement.

V. ANALYSIS OF ALTERNATIVES

144. The analysis of alternatives focused principally on the with and without project scenarios since the access to sanitation system for all has been established as one of important targets of the Government of Uzbekistan in meeting the UN's Millennium Development Goals (MDGs).

145. The without project scenario would result in continued contamination of ground water with untreated waste water that could lead to outbreak of diseases. The poor environmental performance due to untreated industrial waste mixed with domestic waste will continue to be an environmental problem. The poor sewerage networks and sewer blockages and poor connectivity will result in a continuing unhealthy environmental condition, bad odor, and unnecessary untreated sewage flooding local areas.

146. The with- project scenario, will bring untreated waste to the WWTP, and the operation of new WWTP will help with requiring the industries to comply with effluent standard prior to sending their wastewater to the WWTP (i.e. pre-treatment according to Decree No. 11) . Therefore, healthy environment would be the result, and these improved conditions would be enjoyed by the people living in Djizzak and Uch-Tepa cities.

147. Optional designs were also examined, including biological treatment versus biomechanical treatment. Given the extensive maintenance and skill needed for biological treatment and the poor climatic conditions to make it work, the bio-mechnical treatment was selected as the preferred design.

148. There was only one site for the new WWTP, where there would be no affected people, the land requirement were for only marginal agricultural land and the proximity to occupied dwellings was minimal. The location as shown on the satellite impact (Map 1) was selected and is also close to the discharge canal and the existing sewer trunk mains.

VI. GRIEVANCE REDRESS MECHANISM

149. Aside from the requirement for UCSA and other local institutions to established mechanism to receive any appeal from citizen as directed by the Government Law on Citizen Appeal No: 446-II/13 December 2002, ADB requires that the Project Executing Agency UCSA has to establish and maintain a grievance redress mechanism to receive and facilitate resolution of affected peoples' concerns and grievances about its delivery of environmental safeguards. The grievance redress mechanism should be scaled to the risks and impacts of the project. It should address affected people's concerns and complaints using an understandable and transparent process that is gender responsive, culturally appropriate, and easy to access.

150. To that end UCSA, in cooperation with the Djizzak Province, the district and municipality affected by the work should establish a grievance redress committee (GRC) in Djizzak City, with emphasis on local membership.

151. UCSA and the PMU will guide the Djizzak municipality in setting up a GRC preparing a letter from the mayor , naming the positions that will be required to respond to a complaint filed in that jurisdiction. UCSA and the PMU will work to make sure the committee is in place. UCSA will delegate the work of establishing the GRC to the PMU or a PIU, who will work with the chief engineer of the Provincial water supply and sewerage enterprise and the provincial and municipal Hokims to set this up. The GRC will have strong female representation and will include representation from the local mayor's office.

152. The first point of contact (Table 9) for any grievance filed during the pre-construction stage of the work should be the PMU head and during the construction period, the contractor and the subproject PIU. Grievances can be filed in writing or orally with the contractor's or PIU's GR contact person or directly with the contractor. Once filed, 15 days are provided for a credible response. If unsatisfied with the decision the complainant can submit the grievance to the municipal GCR for a resolution. The provincial GRC will have a further 15 days to provide a decision, and if no ruling is forthcoming the grievance will be automatically decided in favour of the complainant and all compensation will be provided.

Table 9: Grievance Resolution Process

Level	Activities
Preconstruction Period	
Preconstruction period—file with PMU	PMU immediately clarifies issue and attempts to find reasons and a helpful solution
Construction Period	
Discussion with contractor	Contractor discusses with complainant and tries to fix this issue immediately
Appeal to municipal GRC	PIU officer dealing with complaints clarified the issue to addressed affected person. If explanation not satisfied, the procedures for filing complaints with the provincial GRC will be explained, and the complainant can file a written or oral complaint.
Provincial GRC/Municipal GRC	Provincial GRC decides on a resolution after reviewing submissions, and if complainant not satisfied the complaint can be taken to the court for an appeal. If this does not work the complainant can file a grievance with ADB 8 days after submission to the provincial GRC and if there is no response.
ADB Compliance Review Panel. Uzbekistan Resident Mission 1A.Khodjaev Street, Tashkent Tel: +998711401920: Website: www.adb.org/urm.	ADB receives the complaint, investigates and provides a resolution within 7 days.
Operating Period	
Direct contact with the Djizzak sewerage Company office	The Djizzak sewerage Company investigates and acts quickly to alleviate the complainants concern

submit the grievance to the municipal GCR for a resolution. The provincial GRC will have a further 15 days to provide a decision, and if no ruling is forthcoming the grievance will be automatically decided in favour of the complainant and all compensation will be provided.

153. To be effective the composition and operation of the GRC, as well as contact names and numbers need to be included in the brochures to be distributed before or during the consultation and information session (s), are at the very least, at the consultation session.

154. In addition to the internal grievance redress mechanism, affected persons and the public can also access the ADB's Accountability Mechanism (2012). It consists of a consultation phase and a compliance review phase, by which the problems or issues raised by the affected people and/or stakeholders are investigated and resolved immediately by the ADB. Complainants who have exhausted effort to resolve problems with the project and

ADB's operations can submit their complaint in any national language of the affected people to the Compliance Review Panel at the ADB Resident Mission.[18]

VII. INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

A. Public Consultation

155. A public consultation was held on April 22, 2014 in the conference hall of Djizzak city Administration in accordance with the standard procedure of ADB and practice of the Republic of Uzbekistan. The purpose of the consultations was to engage the public in a discussion on possible environmental impacts during implementation of the construction works for Djizzak sewerage system reconstruction project.

156. The consultations were headed by PPTA`s International Environmental Expert, the National Environmental Expert, the Head of Department of Djizzak City Administration, and the Head of Department of the Djizzak Province Water Supply and Sewerage enterprise.

157. For the consultations, a special brochure was prepared in local - Uzbek language which was printed and distributed to all participants of the consultations (Annex 2). The brochure included information on project, scope of project works and potential environmental impacts, proposed mitigation and monitoring measures and project implementation schedule. Also, a special presentation on the project was prepared for the consultations (Annex 2).

158. Djizzak city Administraation kindly provided its conference hall for conducting the public consultations. The hall was equipped with equipment necessary for making speeches and presentations. The population of Djizzak City was informed about the consultation through announcements published in local newspapers «Djizzakskaya pravda» and «Jizzah Haqiqati». The announcements were published on 19 April, 2014 (See Annex 2).

159. The issues raised and comments during consultations included: (i) whether the project will monitor industrial's effluent, (ii) how the sewerage pumping in Kalkhabad will be relocated and the site rehabilitated, (iii) how the project will handle locked sewerage system, (iv) how the project will utilized the gravity to save energy, (v) how the project will help to address temporary flooding after raining, (vi) how to rehabilitate the road after completing construction of sewerage system, and the impacts on trees along the road, (vii) costs for people to have sewerage connection, and lastly (viii) loan repayment.

160. The comments made at the sessions and issue raised have all been incorporated into the IEE, especially issues surrounding proper clean up after sewer placement and adequate revegetation as well as proper traffic management and a protocol for maintenance of local access for roadside residents who will have access cut off when a sewer is being placed across their access to a road. Issues and comments related with payment for connection and loan payment have been reported to UCSA to be used as consideration in taking into account as operation costs.

B. Information disclosed

161. During the consultations the Consultant presented overall information on the Djizzak sewerage project. The information included goals of the project, justification, information on the existing situation of the sewerage system in the city, related environmental impacts, recommended variants for project implementation, information on planned treatment

[18] 1A.Khodjaev Street, Tashkent 100027 (Tel: +998711401920: Fax: +998711401900; Website: www.adb.org/urm).

processes for the new sewerage treatment facility, cost estimates of the project, project implementation schedule, information on environmental safeguards to be implemented during the project implementation period. The IEE report will also be disclosed through ADB website, and should be made available in PIU office, and other local authorities such as Mahallas where the project are located.

162. UCSA, in cooperation with the Djizzak Administration's office will follow up by placing the translated IEE, or at least the executive summary and the EMP in the Djizzak City Administration's office and let those people attending the consultation know that the document is available. This action was announced at the consultation session.

VIII. THE ENVIRONMENTAL MANAGEMENT PLAN (EMP)

163. The EMP presents the impacts predicted to occur during the planning, construction and operation of the Djizzak Wastewater Treatment Facility and it collector sewer network. These predictions are based on lessons learned, and measurements of the amount of change, from recorded baseline conditions, for specific biophysical indicators such as air quality noise and water quality. This is followed by an analysis of the effect of these changes relative to known tolerance levels of affected ecosystem components and people.

164. The EMP (Annex 2) includes a listing of impacts, mitigation measures, monitoring needs and definitions of where and when impacts are likely and who will have to implement the mitigation and monitoring measures, as well as who oversees the work. In this IEE the EMP is presented as two matrix tables; the mitigation table and the monitoring table, with each listing one set of numbered items, permitting easy cross referencing and use in bid document and construction contract preparation.

165. In Section IV, the discussion of each impact and mitigation measure includes a cross reference to the listing for that action in the EMP.

A. The Mitigation and Monitoring Tables (EmiT) & (EmoT)

166. During the completion of the work mitigation and monitoring actions during the pre-construction period will be executed by UCSA and its PMU. If the PDC is retained early enough it may work closely with the PMU in moving forward with detailed design and planning the implementation of the EMP. Before the start of the construction period for specific works, the implementation of all safeguard measures will be transferred to the PIU assigned to the subproject. However, PMU will still continue holding overall responsibility to implement the EMP. In addition, the PDC that assisted PMU to verify all the work of contractor, will be actively involved in an oversight and due diligence role. The contractor will also have major responsibility in implementing the construction period mitigation and monitoring actions as defined in the EMP and in additional contract specifications. All mitigation and monitoring tasks are defined in detail in the EMP's Mitigation Table (EmiT) and Monitoring Table (EmoT), attached in Annex 3. Both tables are self-explanatory and have been prepared such that they can be used as environmental clauses in the contract documentation and as monitoring checklists. The action items in the IEE text, the EmiT and EmoT are all numbered and fully cross referenced.

1) Environmental Mitigation Table (EmiT):

167. **Preconstruction Period-** Of the eight mitigation and monitoring actions identified for this period (EmiT Annex 2), environmental training will essential if the EMP is to be credibly implemented by the PMU and its PDC. Therefore, a 1-1.5 day workshop will be arranged through UCSA. Secondly, UCSA and its PMU will need to confirm that environmental safeguard specifications are defined in the bid documents and or the EMP is referenced as a

clause in the construction contract(s). Thirdly, to ensure that IEE is distributed to the PMU, the PIU, the contractor, the Djizzak City sewerage Company and the PDC, UCSA will need to prepare a document distribution list and make sure materials have been translated into Uzbek and distributed.

168. The project will lead to consider traffic and access issues during the construction period. To avoid that, a traffic management and access protocol will be prepared by UCSA and explained to the contractor during the pre-mobilization workshop.

169. Finally the placement of sewer pipes will involve works along urban streets and the need to clear trees. Careless cutting can have disastrous impacts for local communities and to avoid this, a tree removal and rehabilitation plan will be prepared during the preconstruction period. This will involve a tree inventory along the corridor setting of the alignment boundary to minimize the need to take trees, agreement with local residents on tree removal and replanting, and a replanting schedule. This plan will be implemented by PIU with support from the contractor(s), and it will be strictly enforced and monitoring by the PDC.

170. **The Construction Period**- Fourteen impacts were predicted to occur during construction period (Annex 2), and include the standard issues about contractor good housekeeping and management of waste, fuel, vehicle emissions and dust suppression. Other important mitigation measures will be to minimize tree cutting and make sure that the contractor complies and that PDC and PIU enforce all measures and that the contractor rehabilitate the sewer construction corridor as soon as possible after the work is done.

171. The contractor(s) will need to demonstrate their capacity to implement environmental safeguards by including monthly updates in the monthly project progress reports and also quarterly environmental compliance checklist reports.

172. In addition, it is important to inform the contractors that they have to provide and submit safeguards implementation reports during the construction period, and a completion report at the end of the construction works. Failure to provide regular report to the PIU and PDC on the implementation of the EMP will be subject of civil work contract violation and well defined penalties.

173. Since the existing pumping station sites are all seriously contaminated with leaking sewage, serious health hazards exist for local area residents. A full clean up and rehabilitation of these sites will be included as an important work items for contractor. The work will be inspected by the PDC and PIU to ensure that a hygienic and aesthetically pleasing landscape, acceptable to the local communities, is the outcome.

174. One year before the end of construction UCSA will organize a workshop with the 22 or more enterprises intending to discharge wastewater into the WWPT. At this session UCSA and others will brief them on the requirements as specified in Decree 11 concerning pre-treatment and other installations necessary before discharge into the WWTP is possible.

175. **The Operating Period-** UCSA identified five possible impacts (Annex 2) and suggested appropriate mitigation actions. Most important is the potential problems with the operation of the WWTP due to poor maintenance or poorly treated industrial effluents. To track this, the Djizzak sewerage Company will be required to comply with existing RoU norms and conduct monthly testing of influent and effluent at the new WWTP.

176. Second will be the inspection of the tree rehabilitation and corridor landscaping to be sure that it has been done properly and to the satisfaction of local residents. To that end the Djizzak sewerage Company will have to file a completion report specifying who was contacted and when and that the rehabilitation was done satisfactorily.

177. Within the first 6 months of operations, the Djizzak sewerage Company will be required to prepare a sludge management plan, confirming how the sludge from the WWTP is being conveyed to the sludge ponds, how the leachate from the ponds is being managed and what the steps for treated sludge disposal are, and what sort of sludge testing is being done before disposal.

178. Since the three existing pumping stations were chronically leaking and overflowing with raw sewage into the local communities for years, a major clean up during the construction period was specified. This work involved an initial scoping of the work to be done, including specific consultation with local residents to define the boundary of the sewage spills, followed by a full disinfection, clean up and re-landscaping of the areas, to the satisfaction of the local communities impacted for so many years. The landscaping will include planting of shrubs, perennial flowering plants and trees.

179. During the operating period it will be the Djizzak sewerage Company's job to obtain the completion report from the contractor(s), inspect this work a soon as the operation of the plant begins, but before the contractors have been given the final payment, and file a report with the Provincial water and sewerage Enterprise Chief Engineer.

2) Environmental Monitoring Table (EmoT):

180. The monitoring table (Annex 2) defines the actions needing to be taken by the agencies in charge during each stage of the project to report on compliance and effectiveness of the mitigation measure described. The EMoT also describes the deliverables that need to be filed in order to confirm to UCSA and ADB that the EMP has been implemented.

181. The EMoT is self-explanatory and simply applies a due diligence reporting requirement to each mitigation action, specifying what the deliverable is, proving that monitoring and the mitigation action has taken place, and the requirement for submission to and inspection by UCSA as well as the ADB. No additional details are provided here.

B. Decommissioning of Existing WWTP

182. An important job will be the demolition of the WWTP and associated facilities, shortly after construction begins. There could be hazardous materials involved therefore a demolition protocol is presented in the IEE (Chapter IV E, paragraph 138) and as Task No. 2.11 in the EMP, which the contractor and any subcontractors will be required to comply with. The use of personal safety equipment by all workers will be mandatory and the contractor(s) will be expected to enforce this requirement.

IX. IMPLEMENTATION ARRANGEMENTS AND TECHNICAL CAPACITY

A. Approval of the IEE

183. This draft IEE documents has been submitted to the Ecological Expertise of the Regional Nature Protection Committee, as the project is categorized as project class II under the EIA regulation of the GoU. The Goskompriroda will issue a letter covering its opinion on the proposed project. This letter will give r UCSA clearance to execute the project with conditions such as provided that environmental and social safeguard measures as defined in the IEE are fully implemented.

184. ADB will include all the environmental safeguard tasks defined in this IEE and its EMP into the loan agreement, to be used as a project administration management guide to safeguard implementation by the PMU. If any unexpected impacts occurs during the period of project implementation, the PMU will have the responsibility to address those unexpected impacts and immediately report to ADB. Depend on the type of impacts, ADB will need to check and approve the proposed mitigation measures to handle un-expected effects.

185. UCSA is governed directly by the Cabinet of Ministers, but delegates project management to its PMU. At the late preconstruction stage of this project USCA will retain a PDC as well as a subproject-specific Project Implementation Unit (PIU). The PIU will be responsible for the day-to-day oversight of the subproject, and the management of the contractor who will be required to implement all 11 mitigation measures as defined in the EMP.

186. At the end of the construction period, responsibility for the operation of the facility, as well as the continuation of environmental safeguard measures will be handed to the Djizzak Provincial water and sewerage enterprise which in turn will assign the day-to-day management of the WWTP operator(s). However, prior to any such hand over to Djizzak Provincial water and sewerage enterprise, UCSA will obtain operation clearance from the Uzbekistan Nature Protection Committee.

187. The operation of WWTP will be binding with the requirement on effluent and emission levels as specified by Decree No.11. , as well as clearance from the Nature Protection Committee. To maintain credible performance the Djizzak sewerage Company will recruit an environmental specialist to assist in managing environmental related concerns for operating WWTP and supporting facilities. Having the specialist will ensure its compliance with the requirement from Nature Protection Committee and also to comply with requirement from the Ministry of Health.

188. Therefore the institutional arrangement for the implementation of safeguards as defined in the EMP will be as follows:

a) UCSA will coordinate with Goskompriroda to obtain the clearance to proceed to construction, and then

b) UCSA will transfer responsibility to the PMU responsible.

c) The PMU will implement the EMP through the preconstruction stage, until a PDC is retained, at which point the PDC takes over, but must work closely with the PMU and PIU assigned.

d) The PIU will monitor the construction work and complete necessary monthly inspections, which are usually followed by less frequent audits by the PDC.

e) The PIU will make sure that the contractor understands and implements the construction period mitigation and monitoring measures as defined in the EMP and in contract specifications, e.g. the quarterly compliance monitoring checklists and the semi-annual compliance monitoring summaries, submitted to PDC and the PMU.

f) Within 3 months of the end of the construction period, the contractor must submit an EMP completion checklist, indicating what EMP items were addressed and when, plus some details on the exact actions taken. This report is then handed to the Djizzak sewerage Company, with instructions to continue the implementation of operating period mitigation and monitoring measures.

189. The PMU will ensure that bidding document and later contract for PDC[19] include a requirement that the PDC has to have expert to assist in ensuring that the contractor implement all the require mitigation measures during the construction period. . It is also essential that basic capacity building be carried out and that administrators be strongly encouraged to support efforts to implement environmental safeguards through a) filling of the safeguard staff position within the PMU, b) provision of resources to allow the PIU and the Djizzak sewerage Company to learn about environmental monitoring, and c) providing training in systematic cross-sectoral environmental data (water-related) collection, analysis and reporting.

X. PERFORMANCE INDICATORS

190. The environmental performance indicator are defined for three project stages, i.e. project preparation construction and operations.. During project preparation stage the indicators will include at least: (i) a record that the detail design took into account the recommendations from the IEE,(ii) confirmation that the bidding document for PDC and Contractors include the requirement described in the IEE and its EMP, (iii) a record that the contract agreement with PDC includes a clear statement that PDC has to employ an environmental specialist, (iii) confirmation that the contract documentation specifies that the contractor must handle all environmental impacts associated with constructions as describe in this IEE and its EMP, and lastly (iv) a record that all environmental permits for construction works have been obtained.

191. Environmental Performance indicator during construction will at least include: (i) routine monitoring reports addressing environmental impact during construction from contractor: (ii) routine monitoring report for PDC to ensure that contractor carry out responsibility to implement mitigation measures, (iii) record that routine monitoring of environmental quality affected by construction works are recorded and reported [air including dust, noise, and water] (iv) a good system for recording complaints received from affected people, and resolution provided by UCSA. A compliance monitoring checklist based on the EMP's EmoT has been provided as Annex 4 and will be used to record compliance and effectiveness of the mitigation measures defined in the EMP.

192. During the operation stage, the environmental performance indicator will include:

i) the improvement in the quality of the effluent with a functioning WWTP over pre-treatment levels, as well as reductions in pollutants present in the inflow and the outflow at the WWTP;
ii) the satisfaction of the local communities through which the sewer construction took place (based on interviews and field inspections by the Djizzak sewerage Company), with how well trees were protected and a revegetation and re-landscaping activity was completed;
iii) the results of interviews with local residents reporting their satisfaction with the rehabilitation of the pumping station sites where raw sewage leaked out for years;

[19] UCSA assumes that the CMC will be required to have specific environmental expertise names and on the job.

iv) how many industries of the 21 listed installed credible pre-treatment facilities and the extent of the industrial effluent testing and reporting program in place;
v) the record, in the quarterly compliance monitoring checklist, of how often the Djizzak sewerage Company undertakes enforcement actions against Industries for non-compliant discharges and how often samples were taken; and examined by the Djizzak sewerage Company or SIAK laboratories
vi) The record of the mandatory permits and decisions provided by the Nature Protection Committee.

XI. INSTITUTIONAL CAPACITY

193. There are three components to effective environmental institutional capacity building; a) having the necessary laws, decrees and standards supporting environmental management, b) having the support of administrators and senior officials for environmental safeguards capacity building and their willingness to share information, and the c) having the technical capacity of the responsible agencies to implement mitigation measures, undertake monitoring and keep records.

194. Although the RoU's environmental management system is still based on a remedial or reactive approach, i.e. taking action only when a problem arises, instead of preventing it[20], it has a comprehensive and generally complete set of laws, decrees and standard with which to manage environmental issues. The priority senior administrators place on managing environmental problems is low, principally due to constrained budgets and other being issues rated as more important. A case in point is the Oqavasuv laboratory which, while mandatory, has never been established, leaving it without the ability to monitor its own effluent.

195. The four key agencies who will be directly involved in the implementation of the IEE and its EMP are: UCSA and its PMU, PIU and PDC, the Djizzak sewerage Company, the municipal SIAK lab of Goskompriroda and to a lesser extent the Administration of Djizzak City. Based on an audit of the five agencies in Djizzak with environmental testing and management responsibility, all had considerable technical gaps needing strengthening. These gaps ranged from capacity building in basic sampling, data collection, analysis, data storage, as well as information reporting.

196. There are also the industrial enterprises, intending to discharge wastewater into the new sewage system. All require pre-treatment and according to various norms and standards, must test their effluent quality and submit monthly reports to the Djizzak sewerage Company and SIAK. Of the 11 potentially dangerous industrial effluent emitters, none have known functioning pre-treatment and none have lab facilities to regularly test effluent, and all have multiple non-compliance issues (Table 2). Three of the industries were inspected and none had technical expertise for water sample, collection or even proper recording of sampling information.

197. The audits of five lab facilities (Table 11) further revealed the extent of capacity building as well as facility upgrading was needed on order to insure effective effluent testing in relation to a functioning new WWTP. Only SIAK had the equipment to undertake effluent sampling, but that is over 25 years old and no sampling scheduled had been established. The Djizzak sewerage Company, which by Decree is required required to have its own laboratory, had no facility or staff.

198. If the Djizzak sewerage Company hopes to maintain the new WWTP and provide a consistent regular effluent quality reporting to UCSA and ADB the SIAK lab will need strengthening and a Djizzak sewerage company laboratory will have to be established.

199. The capacity building program should begin with a workshop held during the preconstruction period to brief and train the main agencies responsible for the IEE on EMP implementation and reporting (Table 10).

[20] In the case of EIA it is fitting the assessment to a final location and design instead of determining site and design suitability first.

Table 10. Proposed Technical Capacity Building

Agencies	Deliverable	Content	Duration/ Timing
UCSA, PMU, PIU, Provincial Water & Sewerage Enterprise, Djizzak sewerage Company, SIAK, SES and contractor(s)	Workshop	• IEE understanding and use • EMP implementation and reporting • Understanding recent and relevant RoU legislation, e.g. Decree 11 and • Data bases, information sharing and collaboration	1 Day/ during preconstruction period
PMU, PIU, Provincial Water & Sewerage Enterprise, Djizzak sewerage Company, SIAK, SES and contractor(s) Industrial Ent.	Workshop	• Water quality analysis: sample collection, sample and data recording, data analysis, and reporting • Relevant RoU Decrees, norms and standards	1 days/ during construction period
PMU,PIU, Contractor, SES, Djizzak sewerage Company	Workshop	• EMP implementation and managing environmental compliance of contractor(s) • Contractor reporting and compliance monitoring checklist	½ day/ prior to start of construction
Industrial Enterprises UCSA,SES Djizzak sewerage Company	Workshop	• Effluent pre-treatment • Relevant legislation • Data collection and analysis • Decree 11	1 day/During the construction period

200. The proposed four workshops will be essential to enable its compliance with EMP. and to ensure the involvement of relevant agencies for operation of the future WWTP in compliance with RoU's relevant decrees, norms and standards.

201. Follow up training will be required for the Djizzak sewerage Company and SIAK Labs to insure sampling standardization, database design and information transfer protocol. The training for the labs will take place during the construction period, and delivery of this training will be either by the PDC[21], or via other national or international expertise.

202. Given the importance of pre-treatment of industrial effluent and the apparent lack of technical capacity or knowledge required to install proper pre-treatment, maintain it and file credible reports, a 2 day training session for the 11 industries of concern, will be organized by the PMU and will take place sometime during the construction period. The workshop participants will review the pre-treatment set-up of each industry and specify necessary upgrades and an implementation timetable to be completed before the commissioning of the new WWTP in 2018. The second focal area will be on effluent sampling, analysis and reporting, as well as the regulatory requirements and enforcement by SIAK and Goskompriroda.

[21] When calling from bids for a CMC, UCSA will specify the requirement for environmental safeguards and water quality information collection, analysis and management skills.

Table 11. Technical Audit of Five Djizzak Agencies with Water Quality Analysis Capabilities

Name of Facility/ Government Agency	Technical professional staff working: No. and level of training	Present Monitoring activity: when was last sample collection, where did it occur and what was sampled	What Tests Performed by the facility	Certified by what agency or system	Lab Condition: Describe in few words	Person(s) interviewed
Special Inspection of Analytical Control Laboratory (SIAK) of Djizzak Province Nature Protection Committee (Goskompriroda	6 person staff: • Higher degree – 3 • Bachelor degree-1 • Secondary technical education- 2	Industrial effluents and discharge of waste waters into Ulgursay RoU Norm calls for monthly monitoring but not done in earnest for some time. Request by UCSA for effluent testing was initiated by SIAK in late March 2014. Prior to that, last sample date not available.	Only Industrial Effluents and WWTP effluent testing as per RoU Decree 11 and exact tests as shown in IEE Table 1	There is no international or national certification entity per-se, but SIAK is required to adhere to Decree 11 and associated norms and standards	Laboratory is equipped with necessary equipment (1970s and early 1980s), albeit old and poorly functioning.	1. Head of Inspection Mr.Kuvandikov Nuritdin. 2. Leading specialist of laboratory Mr. Davronova Aziza
Djizzak Provincial UZHYDROMET	None	None	Only does weather forecast and agro-meteorology. At the national level it does air quality monitoring in 24 cities (not Djizzak)	UZHYDORMET	No laboratory in Djizzak	Head: Mr.Sirojev Gulom
Province Sanitary Epidemiological Services Lab (SES): part of Ministry of health	3 person staff • Higher education-1 • Secondary technical-2	1. Daily monitoring of drinking water quality. 2. Quarterly monitoring noise level at selected sites *NO data to date despite UCSA DG, request letter; -follow up, no result*	Drinking water monitored daily for Standard set of parameters according to RoU norms and standards (SanPip 0200-06)	Ministry of Health	Laboratory is equipped with necessary equipment. It is expected to purchase new equipment via a grant from the Islamic Development Bank	Deputy Head of Department Mr.N.Kuvandikov Head of laboratory Mr.F.Okhbutaev

Name of Facility/ Government Agency	Technical professional staff working: No. and level of training	Present Monitoring activity: when was last sample collection, where did it occur and what was sampled	What Tests Performed by the facility	Certified by what agency or system	Lab Condition: Describe in few words	Person(s) interviewed
Djizzak city Water supply enterprise, Central analytical laboratory	Chief specialist of drinking water laboratory – 1 (higher education) 2-engineer chemists for waste water analysis (secondary technical education)	Drinking water supply analysis is performed daily according to schedule agreed to with SES. Regular daily testing of drinking water completed	As per SanPip 0200-06	Provincial SES and checked by SIAK	Aging but functioning laboratory equipment (1984)	Head of Suvoqova: Chief Engineer Namazov
Djizzak city Sewerage Company Laboratory	This lab is mandatory but so far does not exist in Djizzak	Last analysis of industrial effluents were performed in 2012	Tests should be effluent Quality as defined in Decree 11	Provincial SES and checked by SIAK	Lab is needed and is mandatory according to Rou norm	Head of Oqavasuv enterprise" : Chief engineer Bachtiar

Source: Consultant interviews in Djizzak, April 2014.

XII. MITIGATION AND MONITORING COSTS

A. Environmental Mitigation and Monitoring Costs

203. With a preconstruction period of about 10-12 months, and the need of actions associated with preventative planning and technical capacity building, the estimated preconstruction cost will be about US$ 40,000.00. There will be one important training workshop to be held that will cost around 50% of the estimated cost. The remaining actions will involve the preparation of short plans and protocols that, if implemented and enforced, will avoid future impacts. UCSA has to commit and ensure that the EMP will be fully implemented.

204. During the construction period the demolition of the existing WWT plant, testing of quality sediment tank water, and sludge will need to be done in order to establish if hazardous materials are present. By knowing the quality of water and sludge, it will help in finding the best disposal method. Secondly during the construction period three workshops will be delivered, focusing on EMP implementation, water quality analysis and other aspects of good environmental mitigation and monitoring (Table 10). The three workshops, the water and sludge testing and implementation of the tree protection program for the 2- year construction period is estimated to cost about USD 280,100. It is recommended that PMU to purchase a noise meter and conduct a set of noise measurements at sensitive sites during the construction period, especially while the sewer is being laid.

205. During the operating period a semi-annual independent sewage effluent testing program will need to be carried out, and the implementation of mitigation measures also need to be monitored. To enable submission of project completion report, monitoring scheduled for years 1 will cost about USD $ 11,220. While the follow up monitoring to obtain operation permit from Nature Protection Committee (NPC) may need to be scheduled routinely and report need to be submitted to NPC. After the first year operation to the year 5^{th}, the environmental costs will at least be around f USD 22,440.00.

206. The largest item will be the water quality monitoring program;; undertaken in order to assemble a basic dataset on the project area's surface water quality. Sampling, lab analysis and reporting for at least seven years will cost a minimum of USD 304,000.00. However, this monitoring program will need to be reviewed to ensure the new environmental conditions will be taken into account. However, once the new laboratory of the Djizzak sewerage Company established, this cost will become an operating cost to be cover by DSSDP routine budget.

207. The total estimated mitigation and monitoring cost, is estimated to be USD 682,696.00 including a 7% contingency.

208. The budget provided in details on Annex 5 should be revisited during the preconstruction period, in order to re-examine the assumptions and costs with new information based on detailed design and planning considerations.

B. Social Development Programs and Resettlement Costs

209. The social impacts related with land acquisition both for permanent and temporary acquisition should be addressed in accordance to the Government Resolution on land acquisition and ADB's requirement as described in SPS 2009. The costs to be covered will include but not limited for compensating loss on income, loss trees, loss agricultural land where local government needs to develop a new agricultural land, compensation for vulnerable, and transaction costs to implement land acquisition and resettlement plan.

XIII. CONCLUSIONS AND RECOMMENDATIONS

210. The IEE for DSSDP identified 27 mitigation measures, and monitoring actions to be taken by UCSA, PMU, PIU, the contractor(s), and the Djizzak sewerage Company, at varying times, starting during the preconstruction period and extending into a number of operating period years. Each mitigation action was matched with a monitoring and reporting task, permitting easy compliance monitoring by the PMU and the PDC. A compliance monitoring checklist template is included as Annex 4 of this IEE in order to assist with this requirement.

211. Djizzak. UCSA established that there is very weak environmental technical capacity in Djizzak, and non-functioning facilities necessary for a new WWTP to operate properly. To address this gap four sets of training sessions will be organized and delivered during the preconstruction and construction period of the project. This training will include environmental management plan implementation, compliance monitoring and environmental record keeping.

212. Given the lack of facilities or staff to carry out the mandatory WWTP effluent monitoring, UCSA will need to initiate a monitoring program starting as soon as the loan would be signed and the project is mobilized. This surface water quality sampling program will need to be completed before the design of WWTP is completed, ensuring that the design of WWTP will take into account the quality of waste water that will be treated. This surface water quality sampling program will be designed to track the condition of the Ulgursay Canal, Tukursoy and Kly Canals, before the WWTP is built, during construction and once the WWTP is operation. Once the facility is operational, the Djizzak sewerage Company will be required to complete monthly water quality monitoring of the influent and effluent as stated in the requirement of monitoring effluent from the nature Protection Committee.

213. The existing WWTP will be fully dismantled but care must be taken to make sure that the nearly 20,000m^3 of sludge and water are tested before any disposal takes place, as the sludge could be toxic, i.e. contaminated with chromium (Cr^3), in which case special disposal procedures must be followed. UCSA will require to take 32 samples from all sediment tanks and tested for presence of toxic materials. Further, The contractor awarded the demolition contract will be required to identify any pipes or other structures that contain asbestos, then undertake a hazardous materials disposal program for these items according to RoU law.

214. Nearly all the waste materials from the WWTP will be broken down and removed to be recycled and reused. UCSA will follow the required steps of announcing the availability of these materials and letting local businesses take them for reuse or recycle according to the local regulation in a first-come-first-serve basis.

215. During the pre-construction period, and as soon as a contractor has been selected, UCSA, in cooperation with local officials, the police and the contractor(s) will prepare a traffic management plan to ensure traffic safety of affected areas and avoid traffic congestion due to sewer construction, and to ensure a minimum disturbance, and to restore access from home to local streets for local people, as quickly as possible after sewer pipe placement is completed.

216. A tree cutting and replanting plan will also be prepared in order to prevent or keep to an absolute minimum the removal of mature trees from the construction sites, as these trees are essential for providing shade and to help attenuate dust during the hot dry summers. UCSA will lead the development of this plan and instruct the contractor on the cutting limits as well as the penalties for illegal or accidental tree removal (as defined in the IEE).

217. While the WWTP construction will take place in a rural setting with no nearby dwellings or people to be impacted, the work to lay the sewer pipes will be in largely urban areas along local Djizzak streets, where dust, noise and protection of the urban landscape is essential, To that end UCSA, through its PMU, PIU and PDC will set out the operating limits of the contractor, namely no work between the hours of 19:00 and 07:00 , the use of low noise construction machinery and the maintenance of all haul roads to reduce dust. Loud equipment such as jack hammers will be restricted between 17:30 and 0700.

218. Once collector sewers have been placed, the contractors will be required to immediately rehabilitate and fully landscape all disturbed areas, and re-establish preconstruction conditions unless the site was already contaminated. UCSA will require it's PIU and the PDC to monitor. PDC will undertake regular interviews with local residents to check that the rehabilitation is done satisfactorily.

219. The work with the pumping stations includes relocation of one station, the full rehabilitation of two others and the construction of a new station. Essential for the successful upgrading of the three stations will be the careful clean-up of the area subject to years of flooding and contamination with overflowing raw sewage. The boundary of the clean-up area will be determined with the cooperation of local residents and contaminated soils will be buried or tilled into the ground and the area full re-landscaped. The rehabilitated pumping stations will be housed in buildings protected from the elements, be provided with a reliable power supply and be maintained according to a strict schedule implemented by the Djizzak sewerage Company.

220. The monitoring of the contractor's work and the implementation of the mitigation actions defined in the IEE's EMP will be essential if the predicted project impacts are to be avoided or minimized. The PDC will therefore be required to conduct quarterly compliance monitoring reviews, in addition to the regular monthly inspections completed by the PIU.

221. The chemical-mechanical sewage treatment process produces nutrient rich sewage sludge which will be pumped into a number of sludge ponds, requiring management and periodic cleaning. Within the first year of operations, UCSA will instruct the Djizzak sewerage Company to prepare a sludge management procedure, and implement it.

222. The total estimated cost for the implementation of the EMP over a 7 year period will be around USD 650,000.00, not including a contingency.

223. This WWTP and sewer collectors are very urgently needed and every effort should be made to expedite it and put the facility into operation. This was a universal view expressed by all participants of the consultation session. It will be an overwhelmingly positive impact, affecting thousands of families, by improving their standard of living and household health.

224. The effective operation of WWTP will require several supporting facilities and resources. The most important facilities that UCSA will put in place will be the DRWSSEI is effluent quality testing laboratory. It is therefore, recommended that the project include a component for assisting with the development and strengthening of the DRWSSE laboratory. In compliance with the new resolution No 14/2014, the DRWSSE laboratory will be equipped to test toxicity and heavy metal levels in effluent, in addition to the standard tests specified in Decree 11 and Resolution No. 14.. UCSA will ensure that certification of this laboratory is obtained also from the State Committee on Nature Protection. Therefore, it is recommended that establishment of laboratory and capacity development to operate the laboratory could be carried out in close consultation with the State Committee on Nature Protection.

225. With the completion of the IEE and the implementation of its EMP, UCSA will have taken all necessary actions to ensure that this project is completed in an environmentally

competent manner, in keeping with international and national safeguard standards. Nonetheless, regular monitoring will be required to ensure that EMP is implemented and updated if it is required. On this basis, UCSA concludes that further environmental assessment study will not be required.

XIV. ANNEXES

1. Sample of newspaper advertisement and Brochure
2. Consultation Minutes and attendance signatures
3. EMP (EmiT and EMoT)
4. Compliance Monitoring Checklist
5. Costing Details (including for capacity building)
6. Decree No.11
7. Public Consultation Presentation (English Version)

Annex 1
Newspaper Advertisement for Consultation Session

GAZETA 1974-YIL 1-MAYDAN CHIQA BOSHLAGAN. ✓ WWW.JIZZAXHAQIQATI.UZ ✓ 2014-YIL 19-APREL, SHANBA № 34 (5447)

Ўзбекистон Республикаси Президентининг
ҚАРОРИ

ТАДБИРКОРЛИК ФАОЛИЯТИНИ АМАЛГА ОШИРИШ ВА ДАВЛАТ ХИЗМАТЛАРИНИ КЎРСАТИШ БИЛАН БОҒЛИҚ ТАРТИБОТЛАРНИ ЯНАДА ТАКОМИЛЛАШТИРИШ ЧОРА-ТАДБИРЛАРИ ТЎҒРИСИДА

Ўзбекистон Республикаси Президентининг "Ўзбекистон Республикасида инвестиция иқлими ва ишбилармонлик муҳитини янада такомиллаштиришга доир қўшимча чора-тадбирлар тўғрисида"ги 2014 йил 7 апрелдаги ПФ-4609-сонли Фармонига мувофиқ ҳамда лицензиялашни ва рухсат этиш характерига эга ҳужжатларни бериш механизмларини янада соддалаштириш ва арзонлаштириш, шунингдек, латаси, бошқа манфаатдор вазирлик ва идораларнинг:

2014 йил 1 июндан бошлаб, тадбиркорлик фаолияти соҳасидаги лицензияланадиган фаолиятнинг ва рухсат этиш характерига эга ҳужжатларнинг алоҳида турларини 1- ва 1-а иловаларга мувофиқ бекор қилиш;

фаолиятнинг лицензияланадиган турларини ва рухсат этиш характерига эга тартиботларни расмийлаштиришнинг муддатла-

JIZZAX PEDAGOGIKA DAVLAT INSTITUTI

Фестиваль

мияти, ўзбек кино саноатида кечаётган жараёнлар хусусида ёшлар билан қизғин фикр алмашилди. Шунингдек, "Хонадон эгаси" ва "Қудуқ" фильмларининг мазмун-моҳияти, киноасарни яратишдан кўзланган мақсадлар ҳақида сўз юритилди. "Қудуқ" фильми вилоятимизнинг Ғаллаорол туманида тасвирга олинган.

"Хонадон эгаси" фильмининг намойиши Юнус Ражабий номли вилоят мусиқали драма театрида бўлиб ўтди. Бугун Арнасой, Дўстлик, Жиззах, Фориш, Зомин, Янгиобод туманларида ижодий учрашувлар бўлиб ўтади. Якшанба куни бундай тадбирлар Мирзачўл, Зафаробод, Пахтакор, Зарбдор, Ғаллаорол ва Бахмал туманларида бўлиши кўзда тутилган.

Newspaper: JIZZAX HAQIQATI
Date: 19 April 2014
By: Djizzak city sewerage Company "Okavasu"

Dear city citizens,
On 22 April will be held public consultations devoted to discussion of environmental impacts during reconstruction of treatment facilities and sewage collectors in Djizzak city.
Objective of the consultation is to provide to public information on project and discuss environmental impact issues that will appear during construction and commissioning of sewerage treatment facility and sewerage networks and receive comments.
During the first phase of the project part of sewerage networks and sewerage treatment plant will be reconstructed.
The project will be funded by Asian Development Bank and the Government of Uzbekistan.
Venue: Djizzak city, Sh.Rashidov street, 115
Tel: 226-24-42

Annex 2:
Consultation Brochure, Meeting Minutes and Attendance

Қисқача маълумот

Ўзбекистон Республикаси ҳукумати келгусида аҳолининг турмуш даражасини яхшилашга, сифатли ичимлик суви ва канализация хизматлари билан таъминланганлик даражасини оширишга, замонавий иқтисодий ва энергия тежамкор технология ва ускуналарни тадбиқ этишга, энергия ресурслари ва сувдан самарали ва мақсадга мувофиқ фойдаланишга алохида этибор қаратмоқда.

«Жиззах шаҳрининг канализация тармоқлари ва тозалаш иншоотларини таъмирлаш» лойиҳаси Осиё Тараққиётёт Банкининг кредит маблағлари ёрдамида амалга оширилади ва у Жиззах шаҳри оқова сувларини тозалаш ва сувларни йиғиш муаммоларини ҳал этишга қаратилган. Лойиханинг асосий мақсади экологик ва санитар-эпидемиологик холатларни, Жиззах шахрида яшовчи аҳолининг соғлиғи ва яшаш шароитини яхшилашдан иборат.

Лойиҳани амалга ошириш оқоваларга ташланаётган Улгурсай каналини кейинчалик ифлосланишини олдини олиш мақсадида Жиззах шаҳри тозалаш иншоотидаги оқова сувлари тозалаш ва чиқиндиларни қайта ишлаш ва тозаланаётган оқова сув иморатини меёрий талаб даражасигача етказиш муаммоларини ечиш имконини беради.

Бошланғич экологик баҳолаш: Қилинадиган ишлар ва потенциал экологик муаммолар.

Лойиҳа доирасида оқова сувларни тозалашга мўлжалланган 30 000 м3/сутка қувватли янги тозалаш иншооти, Халқобод кўчасида вақтинча жойлашган оқова сув насос станцияси ўрнига 18 000 м3/сутка қувватли янги насос станциясини қуриш мўлжалланган.

Янги насос станцияси оқова сувларни Жиззах шаҳрининг марказий ва шимоли-ғарбий қисмидан тозалаш иншоотига хайдаб бериш имкониятини беради. Шунингдек, 240 ва 170 м3/сутка қувватли “Зилол” ва “Х.Носиров” номли иккита насос станцияларини ва “Уч-Тепа” оқова сув насос станциясини реконструкция қилиш, умумий узунлиги 50 км.га тенг оқова сув коллекторларини, насос станцияларидан юқори босимли тармоқни, Уч-Тепа туман марказидан Жиззах шахрининг тозалаш иншоотагича юқори босимли коллекторларни ва тозалаш иншоотагича ўзи оқадиган коллекторларни қуриш кўзда тутилган.

Мазкур лойиҳанининг атроф муҳитга таъсири ижобий бўлади, уни амалга ошириш мобайнида вужудга келадиган салбий таъсири вақтинча характерга эга бўлади.

Қурилиш ишларини амалга ошириш мобайнида атфмосферага ноорганик чанг, қурилиш ва бошқа техникадан чиқадиган ёқилғи моддалари тушади. Тупроқ таркиби, ер усти ўсимлик таркиби ўзгаради. Табиатнинг ушбу компонентларига бўлган ножўя таъсир вақтинча характерга эга ва тиклаш имконияти мавжуд бўлади.

Канализация коллекторларини тузатиш, уларни тозалаш ишларини амалга ошириш канализация коллекторларининг иш режимини ўзгартиради. Бу атрофдаги ҳудудларнинг санитария-гигиеник ҳолатини ёмонлаштириши мумкин. Ножўя таъсир қисқа муддатли ва тиклаш имконияти мавжуд бўлади.

Асосий эътибор йўл четидаги дарахтларни сақлаб қолишга қаратилади.
Ўтиш йўлларини таъминлаш мақсадида махсус программа ва йўл харакатини бошқариш бўйича протокол ишлаб чиқилади.

Дастлаб, лойиҳа бўйича ижобий таъсир канализация тармоғини тозалаш ва оқава сувларни тозалаш иншоотларига хайдаш билан боғлиқ бўлади. Ҳозирги кунда коллекторларнинг ўтказиш қобилияти насосларнинг эскириб қолиши, ахлатлнинг тиқилиши ва ёриқлар туфайли жуда камайиб кетган эди. Янги коллекторларни қуриш, мавжуд тармоқларни, насос станцияларини ювиш ва ремонт қилиш, янги тозалаш иншоотларини қуриш оқава сувларни ўз вақтида йиғиш ва меъёрий даражагача тозалаш имкониятини беради. Аҳолининг ижтимоий-иқтисодий шароитлари яхшиланади.

Канализация коллекторларини янгилаш ва кенгайтириш, канализация инфраструктурасини бошқаришни яхшилаш аҳоли томонидан оқава сувларни бетартиб равишда оқизишини бартараф этади, ер ости ва ер усти сувларини ифлосланиш даражасини камайтиради ва оқибатда аҳолининг касалланиш даражасини камайтиради, шаҳарнинг санитария-эпидемиологик ҳолати яхшиланади.

Қурилиш ишлари мобайнида хавфсизлик техникасига риоя қилиш таъминланади ва шовқин даражасини, чанг, вибрация даражаси назорат қилинади.

Қурилиш вақтида чиқинди ва ишлаб бўлган мойларни йиғишга мўлжалланган контейнерлар ташкил этилади. Ушбу контейнерлар махсус ажратилган жойларга кўмиш ва регенерация қилиш учун олиб чиқиб кетилади.

Қурилиш майдони контролерлари ҳар куни қурилиш амалга ошаётган ва атрофдаги жойларни айланиб кўз ташаб чиқадилар ва қурувчилар томонидан табиатни мухофаза қилиш тадбирларини амалга ошираётганликларини текшириб чиқадиар (хавонларга ва ўсимликларга озор еткизмаслик, чиқинди ва мойларни махсус идишларга йиғиш ва ҳоказо).

Қурилиш-монтаж ишлари тугагандан сўнг қурилиш жойлари чиқиндилардан тозаланади ва ободонлаштирилади. Кўчаларнинг асфалт қаватларига зиён еткизилса улар қайта тикланади.

Батафсил маълумот “Бошланғич экологик баҳолаш” якуний хисоботида тақдим этилади. Ушбу хужжат учрашувнинг хамма иштирокчиларига Жиззах вилояти “Сувоқова” бошқармасида тарқатилади.

Таклиф этилаётган енгиллатирувчи тадбирлар ва мониторинг

“Бошланғич экологик баҳолаш” ҳисоботи ўз ичига таъсир даражасини камайтириш бўйича чоралар ва мониторинг бўйича чоралар режасини қамраб олади. Ушбу режа тозалаш иншоотларини ва канализация тизимини қуриш ва эксплуатация қилиш даврида, экологик таъсир даражасини бартараф этиш ва таъсир дарасини камайтириш чораларини мониторинг қилиш мақсадида қандай чора-тадбирларни амалга ошириш зарурлигини белгилаб беради. Режа “Атроф-муҳитни бошқариш режаси” (АМБР) деб номланади ва у мазкур учрашув тугагандан кейин иштирокчиларга ва Жиззах вилояти “Сувоқова” бошқармасига кўриб чиқиш учун тақдим этилади.

АМБР вилоят ва туман инспекторларидан атроф-муҳитга бўладиган таъсирни камайтириш борасидаги ҳисоботларини ва уни қандай бажараётганлари тўғрисидаги маълумотни тақдим этиб туришларини талаб этади. Ҳар 6 ойда Осиё Тараққиёт Банкига ҳисоботлар

жамоатчилик тайёрланади ва тақдим этиб турилади. Ушбу ҳисоботлар учун ҳам очиқ бўлади.

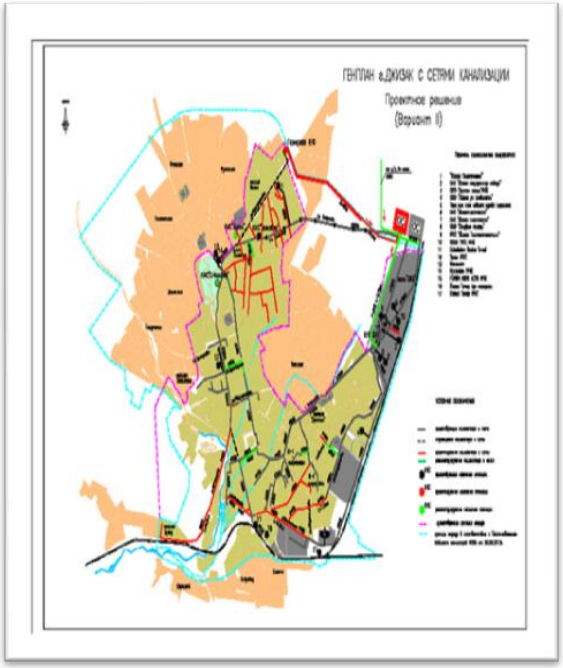
Тўлиқ “Бошланғич экологик баҳолаш” ҳисоботи ОТБнинг қуйидаги интернет саҳифасида чоп этилади: www.adb.org. Ушбу ҳисоботни шунингдек қуйидаги манзилдан ҳам олса бўлади:
«Узкоммунхизмат» Агентлиги
Жиззах Вилояти «Сувокова"
UNICON International компанияси

Ишларни амалга ошириш жадвали

Жамоатчилик вакиллари билан учрашув 17 апрель куни Жиззах шаҳрида бўлиб ўтади. Бошланиш вайти 10:30. Учрашув ўз ичига презентация ва фикр алмашиш ларини олади. Учрашув мобайнида кофе брейк учун танаффус бўлади. Презентациянинг босма нусхаси учрашувнинг ҳамма қатнашчиларига тақдим этилади.

Экологик баҳолашнинг амалга ошириш жадвали:

1. Амалга ошириш даври: январь-апрель 2014 й.
2. “Бошланғич экологик баҳолаш” информация йиғиш жойини ўрганиш: январь-март 2014 й.
3. Жамоатчилик вакиллари билан учрашув ва танишув суҳбати: 15 апрель 2014 й.
4. “Бошланғич экологик баҳолаш” ҳисобот лойихасини Осиё Тараққиёт Банки ва Ўзбекистон ҳукумати томонидан кўриб чиқиш учун тайёрлашни тугатиш: 26 апрель 2014 й.
5. “Бошланғич экологик баҳолаш” ҳисоботининг қисқача шаклини ўзбек ва рус тилларига таржима қилиш: май 2014 й.
6. “Бошланғич экологик баҳолаш” ҳисоботини вилоят ва туман «Сувокова» томонидан кўриб чиқиш.
7. Пудратчини 2014 йил охиригача танлаб олиш.
8. Қурилиш ишларини бошлаш: 2015 йил боши.
9. Қурилиш ишларини тугатиш: 2016 йил охири.



Жамоат вакиллари билан учрашув

Ижрочи ташкилотлар: «Узкоммунхизмат» Агентлиги Осиё тараққиёт банки ва UNICON International консультантлари билан биргаликда

Brief information

The Government of the Republic of Uzbekistan pays special attention to further improvement quality of life, increase coverage with high-quality drinking water and sanitation services, introduction of modern fuel-efficient and energy-saving technologies and equipment, effective and efficient use of water and energy resources.

The «Reconstruction of sewerage networks and treatment facilities of Djizak city» project will be implemented using ADB loan funds and aimed at solving waste water and waste water treatment problems in Djizak city. The project aims to improve environmental and health situation, health and living conditions of people living in Djizak city.

The project will solve the problem with sewage treatment and sludge treatment at Djizak city treatment facilities with bringing quality of treated wastewater to the regulatory requirements in order to prevent further contamination of the water channel Ulgursay where wastewaters are discharged.

Initial Environmental Evaluation: Works and potential environmental problems

Project provides for construction of new wastewater treatment plant with capacity 30 000 m3/day, sewage pumping station replacing temporary pumping station on Halkabad street with capacity 18 000 m3/day.

The pumping station will pump sewage to treatment facilities from central and north-western territory of Djizak city. Also it is planned to reconstruction of two sewage pumping stations Zilol and H.Nosirov with capacity 170 and 240 m3/day accordingly, sewage pumping station “Uch Tepa”, sewers with total length of 8.2 km. Construction of sewers with total length of 20.3 km, flow lines from pumping stations, pressure collector from district center “Uch Tepa” to Djizk city treatment facility, gravity sewers.

The project is expected to have improve environmental situation, negative impacts will have temporary nature.

Inorganic dust and combustion products from construction and mobile technology will be introduced into the air during construction works. Condition of soil, land cover will be disrupted. Impact on these environmental components will be temporary and reversible.

Repair and construction of sewers and cleaning will change the operating mode of sewers that may worsen sanitary conditions surrounding areas. Impacts will be short term and with reversible effects.

Асосий эътибор йўл четидаги дарахтларни сақлаб қолишга қаратилади.
Ўтиш йўлларини таъминлаш мақсадида махсус программа ва йўл харакатини бошқариш бўйича протокол ишлаб чиқилади.

Initially, the benefits will occur in connection with the cleaning , restoration sewerage network and sewage disposal treatment facilities. Currently bandwidth is significantly reduced due to the collectors of sediment contamination and leakage. Construction of new sewers, washing and repair of the existing network , pumping stations and the construction of new sewage treatment plants will allow time to collect wastewater and clean them up to standard indicators of quality effluent. Socio-economic living conditions of people improve.

Rehabilitation and extension of sewers, improved governance sewer infrastructure will reduce the unorganized discharge of sewage from a population, reduce the pollution of ground and surface waters, and as a consequence reduce morbidity, improve sanitary and epidemiological situation in the city.

Strict adherence to safety regulations and monitoring of noise levels, dust, vibration will be ensured during implementation of construction works.

Containers for collection of garbage and containers for collection of oil waste with subsequent export to special burial places and regeneration will be provided during the construction works.

Inspectors will daily monitor construction sites and surrounding areas for visual examination of environmental protection arrangements (without causing harm to animals and plants, waste collection and oils in a special container, etc.).

After completion of construction works construction sites will be cleaned of debris and landscaped. In case of asphalt destruction streets will be repaired.

Detailed information will be provided in final version of Initial Environmental Evaluation report which will be circulated to all participants by “Suvokova” of Djizak province.

Proposed mitigation actions and monitoring

IEE will include mitigation and monitoring plan which will determine actions necessary during construction and operation of treatment facilities and sewerage system to eliminate all significant negative environmental impacts. The Environmental Management Plan (EMP) will be provided for review to participants, local “Suvokovas” of Djizak province for review.

EMP will require reporting by regional and district inspectors of mitigating the impact on the environment and how well it is implemented mitigation. Reports will be prepared and submitted to ADB every 6 months. These reports will be available for public information.

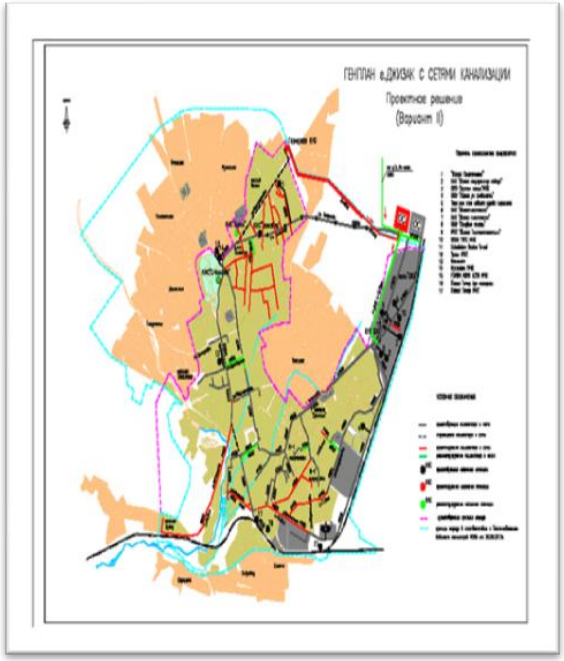
Full version of IEE will be disclosed on ADB web site at www.adb.org and will be available to receive on the following addresses:
Agency «Uzkommunkhizmat»
«Suvokova" of Djizak province
Company UNICON International

Implementation schedule

Meeting with public stakeholders will be held on 17 April 2014 in Djizak city at 10:30 a.m. The consultations will include presentation, discussions and coffee break. Printed version of presentation will be distributed to all participants of the consultation

Environmental evaluation schedule:

1. IEE: January-April 2014.
2. Site survey, data collection for IEE: January-March, 2014.
3. Meeting with representatives of public and consultations: 15 April 2014.
4. Completion of project IEE for further review by the Government and ADB: 26 Aril 2014.
5. Translation of summary IEE to Uzbek and Russian language: May 2014.
6. Review IEE by the participants at provincial and city level of «Suvokova».
7. Selection of contractor by end of 2014.
8. Commencement of construction works: beginning of 2015.
9. Completion of construction: end of 2016.



Public Consultations

Executing organization: Agency “Uzkommunkhizmat” together with Asian Development Bank and UNICON International consultants

Record on Public Consultation

A. People Delivering the Workshop and Information Disclosed

1. Representatives of the following organizations and Djizzak city residents took part in the consultations:

i. Djizzak City Administration
ii. Djizzak Province water supply and sewerage enterprise
iii. Djizzak city sewerage enterprise
iv. Djizzak city water supply enterprise
v. Djizzak city State Epidemiologic Services
vi. Uzbekistan hydrometeorological organization “Uzhydromet”, Djizzak branch
vii. Djizzak city Health Department
viii. Djizzak city Nature Protection Department
ix. Djizzak city Roads Management and Operation Department
x. Djizzak city Traffic Police
xi. Djizzak city Beatification department
xii. Enterprises discharging industrial effluents to city sewerage network
xiii. Local environmental NGOs
xiv. Djizzak city Technical University Teachers
xv. People living along road and people who may have impact during construction of sewerage collectors
xvi. Residents of houses located around overflowing sewerage pump stations and other city residents
xvii. Both the national and international environmental specialists, representing UCSA and the consultant UNICON

2. Totally, 46 people took part in the consultations, of which five were female. Detailed list of participants is included below.

Summary of Comments by Participants

3. After the Consultant’s presentation the participants were invited to ask any question and share their comments on the project. The participants asked number of questions and provided some comments.

4. Industrial effluents. The participants were interested if quality of industrial effluents will be monitored. They mentioned that industrial enterprises are discharging their effluents without pre-treatment and due to the fact that sewerage treatment plant does not function these effluents goes to Ulgursay channel causing serious environmental impacts. For example last year people around Ulgursay channel witnessed a lot of foam which rose above the channel for one meter in a long distance due to chemicals discharged in to Ulgursay channel. The project team was asked to include in the project all possible measures to ensure that industrial enterprises will pre-treat their effluents properly before discharging to sewerage system.

5. “Khalkobod” sewerage pumping station. Participants provided some information on “Khalkobod” sewerage pumping station located in Djizzak city which causes real problems for people living around it. This pump station was located wrongly in the middle of densely populated area causing very bad odour and over-flooding from time to time. Participants strongly recommended to reconstruct the pump station or move it to another location, far from populated area.

6. Locked sewerage pipelines. The participants were interested what actions will be taken for those old sewage pipelines which are filled with sludge and blocked. In the city

there number of places where sewage pipes are blocked and cause problems such as impossibility of connection to city sewerage system, overflowing of waste waters which have serious environmental and health impacts.

7. Relief of the city. The participants mentioned that relief of the city is hilly and this allows to use gravity for sewages. If gravity will be used a lot of electricity will be saved and there will be no need for pumping.

8. Rain waters. During rainy seasons, a lot of rain water is accumulated in the city streets. The participants asked if the project will take into account drainage of rain and storm waters because in some areas it really difficult to cross streets because of accumulated rain waters.

9. Recovering streets after construction works are completed. The participants were concerned if streets will be recovered after the project is completed. During previous ADB funded drinking water supply project the city streets were recovered badly. On places where construction works were completed the streets were recovered with poor quality and later these streets became broken which now causes inconveniences for the city residents. The participants were concerned if the same will repeat in this ADB sewerage project.

10. Trees protection. The participants interested in ADB requirements for protection of trees during the project implementation. The city is located in hot and dusty area. For this reason the city pays great attention for planting and protection of trees. The participants asked to do the best not to cut trees in the city during the execution of construction works on streets.

11. Loan repayment. The participants were interested to know timelines and requirements for the loan repayment. They mentioned that this is quite big loan for the city and after the project completion the city must effectively use the new facilities, people should be careful and not discharge effluents that can violate work of the sewerage system and pay timely their bills, industrial enterprises must be prohibited to discharge not pre-treated effluents and sewerage enterprise must thoroughly monitor all these requirements. Otherwise the new system can repeat the fate of existing and not working sewerage treatment facility which became ineffective in a short period of time, within about twenty years after commissioning in 1980.

12. Provide new equipment for the Djizzak sewerage enterprise. Participants mentioned that to provide effective operation and maintenance the operator – Djizzak sewerage enterprise “Oqavasuv” will need enough number of equipment and machineries. In this regard will the project provide enough equipment and machineries for the Djizzak “Oqavasuv” including necessary laboratory equipment?

13. Payment for connection of new customers to the sewerage system. The participants were interested how new households will be connected to the sewerage system. If the project will pay for that or the households must pay.

Summary of Reply by Workshop Team

14. All questions and comments of the participants were answered by the Consultant and chief engineer of Djizzak sewerage enterprise “Oqavasuv” as follows.

15. Locked sewerage pipelines. All sewerage pipes in the areas included in to the project scope will be cleaned and if necessary will be replaced to new pipes. Totally the project plans to replace about 11 km of old and locked pipelines which will solve abovementioned problems. Sewerage networks in remaining part of the city which is not included in to the project scope will be reconstructed in Phase 2.

16. Industrial effluents. One of the requirements of the loan will be establishment of pre-treatment facilities in industrial enterprises by the year of commissioning of new treatment

facility. The Government will have to guarantee that such enterprises will establish pre-treatment facilities on the territory of the enterprise and discharge effluents with quality that complies with the National Standards of Uzbekistan. Djizzak sewerage enterprise "Oqavasuv" already started sending letters-notifications to enterprises asking to establish their pre-treatment facilities by the year 2017. Actually, according to the Decree of the Cabinet of Ministers of Uzbekistan No.11 dated 03.02.2010 enterprises was to establish such treatment facilities however they did not. This decree should be enforced.

17. "Khalkobod" sewerage pumping station. This pumping station will be closed and moved to a new location outside the city. So, environmental situation in the area where existing pump station is located will be solved. Also the area will be completed rehabilitation and re-landscaped.

18. Relief of the city. Designers will do their best to take into account the relief of the city and use gravity mode of work of sewerage system, however pumping stations will be required.

19. Rain waters. Rain waters are usually drained out by rain drainage system through ditches. According to the standards of Uzbekistan, sewerage systems are not planned for accepting rain waters. There must be parallel system to drain rain waters. There is now a wide reconstruction works in the city initiated by the Government. We hope that within these works rain water drainage systems of the city will be reconstructed.

20. Recovering streets after construction works are completed. The project will recover all the streets where construction works will be implemented. There are funds allocated by ADB for recovering the streets. Main policy of ADB is restoration of all impacted assets to original condition including streets. If the project will not recover streets or will recover with poor quality the city residents can inform UCSA the Uzbekistan Communal Services Agency "Uzkommunkhizmat" at +99871 235-45-24, regarding poor quality of post –sewer installation street repair. UCSA will inform the contractor to take immediate steps.

21. Trees protection. The project will try to avoid cutting trees as much as possible. If it will be impossible to avoid that trees will be cut following legislation of Uzbekistan and ADB safeguards requirements. In this case all actions will be coordinated with the Djizzak city State Nature Protection Department all required compensations will be paid and/or new trees will be planted after the works are completed. Mr. Teleki mentioned that a tree cutting, protection and replanting plan will be prepared and used by the contractor.

22. Loan repayment. The loan repayment terms are still not fixed. From ADB other projects we can say that the period of repayment may be about 20-25 years. And like in previous ADB water supply and sewerage projects in Uzbekistan the Government (Ministry of Finance) may repay 100% of the loan. Anyway this loan terms are still under consideration.

23. Provide new equipment for the Djizzak sewerage enterprise. The project will provide all necessary equipment and machineries for Djizzak sewerage enterprise "Oqavasuv" so that it will be able to maintain the system properly and analyse the quality of the effluent discharged to the sewerage system.

24. Payment for connection of new customers to the sewerage system. This matter is under consideration now. However, usually households themselves pay for connection to sewerage system. Anyway, at this stage we cannot say exactly who will pay for that. The UCSA consultant is now conducting willingness/readiness of city population to pay for improved sewerage services which will be completed soon. Based on results of this survey and in coordination with the Government decision will be taken on this

List of participants

Agency Name or General Public	Name of Person	Title	City
Djizzak city Hokimiyat	Mr.Ortikov S.	Head of Department	Djizzak
	Mr. Yusupov M.	Deputy Head of Department	Djizzak
Djizzak province water supply and sewerage enterprise	Mr. Shukurov P.	Head of Department	Djizzak
	Mr. Ochilov W	Leading expert	Djizzak
Djizzak city sewerage enterprise “Okavasuv”	Mr. Ortikov Yu.	Head of Department	Djizzak
	Mr. Rustamov B	Engineer	Djizzak
	Mr. Mustafakulov B	Chief Engineer	Djizzak
Djizzak City Nature Protection Committee Department	Mr. Norbekov.U	Head of Department	Djizzak
Djizzak city Health Department	Mr. Mahmonov. O	Head of Department	Djizzak
Djizzak city Roads Management Department	Mr. Raimjonov U	Deputy Head	Djizzak
Djizzak city Public Education Department	Mr. Jabbarov J	Head of Department	Djizzak
«Suvokavakhizmat»	Mrs. Prozorova T.V	Engineer	Djizzak
Djizzak city Communal Services Department	Mr. Ahmedov V.	Head of Department	Djizzak
Djizzak city Technical University	Mr. Takabaev K.	Teacher	Djizzak
	Mr. Bobomuradov U.	Teacher	Djizzak
Tannery plant	Mr. Alikulov S.	Deputy Director	Djizzak
	Mr. Karimov O.	Engineer	Djizzak
Oil production plant “Buston Olami”	Mr. Ochilov V.	Deputy Director	Djizzak
“Toshtepa Tekstil” textile company	Mr. Rozov M.	Head of Department	Djizzak
Residents around Khalkabad sewerage pump station	Mr. Turdikulov O.	City resident	Djizzak
	Mr. Asadov H	City resident	Djizzak
	Mr. Sultonov R	City resident	Djizzak
	Mr. Samatov U	City resident	Djizzak
Resident around sewerage treatment facility	Mr. Rozikov B	City resident	Djizzak
	Mr. Turdikulov T	City resident	Djizzak
	Mr. Tuychiev S	City resident	Djizzak
	Mr. Umerov E	City resident	Djizzak
Environment Movement	Mr. Karshiboev	Head of Department	Djizzak
Car battery plant	Mr. Ziyoev F	Engineer	Djizzak
Makhalla Navruz	Mr. Nasreddinov	City resident	Djizzak
Makhalla Tashlak	Mrs. Nurullaeva D	City resident	Djizzak
	Mr. Ikromov A	City resident	Djizzak
Erkin JSC	Mr. Satarov	Deputy Director	Djizzak
Treatment facility	Mr. Umarov H	Engineer	Djizzak
Djizzak city TV	Mr. Rahimkulov G	Editor	Djizzak
	Mr. Jelmuradov Z	Operator	Djizzak
	Mrs. Jamolova R	Narrator	Djizzak
	Mrs. Abnorova S	Narrator	Djizzak

Laboratory of Djizzak province water supply and sewerage enterprise	Mrs. Jamolova R	Head of laboratory	Djizzak
	Mrs. Akbarova S	Laboratory assistant	Djizzak
City Beautification Department	Mr. Ahmedov B	Head of Department	Djizzak
Hotel «Grand Tover»	Mr. Halilov I	Director	Djizzak
Makhalla Bunyodkor	Mrs. Umarova F	City resident	Djizzak
	Mrs. Tursunova	City resident	Djizzak

Annex 3

The Environmental Management Plan

Djizzak Sewage Treatment Facility Subproject: Environmental Mitigation Table (EmiT)

Environmental Impact/Issue	Mitigation Measures	Location[2]	Time Frame	Responsibility	
				Implementation	Supervision
1. PRE-CONSTRUCTION PERIOD –mostly planning tasks designed to prevent negative effects from occurring later during the project					
1.1 Lack of any capacity to understand and implement environmental mitigation measures, and no training	Design and deliver a training workshop on EMP implementation	Djizzak	Prior to contractor mobilization to the field	UCSA, PMU consultant	UCSA
1.2 No provision for translation of IEE and related documents for use by PIU and contractors	UCSA to insure that translation into Uzbek is completed	NA	Prior to contractor selection	UCSA	UCSA
1.3 Bid documents prepared without access to or use of the IEE and particularly this EMP	Inclusion of environmental specifications in contract bid documents, based on EMP items, as well as preparation of a bill-of-quantities section specifically showing environmental safeguard costs	NA	When bid documents are being prepared	UCSA and PMU	UCSA
1.4.Contractor selected has no capacity to implement safeguards	UCSA to decide if contractor to be prequalified in the environmental safeguards area or a requirement for expertise, whether hired or internal must be demonstrated prior to start of construction	NA	When bid documents are being prepared	UCSA and PMU	UCSA
1.5 Pre-construction period monitoring checklist not submitted	UCSA advises PMU and PDC that such a checklist is needed	NA	Within 2 months of end of preconstruction period	UCSA and PMU	UCSA
1.6 Failure to Initiate a traffic management plan, to handle traffic during sewer installations	UCSA to advise PMU that a basic traffic management plan—at last framework must be prepared and be ready for use by the contractor	For all sewer installations involving actively used roads	The framework should be ready by the start of the construction period	UCSA and its PMU	UCSA
1.7 Failure to prepare specifications on how to manage temporary access blockages due to sewer pipe placement	PMU to establish the sequence for notification of work to come, doing the work and restoration of access to all households and businesses affected, such that this disruption is known ahead of time, is as short as possible and the re-established access is at least as good as prior to construction.	All worksites	Prepare prior to start contractor mobilization to field	UCSA, PMU and PDC	UCSA
1.8 No tree inventory and cutting specifications prepared for sewage line construction corridor	Most collector sewers to be replaced or newly installed will be buried along road shoulders, which have many mature trees. A tree inventory and cutting plan will be required in order to minimize to an absolute minimum the removal of trees, accompanied with a replanting plan, with input from local residents and district forest departments, concerning species, if the trees cut cannot be replaced with the same species	For all sewer installation corridors-where there are trees	Inventory and 1st draft by end of preconstruction period	UCSA and PMU	UCSA
2. CONSTRUCTION PERIOD					

Environmental Impact/Issue	Mitigation Measures	Location[2]	Time Frame	Responsibility	
				Implementation	Supervision
2.1 Excessive construction-period air pollution	Emissions will be kept to a minimum by: 1. ensuring that the contractor's fleet of vehicles are properly maintained and 2. Use acceptable fuel and haul loads within specified limits. 3. Vehicle idling time limits to no more than 3 minutes and 4. equipment maintenance specifications will be imposed through construction inspection and regular reporting, 5. Dust control at the construction site will be particularly stringently controlled by watering, setting strict speed limits of no more than 30kph in or near settled areas, and clean-up of paved haul roads. 6. Equipment such as the diesel generator will be included in the emission control program and will be and regularly tuned to prevent excessive TPM/soot pollution.	Anywhere at construction sites where vehicles of the contractor or under the contractors control (including paying for services), such as subcontracted trucks hauling materials	Throughout the construction period	Contractor	PDC and PIU
2.2 Excessive noise	Identify sensitive sites like hospitals, retirement homes, sanatoriums and urban park areas, then reduce noisy activities such as jack hammers during low noise periods and if needed set up temporary noise baffles.	All work areas within 250m of schools, sanatoriums, hospitals, playgrounds and residences	Undertake noise management throughout the construction period	contractor	PIU
2.3 Inadequate use of tree clearing and replanting plan prepared during pre-construction period	Contractor to be handed the tree cutting and replanting plan at the start of construction and carefully monitored-Contractor must review, update with the PDC and PIU then adhere to the plan A system of severe fines, involving replanting of mature trees, for cutting and damaging trees outside the cutting areas, will be implemented. Any installations where there are mature roadside shade trees, designers will be contacted to realign the sewer into the road to avoid cutting	All areas were need to clear trees is being considered	Throughout the construction period	Contractor	PIU and PDC
2.4. Poor Haul Road Maintenance	1. The contractor will need to inspect roads used for transport of earthworks every day, making sure that debris waste materials and earth has not fallen off the back of trucks generating safety concerns and dust; and that immediate clean up occur if problems are noted. 2. All such trucks will need to be equipped with covers or nets preventing spillage and reducing wind-blown dust from vehicles	All roads used by the contractor and, subcontractor	Inspection program at least every other day	Contractor	PIU and PDC
2.5 Inadequate traffic management when sewer construction taking place	Traffic management will be essential since most of the sewer placement work will be in the middle or on one side of existing roads, requiring an effective traffic management operation. To that end contractors will require either automated lights or two flagmen at each major work area to help keep traffic from backing up too badly.	All roads were sewer construction is planned and where there is a regular traffic flow	At all times that construction is taking place	Contractor	PIU and PDC
2.6 Failure to adhere to construction related good housekeeping practices, including solid and sanitary	Contractors will adhere to standard good housekeeping practices as defined in the contract Terms & Conditions and Contract Specifications. Special considerations will be given to 1. management of construction waste and	All work camps, construction maintenance yards and any other areas	Throughout the construction period	Contractor	PIU and PDC

Environmental Impact/Issue	Mitigation Measures	Location[2]	Time Frame	Responsibility	
				Implementation	Supervision
waste management and	water 2. equipment lubricants and fuel, including management and collection of waste oils and fuel particularly related to refuelling depots, maintenance areas and diesel generator sets Sewage will require latrines or chemical toilets with complete clean up after the construction is complete. 3. Garbage will be collected and properly disposed of after recycling and sorting, This work will be completed in accordance with RoU norms and codes which the contractor will be expected to know, based on the information found in the IEE. Also, the contractor shall orient all construction workers in basic sanitation and health care issues occurring in the Djizzak area.	operated by the contractor and involved in the project			
2.7 Inadequate occupational health and safety measures in the workplace	1. The contractor will provide PSE such as hardhats, boots noise protection, safety vests and eye protection where necessary, such as when welding, grinding or cutting. 2. Fencing or safety ribbon will be required at every worksite, marking the boundary for safe viewing 3. Sanitary toilet, washing and eating facilities (if needed) will be provided 4. Safe potable water supply will be available at all times and within easy reach of workers 5. Industrial –grade first aid kits will be at every work site	At all worksites of the contractor and any subcontractors	At all times during the construction work	Contractor	PIU and PDC
2.8 The lack of technical capacity with the contractor to implement and report on environmental safeguards, leading to the collapse of the environmental safeguards actions	At the start of the construction period, but before field mobilization the PMU, PIU and PDC will deliver a short training workshop to the contractor as well as PIU staff, focusing on the EMP, the mitigation and monitoring tasks, responsibility to the public and proper documentation. Approximately 12-13 people will be involved, plus three people delivering the workshop.	Djizzak City Administration	Prior to the start of construction but after the contractor has been named and has appointed an ecological expertise	UCSA/PDC and PMU	UCSA
2.9 Failure to properly manage petroleum products such as fuel, lubricants, leading to spill and contamination.	Contractor will be required to have the following spill prevention measures in place at all work sites: 1. All fuelling to be done on a concrete surface provided with spill catch tank that can be cleaned and all spilled fuel recovered and recycled based on discussions with fuel supplier. 2. All repair and maintenance work must either be done on a concrete surface with oil spill catch basin or oil catch pans must be provided at all service areas and training provided to all 'mechanics'. 3. All fuel use areas where spills and leakage is possible, e.g. the generator, must have drip basins installed to prevent any leakage. These recovered materials must be recycled. 4. A fuelling areas must be equipped with proper fuel nozzles 5. All fuel tanks must have means for	At maintenance yards and any other areas that the contractor uses or subcontractor use during the construction period	Throughout the construction period	Contractor	PMU and PDC

Environmental Impact/Issue	Mitigation Measures	Location[2]	Time Frame	Responsibility	
				Implementation	Supervision
	containment of accidental spills. 6. Any spills must be cleaned up according to RoU norms and codes within 24 hours of the occurrence, with contaminated soils and water treated according to RoU norms and codes.				
2.10 Contractor does not provide monthly monitoring updates or quarterly monitoring checklists or semi-annual summary reports or final construction period EMP implementation report	At start of construction period the contractor will be given and schedule for report submission and during the training period samples of the reports required will be presented.	NA	Monthly, quarterly and semi-annually as well as at the end of the construction period	Contractor	PIU/PMU and PDC
2.11 Post sewer installation rehabilitation and landscaping	Immediately after the placement if a section of sewer the contractor must immediately rehabilitate and re-landscape the area to preconstruction conditions, including re-establish access.	All sewer placement sites	At all times	Contractor	PIU/PMU and PDC
2.12 Failure to follow old WWTP decommissioning guidelines provided in the EIA and EMP	i)Sludge possibly contaminated with heavy metals-16 samples will be taken prior to removal and a test for heavy metal burden completed. If standards are exceeded the material will be treated as a hazardous material and disposed of according to RoU SanPips for Sanitary Norms, Rules and Standards. ii)Asbestos has been used in the insulation and lining of pipes in the WWT facility. Asbestos is a hazardous and toxic substance and has its own SanPip. Using an facility design drawing asbestos piping will be identified and removed for proper disposal according to SanPip 158.04 iii) Demolition will result in considerable dust and will likely result in unacceptable, albeit temporary high levels of PM10 and PM2.5 into the air and taken in by workers. Therefore all workers undertaking the demolition will be issued dust masks by the contractor(s) and their use will be enforced by the contractor and the PIU. Demolition crews and haulers not wearing dust masks when on site and equipment is operating will not be allowed to work on site. iv) The crane or wrecking equipment will be fitted with water spray device that can wet down dusty areas—and conditions. v) The work will be noisy and all workers will be required to wear ear plugs or some form or noise protective device. Further contractors will be encouraged to use low noise equipment, such as low-noise jackhammers. vi)With > 20,000 m3 of materials to haul away, truck traffic will be intensive coming and leaving the demolition site taking away the recyclable , reusable and non-recyclable waste, generating dust, localized air pollution and traffic congestion. To mitigate this the PIU and PDC will work with the contractors and all subcontractors to establish haul routes and a program or road cleaning and dust suppression at all times. This plan will be prepared prior to the start of demolition. vii) The truck fleet used to haul the materials will be	At all sites where WWTP demolition takes place by all contractors and subcontractors	Throughout the demolition period	Contractor	PIU and PDC

Environmental Impact/Issue	Mitigation Measures	Location[2]	Time Frame	Responsibility	
				Implementation	Supervision
	required to provide a vehicle inspection certification for the year the work is carried out in. That certificate will certify road worthiness and compliance with basic emission standards, such as black smoke and soot.				
2.13 Pumping Station spill damage	All existing pumping stations have spilled untreated sewage in a large area around the pump site. As part of the repair and rehabilitation each site will be full cleaned up and re-landscaped in consultation with local residents.	Three existing pumping stations	During the construction period	Contractor	PIU and PDC
2.14. Industrial enterprises not complying with pretreatment requirements	At the start of the final construction year, PDC and PMU will provide a detailed briefing to contractor on effluent pre-treatment requirements and the provisions of Decree No.11 as it applies to the industries	At Sewerage company office in Djizzak	At start of final construction year	PMU, UCSA and PDC	PMU and UCSA
3. OPERATING PERIOD					
3.1 No WWTP influent & effluent monitoring program	• RoU standards require that STPs complete monthly effluent testing. This will be enforced by the Provincial water & sewerage enterprise. At the very minimum the following parameters will be measured and recorded in mg/L, except pH, e-coli: The parameters to monitor/record will be: Location and date/time of sample collection pH BOD5 COD Total Kjeldhl Nitrogen (TKN) Total Phosphorus Total Suspended Solids (TSS) Cr+3 and Cr+6 Cadmium Chloride E-coli Iron Total Dissolved Solids (TDS) Sulphate Volume flow (l/min.)	At inflow to WWTP and at discharge to the Ulgursay channel	Monthly, with semi-annual reports submitted to UCSA & ADB	City sewerage Company or	City sewerage Company Chief Engineer
3.2 No or poor maintenance of tree replanting and landscaping along sewer placement construction corridors	UCSA and the PMU will advise the Chief Engineer of City sewerage Company of the importance maintaining and enhancing the tree replanting and landscaping activity undertaken as the sewer were buried. Repair and further improvements to this work, particularly along urban streets will be implemented by the Provincial water and sewerage enterprise.	All sewer excavation and burial areas	As soon as the work is done in any one area	Local City sewerage Company	Provincial Sewerage company Chief Engineer
3.3 No annual monitoring Report	UCSA/PMU will inform the City sewerage Company Chief Engineer of the mandatory ADB requirement of preparation of the annual environmental safeguards report	Prepared for the entire Djizzak subproject	End of year 1, 3, and 5	Local City sewerage Company	Provincial Sewerage company Chief Engineer
3.4 No sludge management plan	UCSA/PMU will advise the City sewerage Company Chief Engineer of the need to prepare a sludge management plan for submission to UCSA & ADB	At new WWTP	Within operating year 1	City sewerage Company-Municipal: Operating Unit	UCSA, ADB
3.5 No pumping station clean up inspection report	City sewerage Company will inspect the clean- up and restoration work of the old pumping station sites and provide a short report and pictures of the work done and provide an assessment of	At all pumping stations—old and new	Within the first 6 months of operations	City sewerage Company-Municipal: Operating Unit	UCSA, ADB

Environmental Impact/Issue	Mitigation Measures		Location[2]	Time Frame	Responsibility	
					Implementation	Supervision
	adequacy-in consultation with local residents					
4. PRECONSTRUCTION THROUGH THE OPERATING PERIOD-WQ MONITORING						
4.0 Sewage pollution continues	Given the problems with monitoring and tracking of changes in water quality in the Ulgursay Canal and after it discharges downstream, a monitoring program has been designed and is discussed in paragraph 104		5 stations as defined in IEE paragraph 104	Monthly starting during preconstruction	UCSA and PMU, followed by Djizzak City sewerage Company	UCSA and Djizzak City sewerage Company

Example of Environmental Management Plan: As prepared for Djizzak Sewage Treatment Facility Subproject:
Environmental Monitoring Table (EMoT)

ITEM	Mitigation Action	Monitoring Details/Also Performance Indicators	Timing	Executing Unit	Reporting Responsibility
1. PRE-CONSTRUCTION (DESIGN) PERIOD: all written confirmation and reports submitted to AGENCY and PMC with copies to Oblast-Env. Department					
1.1 Lack of any capacity to understand and implement environmental mitigation measures, and no training	Design and deliver a training workshop on EMP implementation	Obtain record of training workshop	Immediately after workshop completed	UCSA. PMU	PMU
1.2 No provision for translation of IEE and related documents for use by PIU and contractors	UCSA to insure that translation into Uzbek is completed	Inspect translated versions of safeguard documents	Prior to contractor selection	PMU	UCSA
1.3 Bid documents prepared without access to or use of the IEE and particularly this EMP	Inclusion of environmental specifications in contract bid documents, based on EMP items, as well as preparation of a bill-of-quantities section specifically showing environmental safeguard costs	Check bid documents and confirm that environmental provisions/clauses are included and that separate bill-of-quantities section is included	Prior to contractor selection	PMU; sometimes PDC is involved if retained early enough	UCSA
1.4.Contractor selected has no capacity to implement safeguards	UCSA to decide if contractor to be prequalified in the environmental safeguards area or a requirement for expertise, whether hired or internal must be demonstrated prior to start of construction	Confirm contractors environmental capacity by conducting a meeting	After contractor selected and before training workshop	PMU/PDC	UCSA
1.5 Pre-construction period monitoring checklist not submitted	UCSA advises PMU and PDC that such a checklist is needed	Get copy of checklist and file	Within 1 month of the start of construction	PDC and PMU	UCSA
1.6 Failure to Initiate a traffic management plan, to handle traffic during sewer installations	UCSA to advise PMU that a basic traffic management plan—at last framework must be prepared and be ready for use by the contractor	Confirm that there is a traffic management plan and that it is in the hands of the contractor	Within 1 month of the start of construction	PDC and PMU	UCSA
1.7 Failure to prepare specifications on how to manage temporary access blockages due to sewer pipe placement	PMU to establish a protocol for notification, doing the work & restoration of access to all households & businesses affected, such that this disruption is known ahead of time, is as short as possible and the re-established access is at least as good as prior to construction.	Review the draft protocol and insure that it will be implemented by the contractor and that the PIU is fully aware	Prior to start of construction	PMU	PMU

ITEM	Mitigation Action	Monitoring Details/Also Performance Indicators	Timing	Executing Unit	Reporting Responsibility
1.8 No tree inventory and cutting specifications prepared for sewer construction corridor	Most collector sewers to be replaced or newly installed will be buried along road shoulders, which have many mature trees. A tree inventory and cutting plan will be required in order to minimize to an absolute minimum the removal of trees, accompanied with a replanting plan, with input from local residents and district forest departments, concerning species, if the trees cut cannot be replaced with the same species	Examine tree inventory and replanting plan and discuss with Contractor	After contract signing but before construction field mobilization	PMU,PIU and contractor	PMU
2. CONSTRUCTION PERIOD -prepare and use this section as construction monitoring checklist					
2.1 Excessive construction-period air pollution	Emissions will be kept to a minimum by: 1. ensuring that the contractor's fleet of vehicles are properly maintained 2. Use acceptable fuel and haul loads within specified limits. 3. Vehicle idling time limits to no more than 3 minutes and 4. equipment maintenance specifications will be imposed through construction inspection and regular reporting, 5. Dust control at the construction site will be particularly stringently controlled by watering, setting strict speed limits of no more than 30kph in or near settled areas, and clean-up of paved haul roads. 6. Equipment such as the diesel generator will be included in the emission control program and will be and regularly tuned to prevent excessive TPM/soot pollution.	Inspect 6 issues as defined in EmiT and provide contractor with feedback	At least every three months	PDC	PMU
2.2 Excessive noise	Identify sensitive sites like hospitals, retirement homes, sanatoriums and urban park areas, then reduce noisy activities such as jack hammers during low noise periods and if needed set up temporary noise baffles.	Measure noise levels at sensitive receptor sites and discuss non-compliance with contractor. Noise to be measured when equipment operating, 0800-1000 and 1500-1600. Confirm that no work is done near sensitive sites after 18:30	At least every 3 months	PDC/Contractor	PMU

ITEM	Mitigation Action	Monitoring Details/Also Performance Indicators	Timing	Executing Unit	Reporting Responsibility
2.3 Inadequate use of tree clearing and replanting plan prepared during pre-construction period	Contractor to be handed the tree cutting and replanting plan at the start of construction and carefully monitored-Contractor must review, update with the PDC and PIU then adhere to the plan A system of severe fines, involving replanting of mature trees, for cutting and damaging trees outside the cutting areas, will be implemented. Any installations where there are mature roadside shade trees, designers will be contacted to realign the sewer into the road to avoid cutting	Inspect construction areas to insure that tree cutting is avoided wherever possible and organize immediate meeting with PDC chief engineer and PMU to discuss any noncompliance.	When work at a new site begins	Contractor and PIU	PIU
2.4. Poor Haul Road Maintenance	1. The contractor will need to inspect roads used for transport of earthworks every day, making sure that debris waste materials and earth has not fallen off the back of trucks generating safety concerns and dust; and that immediate clean up occur if problems are noted. 2. All such trucks will need to be equipped with covers or nets preventing spillage and reducing wind-blown dust from vehicles	Inspect haul roads at least weekly and report condition. PDC to conduct random inspections as well. Confirm that trucks hauling material that is dusty, have covers or tarpaulins.	Weekly	Contractor and PIU	PIU
2.5 Inadequate traffic management when sewer construction taking place	Traffic management will be essential since most of the sewer placement work will be in the middle or on one side of existing roads, requiring an effective traffic management operation. To that end contractors will require either automated lights or two flagmen at each major work area to help keep traffic from backing up too badly.	Drive construction roads and report on traffic management—and report excessive delays and suggest corrective actions	At all times that work is going on	PDC and PIU	PIU

ITEM	Mitigation Action	Monitoring Details/Also Performance Indicators	Timing	Executing Unit	Reporting Responsibility
2.6 Failure to adhere to construction related good housekeeping practices, including solid and sanitary waste management and	Contractors will adhere to standard good housekeeping practices as defined in the contract Terms & Conditions and Contract Specifications. Special considerations will be given to 1. management of construction waste and water 2. equipment lubricants and fuel, including management and collection of waste oils and fuel particularly related to refuelling depots, maintenance areas and diesel generator sets Sewage will require latrines or chemical toilets with complete clean up after the construction is complete. 3. Garbage will be collected and properly disposed of after recycling and sorting, The contractor shall brief all construction workers in basic sanitation and health care issues occurring in the Djizzak area.	Inspect construction work areas and report the 3 items listed	At least 3X/year	PDC and PIU	PIU
2.7 Inadequate occupational health and safety measures in the workplace	1. The contractor will provide PSE such as hardhats, boots noise protection, safety vests and eye protection where necessary, such as when welding, grinding or cutting. 2. Fencing or safety ribbon will be required at every worksite, marking the boundary for safe viewing 3. Sanitary toilet, washing and eating facilities (if needed) will be provided 4. Safe potable water supply will be available at all times and within easy reach of workers 5. Industrial grade first aid kits will be at every work site	Inspect construction work areas and report on the 5 items listed	At least 3X/year	PDC and PIU	PIU

ITEM	Mitigation Action	Monitoring Details/Also Performance Indicators	Timing	Executing Unit	Reporting Responsibility
2.8 The lack of technical capacity with the contractor to implement and report on environmental safeguards, leading to the collapse of the environmental safeguards actions	At the start of the construction period, but before field mobilization the PMU, PIU and PDC will deliver a short training workshop to the contractor as well as PIU staff, focusing on the EMP, the mitigation and monitoring tasks, responsibility to the public and proper documentation. Approximately 12-13 people will be involved, plus three people delivering the workshop.	Complete a meeting with contractor to determine the effects of the training workshop and if the contractor is capable to implement the EMP	At start of construction period, but 4-6 months after the technical workshop	PDC	PIU
2.9 Failure to properly manage petroleum products such as fuel, lubricants, leading to spill and contamination.	Contractor will be required to have the following spill prevention measures in place at all work sites: 1. All fuelling to be done on a concrete surface provided with spill catch tank that can be cleaned and all spilled fuel recovered and recycled based on discussions with fuel supplier. 2. All repair and maintenance work must either be done on a concrete surface with oil spill catch basin or oil catch pans must be provided at all service areas and training provided to all 'mechanics'. 3. A fuelling areas must be equipped with proper fuel nozzles 4. All fuel tanks must have means for containment of accidental spills. 5. Any spills must be cleaned up according to RoU norms and codes within 24 hours of the occurrence, with contaminated soils and water treated according to RoU norms and codes.	Inspection undertaken quarterly and report filed, addressing the 5 points listed	Quarterly	PDC/ PIU	PIU
2.10 Contractor does not provide monthly monitoring updates or quarterly monitoring checklists or semi-annual summary reports or final construction period EMP implementation report	At start of construction period the contractor will be given and schedule for report submission and during the training period samples of the reports required will be presented.	Remind contractor of this requirement and collect reports	As per the reporting schedule	PDC and PIU	PIU and PMU

ITEM	Mitigation Action	Monitoring Details/Also Performance Indicators	Timing	Executing Unit	Reporting Responsibility
2.11 Post sewer installation rehabilitation and landscaping	Immediately after the placement if a section of sewer the contractor must immediately rehabilitate and re-landscape the area to preconstruction conditions, including re-establish access	Inspection of all installation sites, interview with local people to gauges how well the rehabilitation was done-prepare checklist-type report	As soon as an installation area has been cleared by contractor and rehabilitation is done	Contractor	PIU and PMU

ITEM	Mitigation Action	Monitoring Details/Also Performance Indicators	Timing	Executing Unit	Reporting Responsibility
2.12 Failure to follow old WWTP decommissioning guidelines provided in the EIA and EMP	i)Sludge possibly contaminated with heavy metals-16 samples will be taken prior to removal and a test for heavy metal burden completed. If standards are exceeded the material will be treated as a hazardous material and disposed of according to RoU SanPips for Sanitary Norms, Rules and Standards. ii) Using an facility design drawing asbestos piping will be identified and removed for proper disposal according to SanPip 158.04 iii) Demolition will result in considerable dust and will likely result in unacceptable, albeit temporary high levels of PM10 and PM2.5 into the air and taken in by workers. Therefore all workers undertaking the demolition will be issued dust masks by the contractor(s) and their use will be enforced by the contractor and the PIU. Demolition crews and haulers not wearing dust masks when on site and equipment is operating will not be allowed to work on site. iv) The crane or wrecking equipment will be fitted with water spray device that can wet down dusty areas—and conditions. v) The work will be noisy and all workers will be required to wear ear plugs or some form or noise protective device. Further contractors will be encouraged to use low noise equipment, such as low-noise jackhammers. vi) the PIU and PDC will work with the contractors and all subcontractors to establish haul routes and a program or road cleaning and dust suppression at all times. This plan will be prepared prior to the start of demolition.	PMU and PIU to monitor these actions through collection of necessary reports from contractor and weekly inspections	Throughout the demolition period	PIU	PMU and PDC

ITEM	Mitigation Action	Monitoring Details/Also Performance Indicators	Timing	Executing Unit	Reporting Responsibility
	vii) The truck fleet used to haul the materials will be required to provide a vehicle inspection certification for the year the work is carried out in. That certificate will certify road worthiness and compliance with basic emission standards, such as black smoke and soot.				
2.13. Pumping station Spill Damage-rehabilitation	All existing pumping stations have spilled untreated sewage in a large area around the pump site. As part of the repair and rehabilitation each site will be full cleaned up and re-landscaped in consultation with local residents.	Prepare 1-pg inspection report and photos of rehabilitation and record of interviews with local people	As soon as work at a pumping station is complete	PIU	PMU PDC and UCSA
2.14. Industrial enterprises not complying with pretreatment requirements.	At the start of the final construction year, PDC and PMU will provide a detailed briefing to contractor on effluent pre-treatment requirements and the provisions of Decree No.11 as it applies to the industries.	Maintain record of briefing and content of material and attendance	Start of last year of construction	PMU, PDC and PIU	PMU and UCSA
3. OPERATING PERIOD					

ITEM	Mitigation Action	Monitoring Details/Also Performance Indicators	Timing	Executing Unit	Reporting Responsibility
3.1 No WWTP influent & effluent monitoring program	RoU Norms require that STPs complete monthly effluent testing. This will be enforced by the Provincial water & sewerage enterprise. At the very minimum the following parameters will be measured and recorded in mg/L, except pH, e-coli: The parameters to monitor/record will be: Location and date/time of sample collection pH BOD5 COD – Total Kjeldhl Nitrogen (TKN) Total Phosphorus Total Suspended Solids (TSS) Cr+3 and Cr+6 Cadmium Chloride E-coli Iron Total Dissolved Solids (TDS) Sulphate Volume flow (m^3/min.)	Collect sampling and analysis records monthly	Monthly as required by Norms	City sewerage Company	Provincial water & sewerage enterprise Chief Engineer
3.2 No or poor maintenance of tree replanting and landscaping along sewer placement construction corridors	UCSA and the PMU will advise the Chief Engineer of City sewerage Company of the importance maintaining and enhancing the tree replanting and landscaping activity undertaken as the sewer were buried. Repair and further improvements to this work, particularly along urban streets will be implemented by the Provincial water and sewerage enterprise.	Conduct monitoring program as indicated	2X/year for years 1, 3 and 5.	City sewerage Company	Provincial water & sewerage enterprise Chief Engineer
3.3 No annual monitoring Report	UCSA/PMU will inform the City sewerage Company Chief Engineer of the mandatory ADB requirement of preparation of the annual environmental safeguards report	Collect monitoring report from local City sewerage Company	Near the end of years 1,3 and 5	City sewerage Company	City sewerage Company
3.4 No sludge management plan	UCSA/PMU will advise the City sewerage Company Chief Engineer of the need to prepare a sludge management plan for submission to UCSA and ADB	Obtain such a plan from	During 1st year of operations	City sewerage Company	City sewerage Company

ITEM	Mitigation Action	Monitoring Details/Also Performance Indicators	Timing	Executing Unit	Reporting Responsibility
3.5 No pumping station clean up inspection report	City sewerage Company will inspect the clean- up and restoration work of the old pumping station sites and provide a short report and pictures of the work done and provide an assessment of adequacy-in consultation with local residents	UCSA to obtain report from City sewerage Company	Within 1st 6 months of operations	City sewerage Company	Provincial water & sewerage enterprise and UCSA
4. PRECONSTRUCTION THROUGH THE OPERATING PERIOD-WQ MONITORING					
4.0Sewage pollution continues	Given the problems with monitoring and tracking of changes in water quality in the Ulgursay Canal and after it discharges downstream, a monitoring program has been designed and is discussed in paragraph 104	Monthly QW data tables to be provided to UCSA and CITY SEWERAGE COMPANY as well as ADB as required. Changes in WQ conditions will be the best performance indicators	Monthly	UCSA and PMU, followed by CITY SEWERAGE COMPANY	UCSA and DRWSSE

Annex 4.
Quarterly Compliance Monitoring Checklist for Contractor: For Construction Period

2.Construction Period Impact	Mitigation Measure	Monitoring Action	When , frequency and duration?	Output provided?	Quarterly Update?
2.1 Excessive construction-period air pollution	Emissions will be kept to a minimum by: 1. ensuring that the contractor's fleet of vehicles are properly maintained 2. Use acceptable fuel and haul loads within specified limits. 3. Vehicle idling time limits to no more than 3 minutes and 4. equipment maintenance specifications will be imposed through construction inspection and regular reporting, 5. Dust control at the construction site will be particularly stringently controlled by watering, setting strict speed limits of no more than 30kph in or near settled areas, and clean-up of paved haul roads. 6. Equipment such as the diesel generator will be included in the emission control program and will be and regularly tuned to prevent excessive TPM/soot pollution.	Inspect 6 issues as defined in EmiT and provide contractor with feedback	At least every three months		
2.2 Excessive noise	Identify sensitive sites like hospitals, retirement homes, sanatoriums and urban park areas, then reduce noisy activities such as jack hammers during low noise periods and if needed set up temporary noise baffles.	Measure noise levels at sensitive receptor sites and discuss non-compliance with contractor. Noise to be measured when equipment operating, 0800-1000 and 1500-1600. Confirm that no work is done near sensitive sites after 18:30	At least every 3 months		

2.Construction Period Impact	Mitigation Measure	Monitoring Action	When , frequency and duration?	Output provided?	Quarterly Update?
2.3 Inadequate use of tree clearing and replanting plan prepared during pre-construction period	Contractor to be handed the tree cutting and replanting plan at the start of construction and carefully monitored-Contractor must review, update with the PDC and PIU then adhere to the plan A system of severe fines, involving replanting of mature trees, for cutting and damaging trees outside the cutting areas, will be implemented. Any installations where there are mature roadside shade trees, designers will be contacted to realign the sewer into the road to avoid cutting	Inspect construction areas to insure that tree cutting is avoided wherever possible and organize immediate meeting with PDC chief engineer and PMU to discuss any noncompliance.	When work at a new site begins		
2.4. Poor Haul Road Maintenance	1. The contractor will need to inspect roads used for transport of earthworks every day, making sure that debris waste materials and earth has not fallen off the back of trucks generating safety concerns and dust; and that immediate clean up occur if problems are noted. 2. All such trucks will need to be equipped with covers or nets preventing spillage and reducing wind-blown dust from vehicles	Inspect haul roads at least weekly and report condition. PDC to conduct random inspections as well. Confirm that trucks hauling material that is dusty, have covers or tarpaulins.	Weekly		
2.5 Inadequate traffic management when sewer construction taking place	Traffic management will be essential since most of the sewer placement work will be in the middle or on one side of existing roads, requiring an effective traffic management operation. To that end contractors will require either automated lights or two flagmen at each major work area to help keep traffic from backing up too badly.	Drive construction roads and report on traffic management—and report excessive delays and suggest corrective actions	At all times that work is going on		

2.Construction Period Impact	Mitigation Measure	Monitoring Action	When , frequency and duration?	Output provided?	Quarterly Update?
2.6 Failure to adhere to construction related good housekeeping practices, including solid and sanitary waste management and	Contractors will adhere to standard good housekeeping practices as defined in the contract Terms & Conditions and Contract Specifications. Special considerations will be given to 1. management of construction waste and water 2. equipment lubricants and fuel, including management and collection of waste oils and fuel particularly related to refuelling depots, maintenance areas and diesel generator sets Sewage will require latrines or chemical toilets with complete clean up after the construction is complete. 3. Garbage will be collected and properly disposed of after recycling and sorting, The contractor shall brief all construction workers in basic sanitation and health care issues occurring in the Djizzak area.	Inspect construction work areas and report the 3 items listed	At least 3X/year		
2.7 Inadequate occupational health and safety measures in the workplace	1. The contractor will provide PSE such as hardhats, boots noise protection, safety vests and eye protection where necessary, such as when welding, grinding or cutting. 2. Fencing or safety ribbon will be required at every worksite, marking the boundary for safe viewing 3. Sanitary toilet, washing and eating facilities (if needed) will be provided 4. Safe potable water supply will be available at all times and within easy reach of workers 5. Industrial grade first aid kits will be at every work site	Inspect construction work areas and report on the 5 items listed	At least 3X/year		

2.Construction Period Impact	Mitigation Measure	Monitoring Action	When , frequency and duration?	Output provided?	Quarterly Update?
2.8 The lack of technical capacity with the contractor to implement and report on environmental safeguards, leading to the collapse of the environmental safeguards actions	At the start of the construction period, but before field mobilization the PMU, PIU and PDC will deliver a short training workshop to the contractor as well as PIU staff, focusing on the EMP, the mitigation and monitoring tasks, responsibility to the public and proper documentation. Approximately 12-13 people will be involved, plus three people delivering the workshop.	Complete a meeting with contractor to determine the effects of the training workshop and if the contractor is capable to implement the EMP	At start of construction period, but 4-6 months after the technical workshop		
2.9 Failure to properly manage petroleum products such as fuel, lubricants, leading to spill and contamination.	Contractor will be required to have the following spill prevention measures in place at all work sites: 1. All fuelling to be done on a concrete surface provided with spill catch tank that can be cleaned and all spilled fuel recovered and recycled based on discussions with fuel supplier. 2. All repair and maintenance work must either be done on a concrete surface with oil spill catch basin or oil catch pans must be provided at all service areas and training provided to all 'mechanics'. 3. A fuelling areas must be equipped with proper fuel nozzles 4. All fuel tanks must have means for containment of accidental spills. 5. Any spills must be cleaned up according to RoU norms and codes within 24 hours of the occurrence, with contaminated soils and water treated according to RoU norms and codes.	Inspection undertaken quarterly and report filed, addressing the 5 points listed	Quarterly		
2.10 Contractor does not provide monthly monitoring updates or quarterly monitoring checklists or semi-annual summary reports or final construction period EMP implementation report.	At start of construction period the contractor will be given and schedule for report submission and during the training period samples of the reports required will be presented.	Remind contractor of this requirement and collect reports	As per the reporting schedule		

2.Construction Period Impact	Mitigation Measure	Monitoring Action	When , frequency and duration?	Output provided?	Quarterly Update?
2.11 Post sewer installation rehabilitation and landscaping	Immediately after the placement if a section of sewer the contractor must immediately rehabilitate and re-landscape the area to preconstruction conditions, including re-establish access.	Inspection of all installation sites, interview with local people to gauges how well the rehabilitation was done-prepare checklist-type report	All sites immediately after contractor leaves the site		
2.12 Failure to follow old WWTP decommissioning guidelines provided in the EIA and EMP	i) Sludge possibly contaminated with heavy metals-16 samples will be taken prior to removal and a test for heavy metal burden completed. If standards are exceeded the material will be treated as a hazardous material and disposed of according to RoU SanPips for Sanitary Norms, Rules and Standards. ii) Using an facility design drawing asbestos piping will be identified and removed for proper disposal according to SanPip 158.04 iii) Demolition will result in considerable dust and will likely result in unacceptable, albeit temporary high levels of PM10 and PM2.5 into the air and taken in by workers. Therefore all workers undertaking the demolition will be issued dust masks by the contractor(s) and their use will be enforced by the contractor and the PIU. Demolition crews and haulers not wearing dust masks when on site and equipment is operating will not be allowed to work on site. iv) The crane or wrecking equipment will be fitted with water spray device that can wet down dusty areas—and conditions. v) The work will be noisy and all workers will be required to wear ear plugs or some form or noise protective device. Further contractors will be encouraged to use low noise equipment, such as low-noise jackhammers. vi) the PIU and PDC will work with the contractors and all subcontractors to establish haul routes and a program or road cleaning and dust suppression at all times. This plan will be prepared prior to the start of demolition.	PMU and PIU to monitor these actions through collection of necessary reports from contractor and weekly inspections	Throughout the demolition period		

2.Construction Period Impact	Mitigation Measure	Monitoring Action	When , frequency and duration?	Output provided?	Quarterly Update?
	vii) The truck fleet used to haul the materials will be required to provide a vehicle inspection certification for the year the work is carried out in. That certificate will certify road worthiness and compliance with basic emission standards, such as black smoke and soot.				
2.13. Pumping station Spill Damage-rehabilitation	All existing pumping stations have spilled untreated sewage in a large area around the pump site. As part of the repair and rehabilitation each site will be full cleaned up and re-landscaped in consultation with local residents.	Prepare 1-pg inspection report and photos of rehabilitation and record of interviews with local people	As soon as work is completed		
2.14. Industrial enterprises not complying with pretreatment requirements	At the start of the final construction year, PDC and PMU will provide a detailed briefing to contractor on effluent pre-treatment requirements and the provisions of Decree No.11 as it applies to the industries	Maintain record of briefing and content of material and attendance	One time		

ANNEX 5

Mitigation, Monitoring and Special Survey Cost Estimates

No.	Mitigation and Monitoring Items	Non Reoccuring							Reoccuring							
	Note: P=People	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
		No Cycles[1]	No. Days /cycle	No. P. RoU-days	No. Int'l. days	Unit cost Int'l	Unit Cost RoU.	Total Cost	No Cycles /Yr.	No Yrs	No. Days /cycle	No. P. RoU	No, P Int.	Unit cost Int'l	Unit Cost RoU.	Total Cost
1	**Pre-Construction Period: 12 months**															
1.1	1.1 Design and deliver a training workshop on EMP implementation	See below														
1.2	UCSA to insure that translation into Uzbek is completed	1	1	6	0	300	750	1800								
1.3	Inclusion of environmental specifications in contract bid documents, based on EMP items, as well as preparation of a bill-of-quantities section specifically showing environmental safeguard costs	1	1	5	4	300	750	4500								
1.4	Contractor prequalifaction Check , including interview	1	1	1	0	300	750	300								
1.5	UCSA advises PMU and CSC that such a checklist is needed	1	0.5	1	0	300	750	150								
1.6	Basic traffic management plan—at least framework must be prepared and be ready for use by the contractor	1	1	14	2	300	750	5700								
1.7	A protocol for notification, doing the work & restoration of access to all households & businesses affected and the re-established access is at least as good as prior to construction.	1	1	5	1	300	750	2250								
1.8	A tree inventory and cutting plan and replanting plan, with input from local residents and district forest departments, concerning species, if the trees cut cannot be replaced with the same species	1	1	10	4	300	750	6000								
	Training Workshop : One Times:; 1) UCSA, PMU, PIU and Vodokana, Oqavasuv, SIAK, SES and Contractor(s)															
	Preparation of Materials	1	7	1	1	300	750	7,350.00								
	Logistics and Materials, etc							10,000.00								
	Delivery	1	2	1	1	300	750	2,100.00								
	Pre-construction Period Total							**40,150.00**								**$0.00**
2	**Construction; 24 months**															
2.1	**Emissions will be kept to a minimum by:** 1. ensuring that the contractor's fleet of vehicles are properly maintained 2. use acceptable fuel and haul loads within specified limits. 3. Vehicle idling time limits to no more than 3 minutes and 4. equipment maintenance specifications will be imposed through construction inspection and regular reporting, 5. Dust control at the construction site will be particularly stringently controlled by watering setting strict speed limits of no more than 30kph in or near settled areas, and clean-up of paved haul roads. 6. Equipment such as the diesel generator will be included in the emission control program and will be and regularly tuned to prevent excessive TPM/soot pollution.	0	0	0	0	0	0	0.00	4	2	2	1	0	300	750	$4,800.00
2.2	Identify sensitive sites like hospitals, retirement homes, sanatoriums and urban park areas, measure noise during construction, then reduce noisy activities such as jack hammers during low noise periods and if needed set up temporary noise baffles *(sample cost below)*							0.00	4	2	5	1	0	300	750	$12,000.00
2.3	Implement tree cutting and replanting plan, and carefully monitored-Contractor must review, update with the CMC and PIU then adhere to the plan							0.00	1	2	60	10	0	150	750	$180,000.00
2.4	1. Inspect roads used for transport of earthworks every day, clean up debris waste materials and earth fallen off the back of trucks generating safety concerns and dust; and that immediate clean up occur if problems are noted. 2. All such trucks will need to be equipped with covers or nets preventing spillage and reducing wind-blown dust from vehicles	Included in Construction Contract cost--Not included here														See Construction Contract
2.5	Traffic management will be essential since most of the sewer placement work will be in the middle or on one side of existing roads, requiring an effective traffic management operation. To that end contractors will require either automated lights or two flagmen at each major work area to help keep traffic from backing up too badly.	Included in Construction Contract cost--Not included here												0	0	See Construction Contract
2.6	Contractors will adhere to standard good housekeeping practices as defined in the contract Terms & Conditions and Contract Specifications . Special considerations will be given to: 1. management of construction waste and water 2. equipment lubricants and fuel, including management and collection of waste oils and fuel particularly related to refuelling depots, maintenance areas and diesel generator sets Sewage will require latrines or chemical toilets with complete clean up after the construction is complete. 3. Garbage will be collected and properly disposed of after recycling and sorting, The contractor shall brief all construction workers in basic sanitation and health care is: occurring in the Djizak area .	Included in Construction Contract cost--Not included here														See Construction Contract
2.7	1. The contractor will provide PSE such as hardhats, boots noise protection, safety vests and eye protection where necessary, such as when welding, grinding or cutting. 2. Fencing or safety ribbon will be required at every worksite, marking the boundary for safe viewing 3. Sanitary toilet, washing and eating facilities (if needed) will be provided 4. Safe potable water supply will be available at all times and within easy reach of workers 5. Industrial grade first aid kits will be at every work site	Included in Construction Contract cost--Not included here														See Construction Contract
2.8	At the start of the construction period, but before field mobilization the PMU, PIU and CMC;l deliver a training workshop to the contractor as well as PIU staff	See Above for cost estimate														

No.	Mitigation and Monitoring Items	Non Reoccuring							Reoccuring							
	Note: P=People	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
		No Cycles '	No. Days /cycle	No. P. RoU-days	No. Int'l. days	Unit cost Int'l	Unit Cost RoU.	Total Cost	No Cycles /Yr.	No Yrs	No. Days /cycle	No. P. RoU	No, P Int.	Unit cost Int'l	Unit Cost RoU.	Total Cost
2.9	Contractor will be required to have the following spill prevention measures in place at all work sites: 1. all fuelling to be done on a concrete surface provided with spill catch tank that can be cleaned and all spilled fuel recovered and recycled based on discussions with fuel supplier. 2. All repair and maintenance work must either be done on a concrete surface with oil spill catch basin or oil catch pans must be provided at all service areas and training provided to all 'mechanics'. 3. A fuelling areas must be equipped with proper fuel nozzles 4. All fuel tanks must have means for containment of accidental spills. 5. Any spills must be cleaned up according to RoU norms and codes within 24 hours of the occurrence, with contaminated soils and water treated according to RoU norms and codes.	Included in Construction Contract cost--Not included here														See Construction Contract
		0	0	0	0	0	0	0.00	0	0	0	0	0	0	0	$0.0
2.10	At start of construction period the contractor will be given and schedule for report submission and during the training period samples of the reports required will be presented.	Part of trainng workshop see above														
	Field Testing requirements								N. Stn.	Samp. Size	No. rep.	Sample Times	Unit cost (USD)			
	Noise Measurements								20	8	4	2	10			$6,400.0
	Noise Meter and calibration unit															$1,600.0
	Expense															$2,000.0
	Subtotal							0.00								$10,000.0
	Unusual Expenses: Sewage Treatment Plant Decommissioning	N. Stn.	Samp. Size	No. rep.	No. Parameters	Unit cost (USD)		Total Cost								
	Sediment tank Water Samples	16	3	2	6	18		10,368.0								
	Soil/sludge Samples	16	3	2	6	18		10,368.0								
	Site Dust control during decommissioning							5,000.0								
	Control of materials containing asbestons e.g. some sewer pipes and instulaion							10,000.0								
	Demolition of structure and removal is not an environmental cost															
	Training Workshops : Three Times; 1) PMU,PIU,VODOKANAL; Oqavasuv, SIAK,SES and Contractor (1 day); 2) PMU,PIU, Contractor(s),SES and Oqavasuv (1 day); 3)UCSA, SES, Oqavasuv and Industrial Enterprises (at least 11)- (1 day)	No Cycles '	No. Days	No. P. RoU-days	No. Int'l. days	Unit cost Int'l	Unit Cost RoU.	Total Cost								
	Preparation of Materials	1	8	1	1	300	750	8,400.0								
	Logistics and materials etc.							15,000.00								
	Delivery	3	4.5	1	1	300	750	14,175.0								
	Construction Period Totals (2 years)							**73,311.0**								**$206,800.0**
3	**Operating Period: Yr. 1,3, and 5**								Effluent Quality Sampling							
3.1	A semi-annual effluent monitoring and reporting program will be require with results submitted to Vodokanal and ADB. Samples will be taken at the STP inflow site and where the treated effluent is discharged into the canal. There will be 3 samples taken at each of this sites, or 6 in total. The following parameters will be measured and recorded in mg/L, except pH, ecoli. For each sample to collect volume flow and data,time information (NOTE, THIS IN ADDITION TO THE MANDATORY MONTHLY SAMPLING.							0.00	N. Stn.	Samp. Size	No. rep.	No Tests	Unit Cost (USD)			
								0.00	2	3	6	13	20			9,360.0
									No Cycles	No Yrs	No. Days	No. P. RoU	No, P Int.	Unit cost		
3.2	UCSA and the PMU will advise the Chief Engineer of Vodokanal of the importance maintaining and enhancing the tree replanting and landscaping activity undertaken as the sewer were buried.							0.00	2	3	3	1	0	300	750	5,400.0
3.3	UCSA/PMU will inform the Vodokanal Chief Engineer of the mandatory ADB requirement of preparation of the annual environmental safeguards report							0.00	1	3	0.5	1	0	300	750	450.0
3.4	UCSA/PMU will advise the Vodokanal Chief Engineer of the need to prepare a sludge management plan for submission to UCSA and ADB							0.00	1	3	0.5	1	0	300	750	450.0
	Environmental Reporting								1	3	10	2	0	300	750	18,000.0
	Total Operating Period, Including Sampling Program							0.00								
	Operating period Totals (Year 1,3 and 5)							**0.0**								**33,660.0**
	TOTAL-ALL THREE PERIODS							**113,461.0**								**240,460.0**
	MITIGATION AND MONITORING		**Totals**													
	Pre Construction Period		**$40,15**													
	Construction (2+ years)		**$280,11**													
	Operating Period (Yrs. 1, 3 and 5)		**$33,66**													
	Subtotal for three Phases		**$353,92**													
	Contingency 7% for three phases		**$24,77**													
4	**Special Monthly Surface Water Quality Testing****		**$304,00**													
	Total including Unusual expenses		**$682,69**													

** monthly monitoring from preconstruction through 3 years after commissioning. Five sampling stations with three samples tested for 20 parameters

ANNEX 6

DECREE OF THE CABINET OF MINISTERS
OF UZBEKISTAN
03.02.2010
N 11
ABOUT ADDITIONAL MEASURES
ON IMPROVEMENT NATURE PROTECTION ACTIVITIES
IN COMMUNAL SECTOR
(Extracts)

For the purpose of further enhancement of economic mechanism of environmental management, improvement of environment, improvement of work and financial condition of water supply and sewerage enterprises the Cabinet of Ministers **DECIDES:**

1. To accept the proposal of the State Nature Protection Committee, the Ministry of Economy, the Ministry of Finance of the Republic of Uzbekistan, the Uzbek Agency "Uzkommunkhizmat" about determination of legal entities and individuals who are engaged in business activity without establishing a legal entity and who discharge industrial waste waters in to municipal sewerage networks of cities and other settlements and who are payers of compensation payments for environmental pollution and allocation of wastages in the territory of the Republic of Uzbekistan regarding above-standard discharges of contaminants (further - compensation payments).

2. Compensation payments by water supply and sewerage enterprise for discharge of pollutants shall be calculated excluding the amounts billed to their customers for above-standard discharge of pollutants in to municipal sewerage networks

3. To determine that:

- monitoring of above-standard discharge of contaminants in to municipal sewerage networks of cities and other settlements is assigned to water supply and sewerage enterprises;
- compensation payments are levied by entities of State Nature Protection Committee of the Republic of Uzbekistan based on information of special laboratories of water supply and sewerage enterprises and calculations by payers of compensation payments in accordance with the established procedure;
- compensation payment amounts levied for above-standard discharge of contaminants in to municipal sewerage networks of cities and other settlements shall be distributed as follows:
- 50 % – to nature protection funds for their using according to the Regulations on nature protection funds approved by the resolution of the Cabinet of Ministers of N 246 from May 24, 1993;
- 50 % - to the National Budget.

4. To approve the RULES of acceptance of industrial effluents and procedure for calculation of compensation payments for above-standard discharge of pollutants in to communal sewerage networks of cities and other settlements of the Republic of Uzbekistan according to the Appendix No. 1.

5. Water supply and sewerage enterprises who operate communal sewerage networks and treatment facilities of cities and other settlements in one month period shall prepare and agree with provincial divisions of the Nature Protection Committee of Uzbekistan list of legal entities and individuals who are engaged in business activity without establishing a legal

entity and who discharge industrial waste waters in to municipal sewer networks of cities and other settlements as well as ensure regular update of this list.

6. To modify and change some decisions of the Government of the Republic of Uzbekistan according to the Appendix No. 3.

7. The Uzbek Agency “Uzkommunkhizmat” and other involved ministries and agencies in one month period shall submit to the Cabinet of Ministers their proposals on changes and modifications to the legislation based on this Decree.

8. To assign the Deputy Prime Minister of the Republic of Uzbekistan Mr. B.Khodjaev with monitoring implementation of this Decree.

Prime-Minister of
the Republic of Uzbekistan **Sh. Mirziyoev**

Appendix N 1
to the Decree of the Cabinet of
Ministers of Uzbekistan
N 11 dated 03.02.2010

The RULES of Acceptance of industrial effluents and procedure for calculation of compensation payments for above-standard discharge of pollutants in to communal sewerage networks of cities and other settlements of the Republic of Uzbekistan

I. GENERAL CONDITIONS

1. These Rules establish uniform rules of acceptance of industrial effluents and procedure for calculation of compensations for above-standard discharges of pollutants into communal sewerage network of cities and other settlements of the Republic of Uzbekistan.

2. These Rules shall apply:

i) during issuance technical requirements for discharge of industrial effluents by customers in to municipal sewerage systems of cities and other settlements

ii) during development of drafts of communal-environmental standards for existing, designed and reconstructed enterprises;

iii) by regional entities of the State Nature Protection Committee (hereinafter - Goskompriroda) during levy compensations payments from customers for above-standard discharge of pollutants in to communal sewerage networks;

iv) during acceptance and treatment of industrial effluents discharged in to sewerage systems of cities and other settlements.

3. Glossary:

4. These Rules are aimed at ensuring:

i) protection of surface waters from pollution by industrial and domestic effluents;

ii) effective work of treatment facilities and safe operation due to proper organization of acceptance of industrial effluents in to sewerage network of cities and other settlements.

5. Water supply and sewerage enterprises who are owners of industrial effluent treatment facilities of cities and other settlements in coordination with regional entities of "Goskompriroda" shall approve communal-environmental standards for discharge of industrial effluents in to sewerage networks based on Maximum Permissible Concentrations of pollutants permitted for customers who are engaged in business activity and who discharge industrial effluents in to communal sewerage networks of cities and other settlements according to sanitary rules and standards.

Communal-environmental standard shall be developed for 5 years and shall be effective during the period of conservation of water balance and during effectiveness of quantitative and qualitative structure of discharging effluents.

II. CONDITIONS OF ACCEPTANCE OF INDUSTRIAL WASTEWATERS INTO MUNICIPAL SEWERAGE NETWORKS OF CITIES AND OTHER SETTLEMENTS

6. Industrial effluents which are treated on local treatment facilities of customers up to the requirements of communal-environmental standards and do not cause disturbances for operation of sewerage networks and sewerage treatment plants shall be accepted in to communal sewerage systems of cities and other settlements.

7. It is prohibited to discharge the following in to communal sewerage networks of cities and other settlements without pre-treatment on local treatment facilities of customers including:

i) industrial effluents of customers which contain substances that can clog pipes, wells, grids or deposit on pipe walls, wells, racks (scale, lime, sand, gypsum, metal chips, remains of animals and other wastes of organic origin);

ii) construction and household wastes and other industrial and household waste; conditionally clean drains which are not regulated by communal-environmental normative; waste waters containing dyes;

iii) surface effluents from territory of industrial sites (rain, melt, irrigation-washing water and others) and drainage waters due to reduction of ground water level on industrial sites and territories (for universal sewerage system or partially separate sewerage system);

iv) substances that have destructive effect on to pipe materials and technological networks of sewerage treatment facilities; harmful substances in concentrations preventing the biological treatment of industrial effluents; dangerous bacterial contaminants; insoluble derivatives of petroleum products; biological hard-oxidizable organic and surface-active substances and minerals;

v) discharge of industrial effluents whose flow and composition may lead to exceed of permissible norms for volume and quantity of pollutants into water body;

vi) industrial effluents with temperature more than 40°C, pH lower than 6.5 or more than 9, COD more than BOD_5 more 2.5 times or BOD more than 1.5 times – not exceeding 500 mg/L, weighted and floating substances in concentrations exceeding 500 mg/L; substances for which Maximum Permissible Concentrations are not established for discharging to sewerage networks;

vii) acids, hot impurities and dissolved toxic gaseous substances, in particular, solvents (benzene, diethyl ether, dichloromethane, benzene and other), dyes, can form toxic gases in sewerage networks and treatment facilities (hydrogen sulfide, carbon disulfide, carbon oxide, hydrocyanic acid, a pair of volatile aromatic hydrocarbons and other); other explosive and flammable substances,

toxic mixtures, concentrated mother and distillation solutions as well as waste waters containing radioactive substances.

8. If there is no special sewerage system for reception of industrial effluents containing radioactive substances they shall be accepted into sewerage system of city or other settlement in accordance with the rules of radioactive safety and sanitary rules for work with radioactive substances and with other sources of ionizing radiation.

9. Discharges of industrial effluents in municipal sewerage system of cities and other settlements whose interaction can lead to:

- formation of emulsions,
- poisonous or explosive gases
- large number of insoluble substances (for example, industrial effluents containing salts of calcium or magnesium and alkaline solutions; soda and acidic water; sodium sulfide and water with excessive content of alkali chlorine and phenol)

are prohibited.

10. During calculation of limits of maximum permissible discharge of pollutants in to industrial effluents which will be accepted to sewerage network of cities or other settlements, water supply and sewerage enterprises shall take into account the following:

i) permissible content of organic origin substances which are in suspended, colloidal and dissolved state expressed in a generic indicator of BOD_5, BOD_{full} which should be determined by calculating way. At the same time, BOD_5 of industrial effluents must not exceed maximum rated BOD_5 adopted during design of these facilities;

ii) allowable concentrations of pollutants removed at treatment facilities of settlements shall be determined taking into account:
   a. condition of discharge of treated industrial effluents in to water bodies specified in permission for special water use or within limits of maximum permissible discharge for such water body;
   b. appropriate type of water use depending on effectiveness of removal of pollutants of industrial effluents at treatment facilities of settlements;
   c. proportion of volume of urban and industrial effluents flowing in to sewerage systems of settlements;

iii) standards of maximum permissible concentrations of pollutants in discharge of industrial effluents in to sewerage networks according to Appendices 1 and 2 of these Rules;

iv) allowable concentrations of substances which are not recyclable and cannot be neutralized at treatment facilities which are designed, based on limits for maximum permissible discharge into sewerage system taking into account dilution of calculated ratio of volumes of domestic and industrial effluents.

11. Industrial effluents must be discharged into communal sewerage systems of cities and other settlements through separate outlets equipped with control manhole located outside the territory of customer. Such outlets of industrial, transport, construction and other enterprises shall be equipped with devices (bridges, automatic samplers, flow meters and if necessary with sealing automatic stopping devices) to ensure permanent control over discharge and quality of industrial effluents at each outlet.

12. If quantity and composition of industrial and domestic waste waters vary within 24 hours, customers must install special balancing tanks that ensure even discharge of industrial effluents in to sewerage network during 24 hours.

13. Technological effectiveness of city treatment facilities shall be determined by comparing design indicators and actual indicators of treatment of industrial effluents. If design data is not available and in case of deviation of flow and composition of industrial effluents from design parameters of enterprise, water supply and sewerage enterprises shall determine estimated values of standard indicators of work of treatment facilities.

14. Effectiveness of treatment facilities is determined based on analysis of submitted (average-daily) samples of industrial effluents. Schedules of sampling shall be agreed with regional entities of Goskompriroda and sanitary-epidemiological stations of the Ministry of Health of Uzbekistan.

15. Estimated values of specific indicators of treated industrial effluents shall be determined taking into account their concentrations and effectiveness of removal at treatment facilities.

III. ORDER OF ISSUANCE OF TECHNICAL TERMS OF REFERENCE FOR DISCHARGE OF INDUSTRIAL EFFLUENTS

16. The following are the basis for issuing technical requirements for discharge of industrial effluents in to communal sewerage networks of cities and other settlements:

i) for repeatedly constructed and reconstructed customers – design documentation agreed with water supply and sewerage enterprises;
ii) for current customers – communal-environmental normatives for discharge in to sewerage network approved according to established procedure (Appendix N 3 of these Rules);
iii) layout of local treatment facilities, layout of in-site sewerage network with indication of discharge point to communal sewerage system of cities and other settlements and with indication of their numbers, normatives of qualitative composition of discharging industrial effluents and their volumes including those of sub-customers;
iv) results of analysis of industrial effluents before and after local treatment facilities on discharge points in to sewerage networks of city and other settlement based on average and maximum indicator of volume pollutants.

17. Technical requirements shall be issued free of charge within 3 days after receipt of application.

18. New customers and repeatedly commissioned facilities shall be connected to sewerage networks of cities and other settlements only after their local treatment facilities are put in to operation which can ensure treatment of industrial effluents up to the level acceptable for their acceptance in to sewerage treatment facilities.

19. “Water supply and sewerage” and “Environmental Impact Assessment” sections of design documentations for construction and reconstruction of enterprises shall be agreed by water supply and sewerage enterprises.

20. A contract for water supply and discharge of industrial effluents shall be made between water supply and sewerage enterprises and customers based on technical requirements for discharge of industrial effluents in to communal sewerage systems of cities and other settlements.

IV. PROCESS OF CONTROL OF DISCHARGE OF INDUSTRIAL EFFLUENTS

21. A customer shall ensure permanent internal monitoring of volumes and qualitative content of industrial effluents discharged in to sewerage system of city or other settlement as well as condition of in-site sewerage networks of enterprises.

22. Monitoring shall be implemented through sampling and analysis of industrial effluents on entry and outlet of local treatment facilities, in control manholes right before discharge in to sewerage system of city or other settlement. Also, during monitoring process, volumes of discharging effluents shall be metered in control manholes and in mostly responsible points of industrial sewerage network.

23. Customers are obliged to submit to water supply and sewerage enterprises information on volume, quality and content of industrial effluents and mode of discharge. Date of submission of report data and template of report shall be agreed by a contract between customer and water supply and sewerage enterprise. Customer shall be responsible for reliability of submitting report data.

24. Water supply and sewerage enterprises together with regional entities of Goskompriroda shall ensure necessary monitoring of compliance of industrial effluents discharged by customers to approved communal - environmental standards approved for a customer.

25. Any cases of worsening of quality of treatment of industrial effluents, volley discharges, implementation of accident-rehabilitation works customers shall immediately informed to water supply and sewerage enterprises as well as to regional entities of “Goskompriroda”.

26. Customers who discharge industrial effluents in to communal sewerage systems of cities and other settlements are obliged to ensure for water supply and sewerage enterprises possibility for collecting samples of industrial effluents at any time of 24 hours and provide necessary data on quality and volume of discharged industrial effluents, provide devices and equipment and provide assistance of operation personnel for taking samples.

27. Specialized laboratories of water supply and sewerage enterprises shall monitor discharge of industrial effluents.

28. If water supply and sewerage enterprise determines high concentration of pollutants in city waters resulted by discharge of industrial effluents that can disturbs technological order of treatment facilities, the water supply and sewerage enterprise must immediately inform regional entities of Goskompriroda and Ministry of Health of the Republic of Uzbekistan. At the same time water supply and sewerage enterprise shall search for source of high pollution.

V. PROCESS OF CALCULATION OF COMPENSATIONS FOR ABOVE-STANDARD DISCHARGE OF EFFLUENTS IN TO SEWERAGE NETWORKS OF CITIES AND OTHER SETTLEMENTS

29. Compensation payments for above-standard discharge of pollutants shall be determined according to the Decree of the Cabinet of Ministers dated 1 May 2003, No. 199 “On improvement system of payments for environmental pollution and allocation of wastes on the territory of the Republic of Uzbekistan” taking into account specifications provided in this section.

30. Quarterly, up to 5th day of month, special laboratories of water supply-sewerage enterprises shall submit to regional entities of “Goskompriroda” information on customers’ non-compliance with requirements of discharge of industrial effluents in to communal sewerage network according to the Appendix N 4 of these Rules.

31. Regional entities of “Goskompriroda” based on information submitted by water supply and sewerage enterprises shall calculate and recover payments from customers for over-standard discharge of pollutants in to communal sewerage networks in accordance with the legislation and these Rules.

32. Based on results of reporting period, water supply and sewerage enterprises shall agree with regional entities of “Goskompriroda” the calculations of compensation payments for discharge of pollutants in to open water bodies or to relief and shall make the payments, excluding amounts of payments charged to their customers for above-standard discharge of pollutants in to communal sewerage networks.

33. Special Inspections of Analytical Control (hereinafter - SIAK) under regional entities of “Goskompriroda” (in order of coordination and provision methodological assistance to water supply and sewerage enterprises) have right to monitor quality of treated industrial effluents customers before their discharge in to communal-sewerage networks. Such monitoring shall be implemented no more than once in month if there is no special approval of regional commissions of National Council for Coordination Activities of Controlling Organizations.

34. In cases of disagreement between water supply-sewerage enterprises and their customers regarding reliability of laboratory analysis of industrial effluents, a decision shall be taken by SIAK of regional entities of “Goskompriroda”.

35. In case of unauthorized discharge of rain waters in to communal sewerage systems of cities and other settlements, a customer shall be charged as follows: 3 x current tariff for discharge of industrial effluents. Such calculation is made based on area of organization and meteorological data.

36. For customers who discharge in to communal sewerage networks pollutants above permitted concentration specified in Appendix No.1 of these Rules, the accrual compensation payments with increase ratio of 2.0 (and increase ratio of 5.0 for those which are specified in Appendix No.2 of these Rules) shall be applied during calculation of compensation payments for discharge of industrial effluents in to communal sewerage networks.

VI. RESPONSIBILITIES FOR VIOLATION OF THESE RULES

37. Customers shall be responsible for violation of the Rules regarding discharge of insufficiently treated industrial effluents in to water bodies as well as for breakdowns or accidents that occurred on industrial treatment facilities; for discharge of chemicals and other substances and materials used in technological process of customer and not regulated by these Rules.

Responsibility of customer for compliance with requirements of these Rules shall be determined in accordance with the legislation.

38. Customers shall ensure adoption of measures for preventing violation of requirements specified by communal - environmental regulations regarding discharge of industrial effluents into sewerage system of cities or settlements. In case of such violation, a

customer shall immediately stop discharge of polluted industrial effluents in to sewerage system of city and other settlement.

39. It is prohibited to connect a new customer to existing sewerage system of city and settlement without endorsement by water supply and sewerage enterprise.

40. In case of determination of customer's violation of the Rules, water supply and sewerage enterprises shall prepare an act and shall notify regional entities of "Goskompriroda" on the revealed case of violation.

41. Regional entities of "Goskompriroda" shall issue order to customer for elimination of violations including specifying amount of compensation.

In case of evasion from execution or improper execution of issued order, the case shall be brought to court.

42. Water supply and sewerage enterprises have right to present claims and bring an action against customers for damages incurred to communal sewerage systems as well as for violations of technological regulations of treatment of industrial effluents.

Appendix N 1
to the Rules

Maximum concentrations of pollutants in industrial effluents permitted to discharge to communal sewerage networks

N	Substance	Concentration (mg/L)
1.	Aniline	2,57
2.	Atsetaldigid	8,58
3.	Acetone	17,16
4.	Barium	0,44
5.	Benzoic acid	5,43
6.	Glycerol	38,6
7.	Vegetable and animal fats	5,0
8.	Caprolactam	10,73
9.	Xylol	1,0
10.	Paints sulfa	10,7
11.	Molybdenum	1,0
12.	Metazin	12,9
13.	Methanol	1,0
14.	Methylstyrene	0,1
15.	Polyacrylamide	2,0
16.	Resorcinol	0,18
17.	Carbon bisulfide	5,0
18.	Synthetic Surface Active-Substances anionic	20,0
19.	Styrene	0,56
20.	Sulfides	1,0
21.	Antimony	0,2
22.	Thiourea	0,13
23.	Titan	0,1
24.	Toluene	2,8
25.	Tricresyl	0,03
26.	pH	6,5-8,5

N	Substance	Concentration (mg/L)
27.	Suspended particles	500
28.	Dry residue	2000
29.	Total nitrogen	30,0
30.	Ammonia nitrogen	2,5
31.	Nitrite nitrogen	3,3
32.	Nitrate nitrogen	45,0
33.	Ammonium ion	2,5
34.	Chlorides	350
35.	Phosphates	2,5
36.	Fluoride ion	1,5
37.	COD	500
38.	BOD_{20}	15-30
39.	BOD5	11,3-22,6

Appendix N 2
to the Rules

APPENDIX N2: LIST
of very toxic pollutants

N	Pollutant	Concentration (mg/L)
1.	Aluminum	0,75
2.	Pentavalent vanadium	0,1
3.	Bismuth	15,0
4.	Iron (ion fe + +)	5,0
5.	Ferrous iron sulphate	0,5
6.	Cadmium	0,1
7.	Cobalt	0,1
8.	Manganese	30,0
9.	Copper	1,0
10.	Arsenic	0,1
11.	Oil and oil products	1,0
12.	Nickel	0,5
13.	Tin	20,0
14.	Mercury	0,001
15.	Lead	0,1
16.	Selenium	0,01
17.	Strontium	18,0
18.	Phenol	0,05
19.	Formaldehyde	0,6
20.	Trivalent chromium	0,5
21.	Hexavalent chromium	0,1
22.	Cyanide	0,64
23.	Zinc	1,0

Appendix N 3
of the Rules

APPENDIX N 3.
COMMUNAL-ENVIRONMENTAL STANDARD FOR DISCHARGE TO SEWERAGE NETWORK: [Forms]

_____
(Name of enterprise)

"AGREED"
by Head of nature
protection entity

_____
Signarure
STAMP

"APPROVED"
by Chief Engineer of
Water Supply-
Sewerage Enterprise

_____
Signature
STAMP

Communal-environmental normative

_____

Reference number N _____ dated _____ 20__ .
valid until _____ 20__.

signature of responsible person
_____ STAMP
validity period extended up to _____ 20__.
day, month, year

Signature of responsible person
_____ STAMP
validity period extended up to _____ 20__ r.
day, month, year

Signature of responsible person
_____ STAMP
Permission for special water use N ____ dated _____ 20__.

valid until _____ 20__.

Communal-environmental standard
of concentration of matters entering in to sewerage
with discharging effluents

1. Organization _____
_____
2. Departmental subordination _____

3. Mailing address of water user _____
_____
4. Discharge _____ category of effluents _____
Discharge _____ category of effluents _____
Discharge _____ category of effluents _____
5. Category of water using _____
6. Actual discharge effluents _____ m3/hour
7. Approved discharge of effluents for establishment of normatives
_____ m3/hour
8. Approved limit standard for discharge and content of discharging effluents (discharge of effluents not indicated below are prohibited for discharge)

Indicators of effluents' composition	Actual concentration mg/L	1. Actual 2. discharge g/hour	Permitted concentration g/hour	Approved standard
1	2	3	4	5

1. Suspended matters
2. Mineral composition
3. Chloride
4. Sulfates
5. Total BOD, etc.

9. Approved properties of effluents:
a) floating contaminants (substances) _____
b) odour, taste _____
c) colour_____
d) temperature _____
d) reaction (pH) _____
e) Coli index _____
g) Dissolved oxygen _____
10. _____ Other Conditions

Temporarily agreed limits for discharge of matters

with effluents

Data	Limit						Standard	
	20		20		20		gr/ m 3.	gr./ day.
	gr/ m 3.	gr/ m 3.	gr/ m 3.	gr/ m 3.	gr/ m 3.	gr/ day.		
1	2	3	4	5	6	7	8	9

1. Implemented action plan for phased achievement standard levels
2. Wastewater flow m.3/day.
3. Effluents indicators
4. Suspended matters
5. BOD.

_____
(The official responsible for water, signature, full name)

Numbers of action plan stages for phased achievement of standard levels shall be indicated

Water use

Intake, transfer and use of water in the year ___ (reporting data) thnd.m3/year									
Water use				Waters from other enterprises	Water transferred to other enterprises	Water use			
Total	Including					Total	Including:		Volume of turnover water supply
	Surface waters	Ground waters	City water pipe				domestic / drinking needs	Industrial needs	
1	2	3	4	5	6	7	8	9	10

Sewerage (reported data)

Intake, transfer and use of water in the year ___ (reporting data) thnd.m3/year									
Water use				Waters from other enterprises	Water transferred to other enterprises	Water use			
Total	Including					Total	Including:		Volume of turnover water supply
	Surface waters		Surface waters				domestic/ drinking needs	Industrial needs	
1	2	3	4	5	6	7	8	9	10

Discharge of effluents in to city sewerage system or cesspool

Year	Total	Including:							
		нормативно чистых без очистки	polluted			Treated on facilities up to standards			
			total	including		total	Including		
				without treatment	insufficiently treated		Biological treatment	physical-chemical	Mechanical
1	2	3	4	5	6	7	8	9	10

Specifications of treatment facilities

Year	Name of treatment facilities and method of treatment	Carrying capacity m3/day.		Treatment efficiency				
				Ingredients	Design concentration		Concentration (actual)	
		Design	Actual		received mg/l	discharged mg/L	received mg/l	discharged mg/L
1	2	3	4	5	6	7	8	9

Calculation of standards

Indicators of effluents	Concentration of pollutants entering the treatment plant	Treatment efficiency				Standard mg/L	Standard g/L
		Actual		Standard			
		concentration of pollutants on entry mg/L	concentration of pollutants on outlet mg/L	concentration of pollutants on entry mg/L	concentration of pollutants on outlet mg/L		

1	2	3	4	5	6	7	8

Actual discharge of effluents – m3/day; Design Discharge of effluent m3/day

ACTION PLAN
for achievement standard parameters of effluents treatment

Actions	Specification (volume, capacity etc.)	Estimated cost	Implementation period	Executors	Expected result
1	2	3	4	5	6

Head of enterprise _____ _____
(Name) (Stamp)
Environmental specialist of
enterprise _____
(Name, Office telephone)

APPENDIX N 4
Of the Rules

APPENDIX 4
TEMPLATE OF TABLE ON INFORMATION ABOUT VIOLATION OF THESE RULES OF ACCEPTANCE INDUSTRIAL EFFLUENTS IN TO SEWERAGE NETWORKS

____ quarter 20___

_____
(name of WSS enterprise)

N	Name of enterprise	Name of pollutants	Volume of discharge of effluents (m3/day)		Concentration of pollutants (mg/l)		Date laboratory sampling
			Permitted	Actual	Limit	Actual	
1	2	3	4	5	6	7	8

Head of communal
sewerage enterprise _____

Head of specialized
laboratory _____

"___" _____ 20___ _____ (STAMP)

ANNEX 7
Consultation Presentation

This presentation was presented in Uzbek, but the slides and the oral delivery. The Uzbek version is available for review with UCSA, Tashkent

UCSA:
Uzbekistan Communal Services Agency

ADB Project TA-8227 UZB: Second Water Supply and Sanitation Investment Program (46135-001)

Construction and Rehabilitation of the Sewerage System in Djizak City, Uzbekistan

April 2014

)14

Basis of the Project

- Decree of the President of Uzbekistan dated 2010, 21 December No. PK – 1446 "About acceleration of construction of infrastructure, transport and communications in 2011 - 2015".
- The Project being developed in accordance with "Program of Integrated Development and Modernization of Water Supply and Sewerage Systems of the Republic of Uzbekistan for the years 2009-2020" approved at the meeting of Presidium of the Cabinet of Ministers of the Republic of Uzbekistan on 29 June 2009 (Protocol No.25).

Goals and Justification

Main Goal
- to improve the environmental, health and living conditions of the population of Djizak City

Justification
- To improve sewerage services coverage to population, public buildings and private enterprises
- Solve problems of waste water treatment and bring the quality of treated wastewater to the required Standards
- Contribute to the implementation of an improved sewage infrastructure system

Existing Sewerage System

- Existing length sewerage 127 km
- Number of households which are serviced by "Djizak Okavasuv" enterprise: 12,781
- Number of population covered: 37,767 people; 23.6% coverage level.
- In "Uch-Tepa" district 4,235 people are covered; 35% coverage level
- About 8.6% is in very bad condition and needs to be reconstructed (about 11 km).

Existing Waste Water Treatment Plant

- Existing waste water treatment plant "Djizak Okavasuv" has a design capacity of 50,000 m^3/day, commissioned in 1982
- Currently, the sewerage system collects about 10,050 m^3/day of wastewater
- The existing treatment facilities include: pumping station, sand traps, (i) primary sedimentation tanks, (ii) aeration tanks, (iii) secondary sedimentation tanks, (iv) contact tanks and (v) chlorination
- The facilities are outdated and completely deteriorated
- Wastewater flows through the Plant without any treatment

Existing Operations

- Sewerage nework in Djizak City reaches 23.6 % of the population or 160,000 inhabitants.
- Old dilapidated pump stations to be reconstructed, including construction of additional pump stations.
- Existing waste water treatment is not operational anymore and the facilities are completely deteriorated and not been working since 2006

2035	220,481	312,229

Uch-Tepa-area outside city	561	1,700
Average total per day	25,012	55,940
Maximum per day	30,014	61,534

2

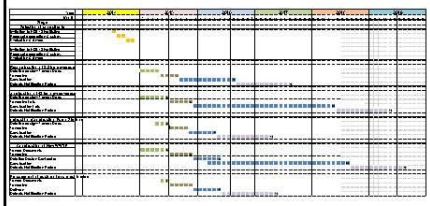
Main Process Steps: Waste Water Treatment Plant

- Preliminary treatment
- Primary treatment
- Secondary treatment
- Disinfection
- Sludge handling

Overview: Tentative Cost Estimate

Item	Quantity	Tentative Cost Estimate in USD
Reconstruction of Sewers	16,750 m	12,958,131
Construction of new Sewers	45,800 m	25,343,232
Reconstruction and construction of Pump Stations	4 units	2,450,814
Operation & Maintenance equipment	NA	2,813,892
New WWTP (30,000 m³/d)	1	26,521,208
Decommissioning of the old WWTP	1	1,861,800
Total (Construction)		71,848,085

Implementation schedule



THANK YOU!