

# Initial Environmental Examination

---

Project number: 51041-002  
September 2018  
Draft

## UZB: Horticulture Value Chain Infrastructure Project Samarkand Agro-Logistic Center

Part 1 of 3

Prepared by the Rural Reconstruction Agency (RRA), Republic of Uzbekistan for the Asian Development Bank (ADB).

This initial environmental examination is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature. Your attention is directed to the "terms of use" section on ADB's website.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

## TABLE OF CONTENTS

LIST OF ABBREVIATIONS.....	iii
GLOSSARY .....	iv
EXECUTIVE SUMMARY .....	v
1. INTRODUCTION.....	1
2. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK AND STANDARDS .....	2
2.1. Institutional set up of agriculture and environmental sectors .....	2
2.1.1. Institutional set up of agriculture sector .....	2
2.1.2. Institutional set up of environmental protection.....	4
2.2. Policy and Legal Framework.....	5
2.2.1 ADB Safeguards Policy .....	5
2.2.2 National Environmental Regulatory Framework .....	7
2.2.3 National EIA requirements .....	9
2.2.4 International Environmental Legislation .....	15
3. DESCRIPTION OF THE PROJECT .....	16
3.1. Post-harvest and Processing Auxiliary Warehouses, both for export and for internal distribution and consumption .....	17
3.2. Railway Terminal/Dry Pot. Customs .....	22
4. BASELINE DATA .....	26
4.1. Climatic data .....	27
4.2. Water resources .....	30
4.3. Soils .....	33
4.4. Biological resources.....	33
4.5. Natural protected areas .....	34
4.6. Socio-economic conditions .....	35
4.7. Cultural resources .....	36
5. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES .....	36
5.1. Pre-construction stage .....	37
5.2. Construction stage .....	42
5.3. Operation stage .....	62
6. INFORMATION DISCLOSURE, CONSULTATION, AND PARTICIPATION .....	68
7. GRIEVANCE REDRESS MECHANISMS .....	71
7.1 Objectives.....	71
7.2 Grievance Redress Mechanism .....	71
7.3 GRC Records and Documentation.....	73
8. ENVIRONMENTAL MANAGEMENT PLAN.....	74
8.1. Environmental Mitigation measures .....	74
8.2. Environmental Monitoring .....	86
8.3 Reporting.....	93
8.4. Implementation arrangements .....	93
8.4.1 Institutional arrangements EMP implementation .....	93
8.4.2 Capacity building activity .....	95
8.4.3 Cost estimation for EMP implementation .....	96
9. CONCLUSIONS.....	98
10. ATTACHMENTS .....	99
Attachment 1. Air Measurements Results.....	99
Attachment 2. Noise measurements Results and photos .....	101
Attachment 3. Water Measurements Results .....	109
Attachment 4: Prohibited Investment Activities List .....	111
Attachment 5: Public Consultation .....	112

## LIST OF ABBREVIATIONS

ADB	- Asian Development Bank
ALC	- agro-logistic center
ECC	- education and communication campaign
EHS	- environmental, health and safety
EIA	- environment impact assessment
EMP	- environmental management plan
EMR	- environmental monitoring report
EO	- environmental officer
ES	- environmental specialist
GDP	- gross domestic product
GRM	- grievance redress mechanism
HTC	- hydrothermal coefficient
ICWC	- Interstate Commission for Water Coordination
IEE	- initial environmental examination
IFC	- International Finance Institute
LARP	- land acquisition resettlement plan
MAC	- maximum allowable concentrations
MAD	- maximum allowed discharges
MAWR	- Ministry of Agriculture and Water Resources
MoH	- Ministry of Health
MFT	- Ministry of Foreign Trade
OHS Plan	- occupational health and safety plan
PC	- public consultation
PCB	- polychlorinated biphenyl
PMC	- project management consultant
PMO	- project management organization
PPE	- personal protection equipment
PSC	- project management and supervision consultant
RCA	- rural citizen assembly
RCM	- Resolution of Cabinet of Ministry
RRA	- Rural Reconstruction Agency
RUz	- Republic of Uzbekistan
SCEEP	- State Committee on Ecology and Environment Protection
SEE	- state environment expertise
SEMP	- site environmental management plans
SNR	- sanitarian norms and rules
SPS	- safeguards policy statement
SSEMP	- site-specific environmental management plans
STD	- sexually communicable diseases
SWMP	- special waste management plan
UHF	- Uzbek Food Holding
US	- United State
UZB	- Uzbekistan

## **GLOSSARY**

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

## **WEIGHTS AND MEASURES**

LPCPD – liters per capita per day

## **NOTE**

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

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

## EXECUTIVE SUMMARY

The proposed project will finance the establishment of agro-logistics centers (ALCs), initially for horticulture, in two provinces - Andijan and Samarkand - taking into account international best practices. Such infrastructure will provide all necessary facilities and services under one roof: storage, auction, food safety certification, customs clearance, quarantine, transport, shipping, expert market advice, trade finance and commercial banking etc. Significantly larger volumes of products with improved quality could be marketed with better post-harvest logistics, notably cold storage and transport integrated with quality and safety standard certification, customs clearance, and quarantine provided through wholesale and export processing facilities in the vicinity of production areas.

Two ALCs will be constructed in Samarkand and Andijan provinces of Uzbekistan. The construction will be implemented in two phases. During the first stage post harvest buildings, cold storage, two wholesale markets for small farmers and customs, added value activities building, administrative building will be constructed. Wholesale markets for medium and large wholesalers, brokers and exporters, meat and dairy products pavilion and upgrading of post harvest buildings / train terminal will be constructed during the second stage. The project implementation period is 5 years (2018-2023).

The Rural Reconstruction Agency (RRA) under the Cabinet Ministries of Republic of Uzbekistan will be the Executing Agency. Both the RRA and Ministry of Foreign Trade (MFT) will be the project implementing agencies. A project management office (PMO) will be established under RRA with its current staff and relevant personnel assigned from the Ministry of Foreign Trade (if and when required). MFT will establish and finance its own implementation/management team/entity to coordinate the implementation and subsequently to be in charge of operation of the ALCs. A project management and supervision (PSC) consulting firm will be recruited to assist the project implementation and supervision.

Categorization of reviewed project in accordance with ADB SPS (2009) was done based on REA. It was defined that the project belongs to category B, as a project with site-specific impacts, few of which are irreversible, and where in most cases mitigation measures can be designed. The project requires an initial environmental examination (IEE), which will be based on data from the feasibility study, preliminary design, site visits and interviews with technical experts, as well as primary and secondary data including the feedback received during the public disclosure process.

As per national legislation the project belongs to Category 3 with respect to its environmental impact (low impact risk). Prior to commencing the construction such project requires the conduction of the Environmental Impact Assessment and receiving Environmental Appraisal from the State Committee for Ecology and Environment Protection at the provincial level.

To comply with national environmental legislation, a number of permissions need to be obtained before commissioning the construction works and ALC operation. The list of necessary documents includes permission/license: for using existing borrow pits or opening new ones, for cutting trees, for temporary use of ground water for drinking purposes, for disposal of solid wastes and sewage during the construction period and etc.

ALC to be built in Jomboy district of Samarkand province. The facility will occupy 83 ha of agricultural land which will be acquired for the project in accordance with relevant national and ADB requirements. The site plot borders with the highway M-39 Samarkand-Tashkent. The railway line Samarkand-Tashkent is located on the north-west of the site.

Based on information provided by Samarkand meteorological station (Uzhydromet) air quality on NO<sub>2</sub>, SO<sub>2</sub> complies with national standards. However, during public consultation the participants raised concerns regarding dust pollution due to operation of stone crash factory during the windy weather. Baseline and continuous monitoring of air quality including dust control is part of environmental monitoring plan.

Analysis of water streams flowing next to the project site as well as quality of water from hand pumps in the nearest settlement - RCA "Nazar" showed exceeding standards for irrigation and drinking water quality.

There are no any rare or endemic species of flora and fauna on the project site, since the agricultural field has been cultivated for a long period of time. For trees growing along the fields and roads the appropriated compensations will be paid to the owner or State Committee for Ecology and Environment protection in accordance with national legislation.

The closest natural protected area – "Zarafshan" reserve is located 28 km away from the project site. There are no historical or cultural heritages within the project area. Nevertheless, in case of chance of finding such heritages during the construction works the appropriate mitigation measures are included in environmental management plan.

Anticipated impacts were assessed for three stages of the project implementation – pre-construction, construction and operation phases. For the pre-construction phase requirements for including environmental clauses and EMP in bidding documents, specific location of waste water treatment and waste management are in the project layout, requirements on compliance with ADB Prohibited Investment Activities List and national legislation and development Site specific environmental management plans and other plans were included in the EMP.

For the construction phase main impacts will be dust, noise and waste generation. Certain amount of surplus soil will be generated during earth works, digging foundation for building and etc. It is proposed to use a topsoil for re-vegetation as much as possible during landscaping after completion of the construction works. The rest of removed topsoil could be distributed among local farmers and households. The excavated soil, as well as all types of wastes have to be disposed in the area indicated by local agency State Committee for Ecology and Environmental Committee "Toza hudud".

Calculation of anticipated noise and vibration level during the construction phase showed that noise level generated by machinery will not exceed standards for living area and educational standards. Nevertheless, proposed environmental monitoring program includes continuous monitoring of noise level. The program recommends undertaking additional mitigation measures in case of exceeding baseline measurements standards.

Impact on surface and ground water quality during the construction phase will be mitigated through setting up necessary measures such as organizing sanitation arrangements for construction camps and vehicles washing area, storage of excavated soils and hazardous materials. A level of impact will be monitored through proposed an environmental monitoring program of surface and ground water quality.

Based on site assessment, 704 mulberry trees, 100 poplars and 40 cherry trees are growing within the territory of the construction site and 40 plane trees are growing along the highway Samarkand-Tashkent could be felled for construction purposes. Compensations for mulberry and

plane trees were calculated in accordance with national legislation and were included in the cost estimation for Environmental Monitoring Plan.

During operation phase the main impact will be increasing traffic and waste management. Comparison of anticipated (after ALC commissioning) and existing (ambient) noise levels from the highway Samarkand-Tashkent showed, that the noise will not increase more than on 3 dB. However, due to 24-hour operation of ALC, noise level will increase in the RCA “Nazar” during night time. Therefore, installation of acoustic screen is proposed as mitigation measure. The project implementation will have significant positive impact on socio-economic resources through creating new job opportunities, improvement of market for farmers and general income in Samarkand province economy.

Environmental Management and Monitoring plans provide a detail description of mitigation measures and responsible parties for their implementation. A separate table shows cost estimates for EMP implementation. The EMP’s cost was discussed with PPTA engineers and financial experts. The EMP provided in IEE includes expenses related to Waste Water Treatment Plant and Waste Management Area construction. These costs were excluded from total amount of EMP since they are included in the construction costs.

The PMO at RRA will be responsible for implementation of EMP to comply with ADB’s safeguards requirements and environmental national regulations. For this, PMO will hire a qualified full-time national Environmental Specialist who will be guided by an International Environmental Specialist (IES) of the Project Supervision Consultant (PSC) in overseeing the implementation of EMP.

Around 70 representatives from two settlements, Samarkand districts level committee on Ecology and Environment Protection, district Khokimiyats and makhallas, land cadaster committee, district water supply agency (Suvoqova) participated in public consultation conducted on March 15, 2018. All concerns raised by public consultation participants were reflected in this IEE.

The GRM for the current project takes into account the national legislation, the specificity of the project sites and results of public consultations. The GRM discussion was held with implementation agencies –RRA, PPTA Resettlement team and it was updated into the format applicable for both aspects – environmental and social.

The proposed mechanism includes three level of complaints redressing received from affected persons, which starts from project site level and up to Economic court of RUz. The aggrieved persons can also use the ADB Accountability Mechanism (AM) through the direct citizens’ application to the Head Quarter in Manila.

Based on conducted initial environmental examination it could be stated that during the construction and operation of proposed project, site-specific environmental impacts may occur on the project site during the construction phase. The impacts could be mitigated by implementation of proposed mitigation measures which are included and will be implemented through environmental management plans.



## 1. INTRODUCTION

1. Agricultural gross domestic product (GDP) in the Republic of Uzbekistan (Uzbekistan) grew at an annual average rate of 9.8% over the period 2010–2015. During 2005–2015, with the agriculture sector, horticulture has witnessed dramatic change and increased importance to the economy. Production areas have increased significantly (vegetable by 41%, melons (and watermelons) by 53%; fruits and berries by 28%). The Government of Uzbekistan aims to enhance the horticulture value chain to increase export of horticulture products.

2. Although it is expected to continue to grow, agriculture is characterized by low productivity and remains labor intensive. The horticulture sector is constrained by limited access to quality land, specialized machinery, storage facilities, appropriate inputs, and long-term finance. The country's market infrastructures are old and fragmental, and lacks modern and integrated wholesale market facilities, which include post-harvest handling, certification, storages, and logistic services in one place, to promote export of horticulture products with international standards for hygiene, quality, and safety. These, among others, have led to unrealized potential for horticulture production and marketing of products in both internal and external markets.

3. The traditional market for Uzbek horticulture producers has been the Russian Federation, which accounts for 80% of Uzbekistan's exports and yet these imports only account for 3%–4% of all fruit and vegetable imported into the Russian Federation. Uzbek exports could expand significantly by capturing a larger share of the Russian Federation market, and beyond this market, there is also scope for Uzbek horticulture exports to European markets.

4. However, accessing European, especially the European Union, markets will require improvement in horticulture quality and safety standards and certification systems. In this context, there is considerable scope to improve storage, processing, and marketing technologies. Post-harvest losses were estimated to be up to 45%, and that existing cold storage was only able to store approximately 1.0 million tons or just 5.7% of the total horticulture output in 2015. The potential of a growing and more sophisticated consumer demand for both fresh and processed products in domestic and export markets is not being realized due to these constraints.

5. The government aims to take more steps to increase agriculture production. 4 measures include (i) further structural reforms in agriculture and diversification of agricultural production; (ii) mechanization of agriculture, improvement of infrastructure, and development of agribusiness; (iii) more productive use of land and water; (iv) greater financial stability of farm entities; and (v) more market-oriented agricultural policies.

6. The proposed project will finance the establishment of agro-logistics centers (ALCs), initially for horticulture, in two provinces - Andijan and Samarkand - taking into account international best practices. Such infrastructure will provide all necessary facilities and services under one roof: storage, auction, food safety certification, customs clearance, quarantine, transport, shipping, expert market advice, trade finance and commercial banking etc. Significantly larger volumes of products with improved quality could be marketed with better post-harvest logistics, notably cold storage and transport integrated with quality and safety standard certification, customs clearance, and quarantine provided through wholesale and export processing facilities in the vicinity of production areas.

7. The ALCs will help expand horticulture export and thus promote better linkages with production, post-harvest processing, and handling following international quality, and safety standards. Increased export and domestic marketing of horticultural products will increase price

transmission to small-scale producers, and small- and medium-sized agribusinesses. It will also help increase diversification of the agriculture sector from cotton to horticulture as it has more financial, economic, and less social and environmental concerns than cotton in the medium and long term.

8. The government has requested a concessional loan of \$197 million from ADB's ordinary capital resources to help finance the project. The loan will have a 25-year term, including a grace period of 5 years; an interest rate of 2% per year during the grace period and thereafter; and such other terms and conditions set forth in the draft loan and project agreements.

9. The project will have **two outputs**: (i) agro-logistic centers established; and (ii) capacity to manage the agro-logistic centers enhanced. These outputs will result in the following outcome: export and domestic marketing of horticulture produce increased. The project will be aligned with the following impact: improved contribution of horticulture sector to inclusive economic growth.

10. This Initial Environmental Examinational (IEE) was conducted for the ALC which will be constructed in Jomboy district of Samarkand province.

## **2. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK AND STANDARDS**

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

### **2.1. Institutional set up of agriculture and environmental sectors**

#### **2.1.1. Institutional set up of agriculture sector**

12. This section provides brief information on institutions responsible for agriculture sector management and which are involved in this process.

13. Initially, at the beginning of this IEE preparation the Ministry of Agriculture and Water Resources (MAWR) of the Republic of Uzbekistan was an agency responsible for coordination in the field of agriculture, water and forestry, resolving tasks and assigned to it directly, and through its subordinate republican and territorial bodies. In accordance with the Resolution of President of RUz # 5330 dated from February 12, 2018 the MAWR was split into two ministries – Ministry of Agriculture and Ministry of Water Resources. At the stage of this IEE preparation new resolution on functioning both ministries were under development. Considering of the nature of this project, it is obvious that some of the previous tasks of MAWR on agricultural aspects will be transferred to the new Ministry of Agriculture.

14. The tasks of the previous MAWR in the term of agriculture were:

- the implementation of a unified agro technical policy aimed at the modernization and sustainable development of agriculture;
- improvement and introduction of modern agricultural technologies in the field of agricultural production;
- coordination of activities of industries, parts and structures that serve agricultural producers based on market principles and mechanisms;
- coordination of works on deepening economic reforms in the agricultural sector, broad

- development of lease relations, family contracting, farming;
- development of recommendations for improving the system of agricultural management and crop varieties;

15. **The Rural Reconstruction Agency (RRA)** which was constituted under the Ministry of Agriculture and Water Resources (MAWR) pursuant Decree of Cabinet of Ministers (DCM) No. 462<sup>1</sup>, concomitantly with the implementation of the IBRD supported “Rural Enterprise Support Project”.

16. The RRA is headed by a General Director and has a staff of 80 of which 57 are management, technical, engineering, finance, economist staff. Two deputy directors are in charge of: i) Implementation of Investment projects and ii) development of new projects. Within the Agency a Marketing Research department is specifically in charge of promoting marketing and the export of horticulture goods.

17. To date of this IEE preparation RRA has completed 6 agricultural infrastructure and agriculture enterprises support project. Currently RRA is implementing another 7 projects in the areas of sustainable agriculture, horticulture chain development, livestock and adaptation to climate change.

18. **Hokimiyats** – The Cabinet of Ministers is established in each city of the country to fulfill the social and economic tasks of the city's spiritual development, the laws of the Republic of Uzbekistan, the resolutions of the Oliy Majlis<sup>2</sup> of the Republic of Uzbekistan, the President of and the Cabinet of Ministers, to establish links between the government and self-government bodies and the welfare of the population. The order of work of the governing body of the city hokimiyat and its structural subdivisions is determined by the procedure established by the hokim<sup>3</sup> of the city.

19. The **“Uzbekozikovkatholding”** (UFH) holding joint-stock company was instituted with Decree of the President of the Republic of Uzbekistan No. PP-24924 as replacement of the former Association of Food Industry Enterprises. UFH includes a roster of 241 enterprises processing horticulture products, 45 enterprises processing meat and milk products, 79 enterprises processing other food products and 13 service companies.

20. The **“Ministry for Foreign Trade”** of the Republic of Uzbekistan (MFT) was instituted with Decree of the President of the Republic of Uzbekistan No. UP-5012 13 April 2017 as replacement of the former Ministry of Foreign Economic Relations, Investments and Trade. The MFT includes a roster of 4 sub-entities: (i) JSC “Uztrade”, (ii) JSC “Uzsanoatexport”, JSC (iii) “Urta Osie Trans” and JSC (iv) “Uzbekexpertiza”.

---

<sup>1</sup> Resolution of the Cabinet of Ministers No. 462 of 2 October 1997: “On measures to accelerate implementation of the Rural Enterprise Support Project financed with a loan of the IBRD.

<sup>2</sup> *The Supreme Assembly.*

<sup>3</sup> *Mayor of the city.*

<sup>4</sup> Presidential Decree No. PP-2492<sup>4</sup> of February 18, 2016 “On measures to further improve the organization of the food industry of the republic” on the basis of the proposal of the Ministry of Economy, the State Committee of the Republic of Uzbekistan on privatization, Association of Food Industry Enterprises was abolished and the holding company “Uzbekozikovkatholding.”

### 2.1.2. Institutional set up of environmental protection

20. New steps to reforms of some Government institutions took place in 2017. Thus, the previous State Nature Protection Committee (SNPC) was established as a specially designated above-departmental and coordination body that implemented state supervision and inter-branch management in terms of nature protection, and usage and recreation of natural resources.

21. Based on the RUz President Resolution No. 5024 'On Improving the System of State Management in the sphere of Ecology and Environmental Protection' of 21th April 2017, the SNPC was reorganized into the State Committee for Ecology and Environmental Protection (SCEEP). The newly organized Committee is designated to improve the state management in the sphere of environmental safety and environmental protection within the country, improve the environmental situation, prevent the harmful impact of wastes on the health of citizens, create favorable conditions for improving the level and quality of population's life, further improve the collection, storage, transportation system, utilization, treatment and disposal of domestic wastes.<sup>5</sup>

22. The Resolution No. 5024 highlights some changes in the institutional set up of the Committee which includes re-naming the provincial committees into departments and organizing a new department within the central body of Committee and its provincial branches – Inspectorate for Control of Wastes Generation, Collection, Transportation, Utilization, Treatment, Disposal and Sales. The Resolution also states about establishment of unitary enterprises named 'TozaHudud' (clean area) under the Committee of the Republic of Karakalpakstan and provincial departments, which will be based at the sites of providing services on transportation of domestic wastes under the district administration.

23. The Existing "Republican Inspectorate for Protection of Wild Animals and Plants and their Rational Usage: has been reformed into "Inspectorate for Control of Biodiversity Protection and its Usage and Protected Natural Areas" under the State Committee for Ecology and Environmental Protection.

24. The SCEEP (Goskompriroda) is the primary environmental regulator, which reports directly to the Cabinet of Ministries of the Republic of Uzbekistan.

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

26. At the moment of preparation hereof, the final structure of Goskompriroda was under revision and finalization.

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

- State Committee for Geology and Mineral Resources (or Goskomgeologia);
- Centre of Hydro-meteorological Service (or Uzhydromet);
- Ministry of Health (or MoH RUz);
- State Inspectorate for Exploration Supervision, Operations Safety Supervision of Industry, Mining and Utilities Sector (or Sanoatgeokontekhnazorat).

---

<sup>5</sup> RoUz President Resolution No. 5024 'On Improving the System of State Management in the sphere of Ecology and Environmental Protection' of 21th April 2017.

29. Former **Ministry of Agriculture and Water Resources**<sup>6</sup> was responsible for water allocation among different users within Republic of Uzbekistan. Based on forecast and limits provided by Interstate Commission for Water Coordination (ICWC), water is allocated among users with the priority given to drinking water supply sector<sup>7</sup>. Currently new resolution on functioning both ministries were under development, and it is anticipated that responsibilities of the former MAWR in part of water management will be transferred to the new Ministry of Water of RUz.

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

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

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

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

## **2.2. Policy and Legal Framework**

### **2.2.1 ADB Safeguards Policy**

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

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

---

<sup>6</sup> Resolution of President of RUz # 5330 dated from February 12, 2018 the MAWR was split in two ministries – Ministry of Agriculture and Ministry of Water Resources.

<sup>7</sup> Law of RUz “On water and water use” (1993), chapter 8, para 25.

and supervision, and capacity development support. The SPS also provides a platform for participation by affected people and other stakeholders in project design and implementation.<sup>8</sup>

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

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

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

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

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

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

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

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

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

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

---

<sup>8</sup> [htTN://www.adb.org/site/safeguards/overview](http://www.adb.org/site/safeguards/overview)

preliminary design, site visits and interviews with technical experts, as well as primary and secondary data including thus the feedback received during the public disclosure process.

### 2.2.2 National Environmental Regulatory Framework

42. RUz has developed over 100 laws and regulations, and revised old Soviet legislation and policies. One of the country's objectives is the transition to sustainable social and economic development. For this purpose, RUz has revised and improved the national environmental legislation, enacted new environmental laws and regulations, developed programs and action plans to address environmental issues and promoted sustainable use of natural resources.

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

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

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

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

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

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

48. **Land Code** of the Republic of Uzbekistan (1998). It aims to regulate land relations in order to ensure that present and future generations have science-based, sustainable use and

conservation of land, breeding and improvement of soil fertility, conservation and improvement of the environment and creating conditions for equitable development of all forms of management, the protection of individuals and legal entities' right for land, as well as strengthening the rule of law in this area.

49. **Law “On Wastes”** (2002, as amended on 2011). It addresses waste management, exclusive of emissions and air and water pollution, and confers authority to the SNPC concerning inspections, coordination, ecological expertise and establishing certain parameters with regard to the locations where waste may be processed. Enterprises are responsible for their waste, but, if they recycle, they may be provided with assistance from the state budget, the National Fund for Nature Protection or voluntary payments. The principal objective of this law is to prevent negative effects of solid wastes on people's lives and health, as well as on the environment, reduce wastes generations, and encourage rational use of waste reduction techniques in household activities.

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

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

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

- Law on Protection and Usage Objects of Archeological Heritage (2009);
- Decree of Cabinet Ministries of RUz on the procedure of issuing permits for special water use and consumption No. 171 of 14.06.2013;
- Decree of the Cabinet of Ministers of the Republic of Uzbekistan on Approval of the collection and disposal of used mercury-containing lamps. No. 266 of 21.09.2011;
- State Standard - Water quality. O'z DST 951:2011 – Sources of centralized household water supply. Hygienic, technical requirements and classification code;
- State Standard - Drinking water. O'z DST 950:2011 – Drinking water. Hygienic requirements and quality control;
- State standard O'zDSt 1057:2004 “Vehicles. Safety requirements for technical conditions” and O'zDSt 1058:2004 “Vehicles. Technical inspection. Method of control”;
- SanR&N RUz No.0179-04 Hygienic norms. List of Maximum Allowable Concentrations (MACs) of pollutants in ambient air of communities in the Republic of Uzbekistan including Annex 1;
- SanR&N RUz No. 0158-04 Sanitarian Rules and Norms on collection, transportation and disposal of wastes contained asbestos in Uzbekistan;

- SanR&N RUz No. 0267-09 Admissible noise level into the living area, both inside and outside the buildings;
- SanR&N RUz №0120-01 Sanitarian Norms of allowed level of noise at the construction sites;
- SanR&N RUz No 0088-99 Sanitarian requirements for development and approval of maximum allowed discharges (MAD) of pollutants discharged into the water bodies with waste waters.

53. As per ADB SPS (2009) guideline, “when host country regulations differ from these levels and measures, the borrower/client will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the borrower/client will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in this document”. Analysis of environmental standards and requirements, conducted within the IEE, showed that the main differences between IFC guidelines and national standards applicable for this project were noted in vibration and noise standards. More details information and comparison of both standards are presented in Chapter 5.2.1.

### 2.2.3 National EIA requirements

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

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

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

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

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

59. **Stage III:** *The ‘Statement on Environmental Consequences’* (*‘ZEP’* is the national acronym) represents the final stage in the SEE process and is to be conducted before the project is commissioned. The report details the modifications to the project design that have been made

from the *Glavgosecoexpertiza/Gosecoexpertise* review at the first two stages of the EIA process, the comments received through the public consultation, the environmental norms applicable to the project and environmental monitoring requirements associated with the project and principal conclusions.

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

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

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

62. As per national legislation the Project belongs to Category 3 with respect to their environmental impact (low impact risk)<sup>9</sup>. Prior to commencing construction such project requires the conduction of the Environmental Impact Assessment (EIA) and receiving Environmental Appraisal from the State Committee on Ecology and Environment Protection at the provincial level. A national EIA will be developed by a national design institute on the project detail design stage.

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

**Table 1a: Gap Analysis Between ADB Safeguards Requirements and Uzbek National Environmental Legislation**

Aspect	Asian Development Bank	National Uzbek Regulations	Harmonized Framework
Environmental Policy and Regulations	ADB’s SPS (2009) sets out the policy objectives, scope and triggers, and principles for three key safeguard areas: <ul style="list-style-type: none"> <li>i. Environmental safeguards,</li> <li>ii. Involuntary resettlement safeguards, and</li> <li>iii. Indigenous peoples safeguards</li> </ul>	Environmental assessment and permitting procedure in Uzbekistan is set out in the following laws and regulations: <ul style="list-style-type: none"> <li>i. The Law on Nature Protection (1992);</li> <li>ii. The Law on Environmental Expertise (2000), and</li> <li>iii. Resolution of Cabinet Ministries (RCM) # 491 (2001) (with amendments # 152 (2005) on “Regulation</li> </ul>	

<sup>9</sup> Appendix 2 of the Cabinet Ministers’ Decree (CMD) of the RUz No. 491, dated from 2001 with amendments made in CMD # 152 dated from 2009.

Aspect	Asian Development Bank	National Uzbek Regulations	Harmonized Framework
		on Environmental Expertise" (2001)	
Screening	ADB carry out project screening and categorization at the earliest stage of project preparation when sufficient information is available for this purpose using REA checklist. Categorization into Category A, B, C, FI	The category of the project is defined in accordance with Appendix 1 to RCM # 491 (152). The Appendix provides a list of activities divided on 4 categories (para 62 of this IEE).	The Project is Categorized in to 'Category B' (ADB classification) and category 3 (national legislation)
Scoping	Avoid, minimize, mitigate and/or offset for adverse impacts and enhancement of positive impacts through environmental planning and management	The environmental assessment should evaluate: (i) compliance of proposing project with environmental requirements, (ii) level of risk related to project implementation on people's health and environment, and (iii) efficiency of developed measures to mitigate identified impacts.	Conduct a process of Environmental Assessment that will consider in an integrated manner the potential environmental (including labor, health, and safety) risks and impacts of the project.
	EA takes into account potential impacts (direct, indirect and cumulative) and risks on physical, biological, resettlement, socio-economic (including health and safety), and physical cultural resources	Environmental assessment considers the project's potential impacts on the <b>physical, biological, socio-economic and cultural resources, including cumulative impacts.</b>	The Environmental Assessment will take into account natural environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, indigenous peoples, and physical cultural resources
Alternatives	Examination of financially and technically feasible alternatives to the project location, design, technology and components, their potential environmental and social impacts Consider no project alternative.	For the ZVOS, consideration of <b>alternatives</b> is required. Alternatives that may be assessed include alternatives in; processing, technical design, location of the facility, architectural and planning options. Another mandatory requirement is consideration of the <b>zero option.</b>	Assessment of alternatives will include the location and design.
EIA Report	Guidelines and Table of Contents are provided for EIA report in SPS (2009): (i) Executive Summary, (ii) Policy, Legal and Administrative Framework, (iii) Description of the Project, (iv) Description of the Environment, (v) Anticipated	The RCM # 491 defines activities which are needed to be undertaken under ZVOS preparation. Description of undertaken activities needs to be included into the ZVOS report. The RCM requires	The IEE and EMP reports will follow the table of contents proposed in ADB's SPS (2009).

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

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

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

**Table 1: List of Necessary Approvals and Permissions**

#	Name of the document	Time of receiving permission	Agency issuing permits	Responsible entity
1	Environmental Appraisal (Positive Conclusion of Environmental Expertise)	Prior commencement of the construction works	State Committee on Ecology and Environment Protection (SCEEP)	Developer of national feasibility study
2	Permission/license for using existing borrow pits or opening new ones	Prior commencement of the construction works	SCEEP	Contractor
3	Permission on cutting trees	Prior commencement of the construction works	SCEEP	Contractor
4	Permission for temporary use of ground water for drinking purposes	Prior commencement of the construction works	SCEEP	Contractor
5	Permission for disposal of solid wastes and sewage during construction period	Prior commencement of the construction works	"Tozahudud" entity under SCEEP	Contractor
6	Statement on Environmental Consequences (Permission on waste water, emissions discharge, disposal wastes)	Prior commencement ALC operation (for each phase separately)	SCEEP	"Uzbekozikovqatholding"
7	Permission on special water use for surface and ground water	Prior commencement ALC operation (for each phase separately)	SCEEP	"Uzbekozikovqatholding"
8	Permission for disposal of solid wastes and sewage	Prior commencement ALC operation (for each phase separately)	"Tozahudud" entity under SCEEP	"Uzbekozikovqatholding"
9	National Environmental Appraisal ZVOS	At the detail design stage	SCEEP	Contractor
10	National Environmental Appraisal ZVOS	Prior granting permission to open new production or precessing on the territory of ALC	SCEEP	"Uzbekozikovqatholding"

## 2.2.4 International Environmental Legislation

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

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

### International conventions

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

**Table 2: Key Applicable International Conventions and Protocols**

Convention or protocol	Overview	Relevance to project
<b>UN Framework Convention on Climate Change (2007)</b>	The Kyoto Protocol (a Protocol to the UN UNFCCC) aims to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.	The Project will not lead to increasing emission to atmosphere.
<b>Kyoto Protocol (1997), ratified in 1999</b>		
<b>Paris Agreement on Climate Change (2016)</b>	Paris Agreement provides an opportunity for countries to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.	
<b>Convention Concerning the Protection of World Cultural and Natural Heritage (2004).</b>	The Convention Concerning the Protection of World Cultural and Natural Heritage is the precursor to the establishment of UNESCO World Heritage Sites as a place (i.e. natural or built environment) that is listed by the UNESCO as of special cultural or physical significance.	The Project will have no interaction with these. As such, requirements under the convention will not be triggered.
<b>The Stockholm Convention on Persistent Organic Pollutants (2004)</b>	The Convention is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and	The project will comply with national and international standards for hazardous wastes (chemicals)

wildlife, and have harmful impacts on human health or on the environment.

generation and management.

### 3. DESCRIPTION OF THE PROJECT

67. An agro-logistic center (ALC) is physical infrastructures where commercial exchanges are carried out, normally between producers, exporters, wholesalers, distributors and retailers, gathered with the objective of buying and selling products and where merchandise, that give rise to the exchange, is physically present. In these areas, it is also frequent the presence of other types of "operators" that provide logistic, financial and other activities necessary for the proper commercial operation and sanitary control of the food products that are marketed through the market.

68. The ALCs are a public initiative, which aims to achieve greater efficiency in the marketing and export of agricultural products, improving the conditions in which transactions are currently carried out, promoting the concentration and classification of agricultural production and maximizing relations between producers, wholesalers, exporters and retailers.

69. The ALC will be built in Jomboy district of Samarkand province (Figure 1). The ALC will occupy 83 ha of agriculture land which will be acquired for the project in accordance with relevant national and ADB SPS (2009) requirements.

70. The site plots borders with the highway M-39 Samarkand-Tashkent. The railway line Samarkand-Tashkent is located on the north-west of the site. There are two settlements located close to contraction site – Rural Citizen Assembly (RCA) “Nazar” and RCA “Dehkonobod”. Stone crushing factory (marble processing) is located in 100 meters to the east from project site.



**Figure 1. Location of Project Site in Samarkand Province, Jomboy District**

71. A Master plan for creation of agro-logistic center is developed under the current project. The Master Plan will be implemented in two stages through gradually construction of the following building and facilities:

**First stage:** i) post harvest buildings, ii) cold storage, iii) 2 wholesale markets for small farmers and iv) customs, (v) administrative building.

**Second stage:** i) wholesale markets for medium and large wholesalers, brokers and exporters, ii) added value activities building, iii) meat and dairy products pavilion and iv) upgrading of post harvest buildings / train terminal.

72. Wholesale markets and administration will operate 10 hours per day, cold storages will operate 24 hours. Operation schedule of post harvest facilities will be defined by the ALC's administration after the ALC commissioning.

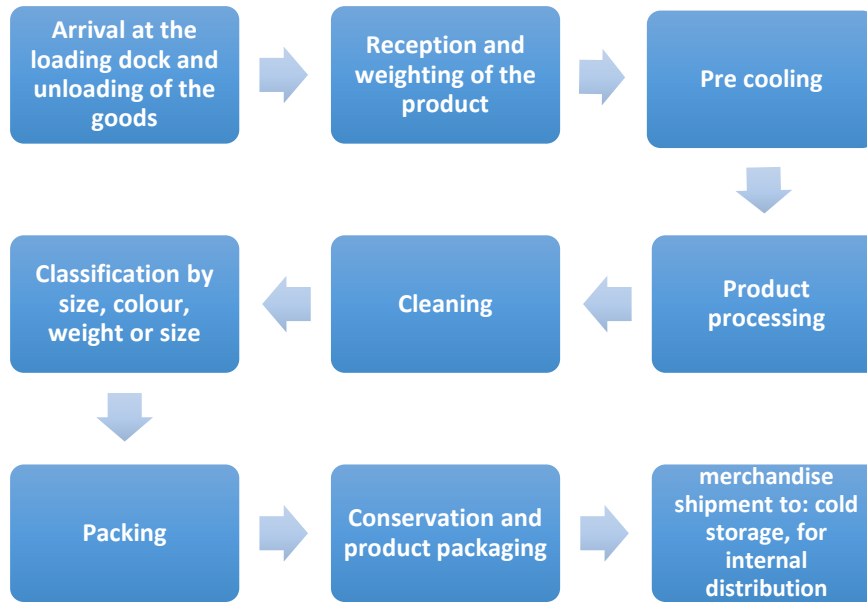
73. The layouts of proposed ALC is presented in Figure 3. The layout includes all facilities which will be constructed under Master Plan. Description of each pavilion is provided below:

### **3.1. Post-harvest and Processing Auxiliary Warehouses, both for export and for internal distribution and consumption**

74. A warehouse is proposed to offer common post-harvest services to operators that will market their products in the domestic and exports market, equipped with a 17 semi-manual process line, with a capacity of 10-15 tons/hour each, in accordance with the forecast of processing volumes, with the following allocation Figure 2:

- 3 processing lines for small fruits.
- 2 processing lines for Tubers.
- 7 processing lines for tomatoes and fruits with similar size and shape.
- 2 processing lines for vegetables; cucumber, pepper, carrots and other vegetables with similar size and shape.
- 2 processing lines for cabbage, lettuce and other spherical vegetables.
- 1 processing line for watermelon, melon and pumpkin.

75. Flow chart of processing is presented on Figure 2.



**Figure 2: Processing Flow in Post Harvest Area**

76. Total area of post harvesting area is 16,000 m<sup>2</sup>. The examples of proposed lines are presented in Figures 4-5.



**Figure 4: Example of Post Harvesting Area**



**Figure 3: Layout of Proposed ALC in Samarkand Province**

1- Entrance, 2 administrative area, 3-water tank, 4a – small farmers area. Pavilion for storage and sell fruits and vegetables, 4b – Pavilion for medium and big size farmers, 5 - meat market, 6-Pavilion for i) companies specializing in the handling, ripening, preparation, drying, packaging, preservation, distribution, importing and exporting of fruit and vegetables, ii, 7 - management of empty returnable packaging, 8 – refrigerated warehouse, 9, 10, 11 – post harvest and processing building, 12 –waste management area, 14 – water treatment plant, 15 – reserved area, 16 – workshop and track service, 17 – several services reserve area.

### ***Cold storage***

77. ***Cold storage building.*** A cold storage building with a capacity of 60,000 m<sup>3</sup> has been dimensioned with a capacity to provide services up to 1.5 M tons of fruits and vegetables every year (21,000 tones in one single moment), in accordance with the forecast of commercialization volumes. The cold storage building is proposed to serve the products to be marketed and exported through the ALC, with 60 refrigeration or freezing chambers as RACKS model, which must have minimum three storage levels. The size of each chamber would be about 10x15x7 meters, with capacity for cold storage, in cages of 1x1.2x1.8 meters. All this in modular surface and in reserve surface, which allows to increase the number of chambers, depending on demand, without the need for new buildings. In summary, a cold storage will consist of the following: (i) administrative area (offices, meeting rooms, dining room, sanitary, toilets, shower and etc.), (ii) warehouse area (building for engine room, electrical rooms, warehouse for necessary chemicals in cold storage, warehouse for cages, racks and etc.), and (iii) area for cold storage (chambers, tunnel for frozen, handling area, refrigerated warehouses and etc.



**Figure 5: General View of Clod Building**



**Figure 5a: View of Chambers Inside Cold Storage Warehouse**

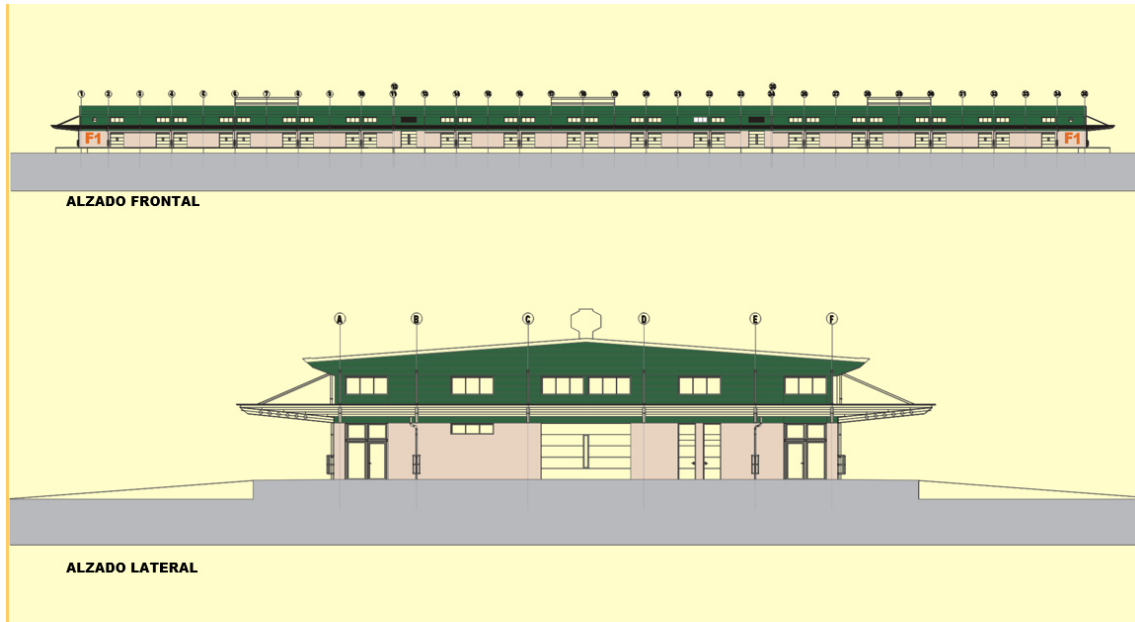
***Wholesale Market of Fruits and Vegetables. Area for medium sized farmers, brokers, consolidators, wholesalers and exporters***

78. The wholesale market model proposed is as follows: Fruits, vegetables and tubers wholesalers' area, in four warehouses or market pavilions, with a central aisle and a total rentable commercial area of around 25.000 m<sup>2</sup>, in accordance with the forecast of internal distribution and commercialization volumes (550,000 tones per year). A market model based on a central aisle of buyers and lateral loading and unloading, in which the merchandise is exposed and the buyers circulate, the transactions are carried out and part of non-palletized merchandise is sold (Figures 6 and 7).

79. At the back, each market stall has an external door (with a minimum of 3 m wide) that communicate with the loading and unloading dock. In general, the merchandise will be unloaded palletized in the future and will be shipped both palletized (large buyers) and in boxes (traditional retailer) through the docks.



**Figure 6: Wholesale Market of Fruits and Vegetables**



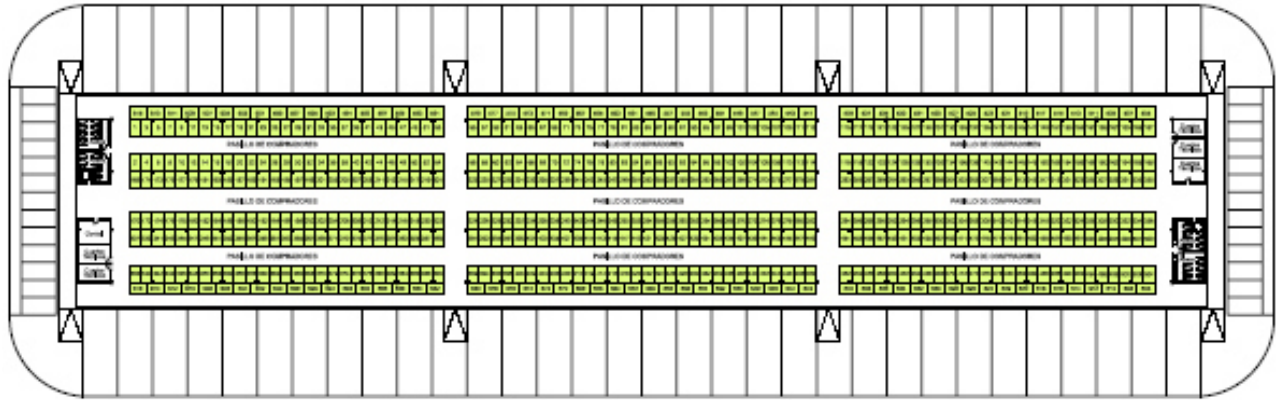
**Figure 7: Front View and Side View**

### ***Wholesale Market. Area for Small Farmers***

80. The producers' area is a specific and exclusive area for small producers, within the fruits and vegetables Wholesale markets. The spaces are rented per days or weeks, unlike the stalls of the wholesale market of fruits and vegetables that are rented per years. In this way, small producers who do not have enough product to market throughout the year can also access the market. It is equipped with common cold rooms. It is, therefore, an area that is exclusively for farmers who are duly documented and provided with the corresponding authorization through the Managing Body. Farmers sell directly, either continuously or occasionally, the products produced by themselves in their farms. It is recommended to group them at the ends of one of the four previously mentioned warehouses, in spaces of 2x3 meters, painted on the ground and provided with common cold stores. An example is presented below (Figures 8-9).



**Figure 8: Area Distribution for Small Producers**

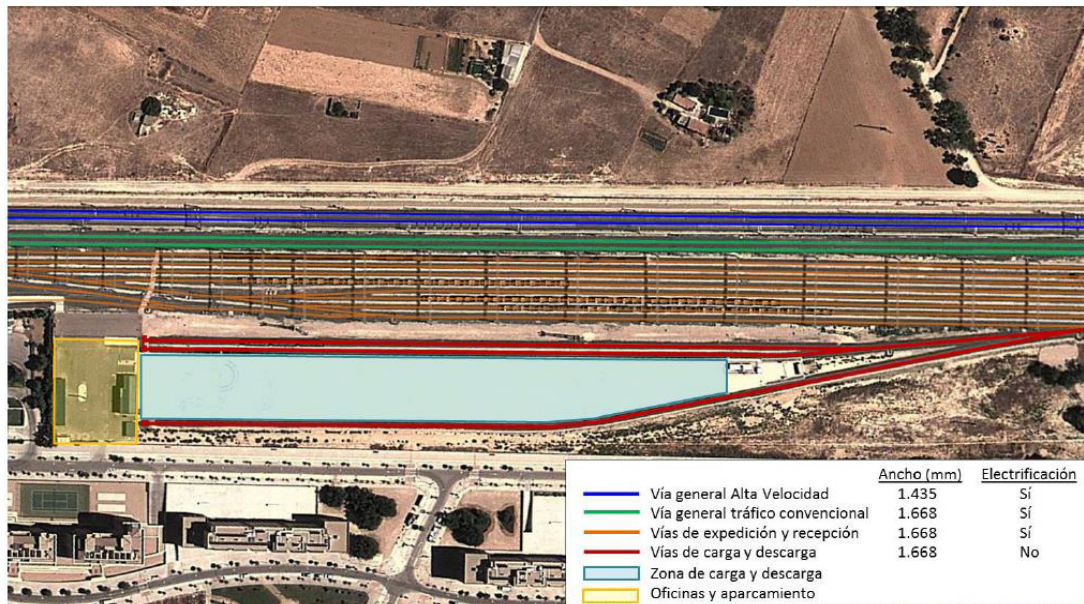


**Figure 9: Scheme of Wholesale Market Pavilion for Small Farmers**

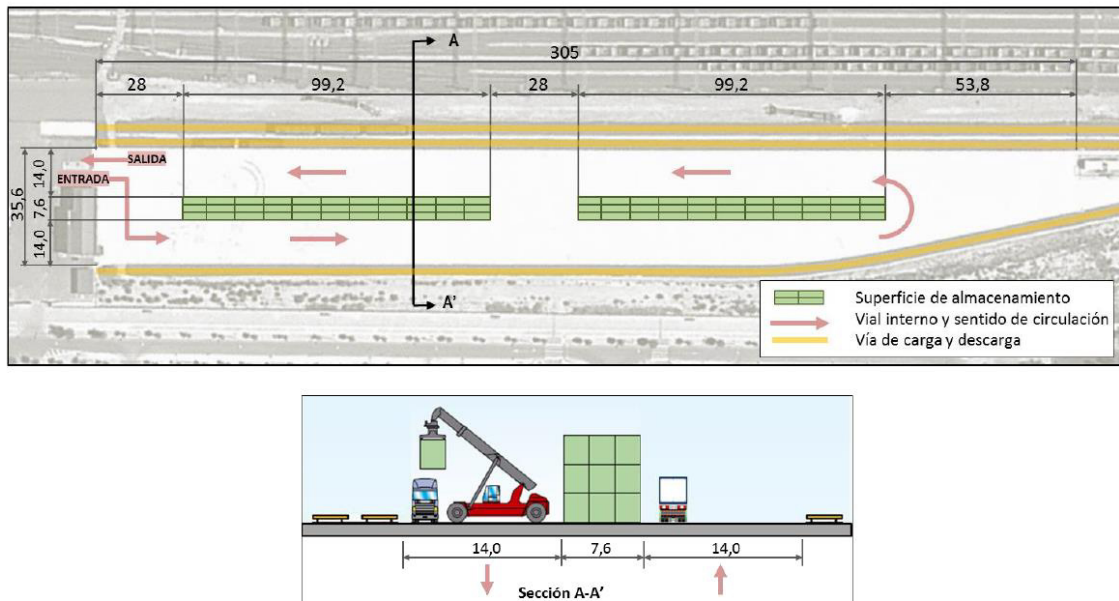
### 3.2. Railway Terminal/Dry Pot. Customs

81. In the medium and long term, the railroad can become the main means of transport to export fruits and vegetables, even though at the present time, road transport is the most used. Therefore, it is proceeding to perform a functional pre-design in the reserved space, in which the following areas will be integrated:

- Intermodal area, destined to the modal interchange road-rail. It is the zone where the merchandise changes of way of transport and the transfer of the load from transport by road to the railroad takes place;
- Logistics and Services Area, with specialized in logistics activity areas, distribution and transformation such as processing, storage, conservation and handling for agro-food operators. It also includes customs services, an auxiliary services area for workers and visitors, as well as management offices and a building for customs and phytosanitary inspection services.



**Figure 10: Zoning of the intermodal Area**



**Figure 11: Distribution of Areas in the Loading and Unloading Area**

### ***Administrative Building***

82. A 4-level building is proposed, with minimum 1,000 useful m<sup>2</sup> in each level. The administrative building comprises the administration building of the Managing Entity, and other spaces for services and related activities, such as customs clearance, laboratory, health and first aid centre, work office and other state agencies, day care, pharmacy, telephony and communications, self-service, sale of supplies, hardware store and similar, currency exchange and banking activities, restaurants, and laboratory, among others.

83. In the first level, the activities and related services would be located in individual rentable spaces of between 20 and 100 m<sup>2</sup> each. In the second level the offices for the Managing Entity and in the third level a business center, meeting and training rooms and the head office of the laboratory. In the 4th level the customs office will be located.



**Figure 12: Example of View of Administrative Building**

84. **Waste Management Area.** Area to concentrate waste management in an integrated way towards the future cleaning plan. In relation to the waste management area it is proposed that all commercial waste be agglutinated for selection and transport to the corresponding authorized managers, which will be called the Waste Management Area.

85. In accordance with plan, around 1.5 M ton of fruits and vegetables will be treated/sold in the ALC<sup>10</sup>. As per information provided by UFH, organic wastes generated during vegetables and fruits processing is estimated as equivalent to 0.002 % of total weight. It means that 3,200 ton of waste will be generated annually or 8.2 ton per day. However, distribution of waste generation during the year will be different during harvesting and non-harvesting seasons.

86. Waste management area would be a multi-purpose facility, equipped with various areas to manage commercial waste from the different ALC's areas. A part of the installation could also be used as a storage area for cleaning vehicles, as well as for containers storage. In an initial period, a basic installation could be built, but it should consider, that in anticipation its growth and development as the selective withdrawal system becomes consolidated. The elements that this equipment could have, depending on the waste management and cleaning plans that are approved, could be:

- Control centre: Administrative centre of the facility, where all inputs and outputs of material will be controlled. Weighing tasks and statistical and administrative control would be carried out here. In turn, the personnel of this area could carry out environmental education work to raise awareness among users. The Plant Manager would also work here, plus administrative and managing personnel as well as shifts they would like to implement;

<sup>10</sup> FS report for Samarkand ALC, Table 1.

- Weighing scale, optional: certified and calibrated equipment for weighing, both inputs and waste outputs. If necessary, one weighing scale could be enabled for users and another for the transport and the waste disposal;
- User zone: An area so that users can deposit their waste correctly separated into fractions. There must be as many containers as fractions we want to separate;
- Recovery zone: A space should be enabled to be used for the recovery of containers and packaging, such as boxes and pallets. In this way, these materials could be used again. An operator would be responsible for the selection and subsequent repair;
- Area for emptying containers from the storehouses or sheds. Space destined to empty the various containers, mainly organic stuff and "the rest". The containers can be emptied in the respective containers of materials from the user area;
- Maintenance area: Space for containers cleaning and repairing;
- Staff changing room module: Space enabled for cleaning workers to have their clothes, showers, lockers, dining room (in case they match);
- Reserve area: Space for storage containers and under repair;
- Parking area: Place destined for parking of the vehicles of the cleaning brigade when they are not on duty.

87. Among other facilities needed for normal operation of ALC will be:

- Access control;
- Road system;
- Parking lots for trucks and vehicles;
- Loading and unloading areas;
- Lighting system;
- Water supply networks;
- Sanitation network;
- Electrical supply network;
- Telephone and data network plus antenna;
- Gardens and streets;
- Links to external road system;
- Water treatment plant;
- Electrical installations;
- Fire protection system;
- Perimeter fence (of the whole plot).

88. During the second phase of project implementation **Area for Large Exporters / Added Value Firms and Growth Reserve**. There is 145,000 m<sup>2</sup> of a leasable area. In this area, land is rented and each company builds its facilities according to their needs. Within this area those activities included that by their origin and destination are related to the export storage, marketing and distribution, handling and preservation of perishable and semi-perishable foods and their derivatives.

89. It is recommended that identification and negotiation of their location in the ALC of the following types of businesses should be a priority: (i) Big Exporters and Processing Companies, (ii) Additional cold facilities, (iii) Supermarket chains, (iv) Food companies that offer services to the hotel, restaurant and catering groups.

90. There is significant part of ALC territory which is considered as a **Future growth area and expansion**. It is recommended that **meat, dairy products, semi-perishable food products Market, also for distribution and local consumption**. A single pavilion of approximately 5,000

m<sup>2</sup> of rentable commercial space is proposed, (similar model to the fruit and vegetables pavilions). The Multipurpose Market is generally a warehouse for the commercialization of meat products and other foods not framed in Fruits and Vegetables market, for example, basic grains, cereals, preserves, cheeses, dairy and even flowers. In this warehouse wholesalers of meat products such as bovines, swine, avian, etc., will be located for any line of commercialization, which means, fresh, frozen and in trays, according to the needs of each client (supermarkets, restaurants, traditional butchers, etc.).

#### 4. BASELINE DATA

91. Samarkand province is located in the central part of Uzbekistan, in the Zarafshan valley. It borders with the Djizzak province of Uzbekistan in northeast, Tajikistan in the east, the Kashkadarya province of Uzbekistan in the south and the Navoi province of Uzbekistan in the west and northwest. It covers an area of 16,400 km<sup>2</sup> (Figure 13).

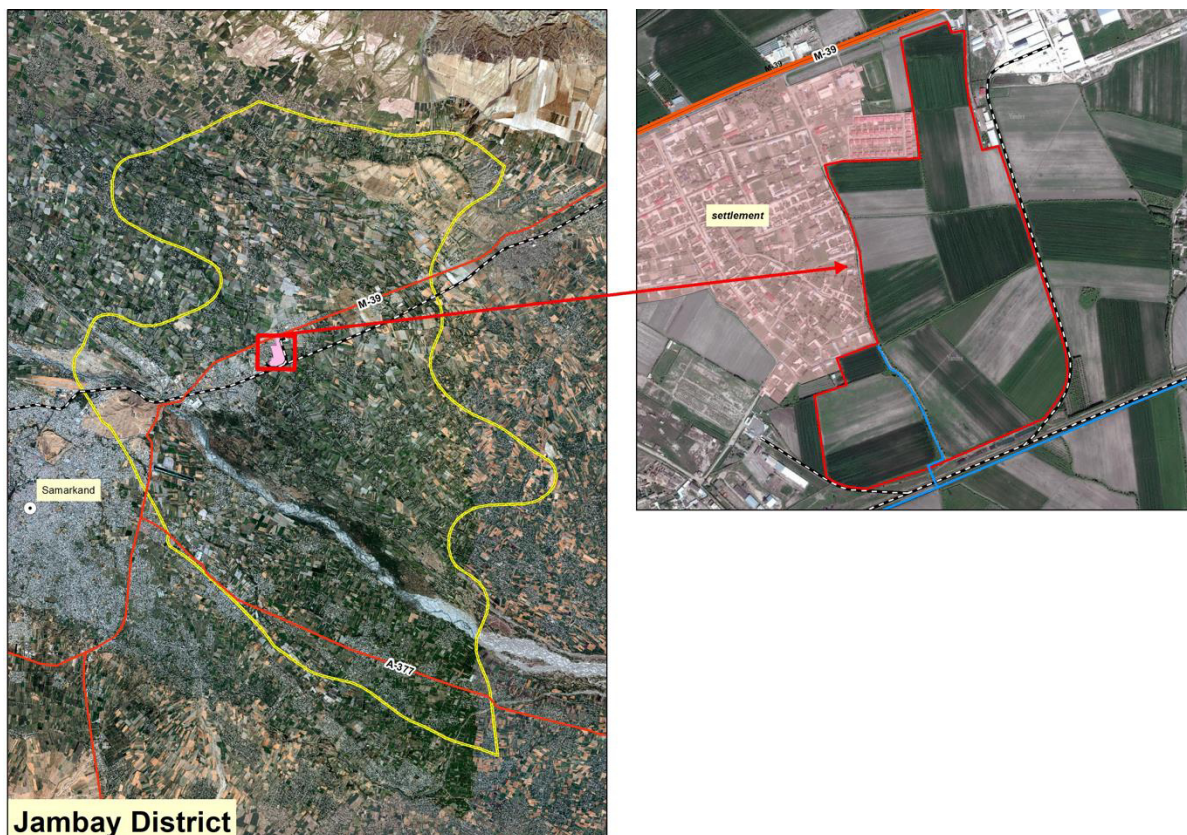


**Figure 13: Location of Samarkand Province and Jomboy District**

92. The population is estimated to be around 3,651,700<sup>11</sup>, with some 75% living in rural areas. Samarkand province was established on January 15, 1938. The province is divided into 14 administrative districts. The capital is Samarkand (pop. Est. 368,000 inhabitants). Other major towns include Bulungur, Juma, Ishtikhon, Katta-Kurgan, Urgut, and Oqtosh.

93. Jomboy district, where one of the agro-logistics centers is planned to be built, is situated in close proximity to Samarkand city. The district also borders with Bulungur, Tayloq, Samarkand, Oqdaryo and Payariq districts. The territory of the Jomboy district is 0,55 thousand km<sup>2</sup>.

<sup>11</sup> [www.stat.uz](http://www.stat.uz), 1 January 2017



**Figure 14: Location of ALC in Jomboy District of Samarkand Province (drawn in red)**

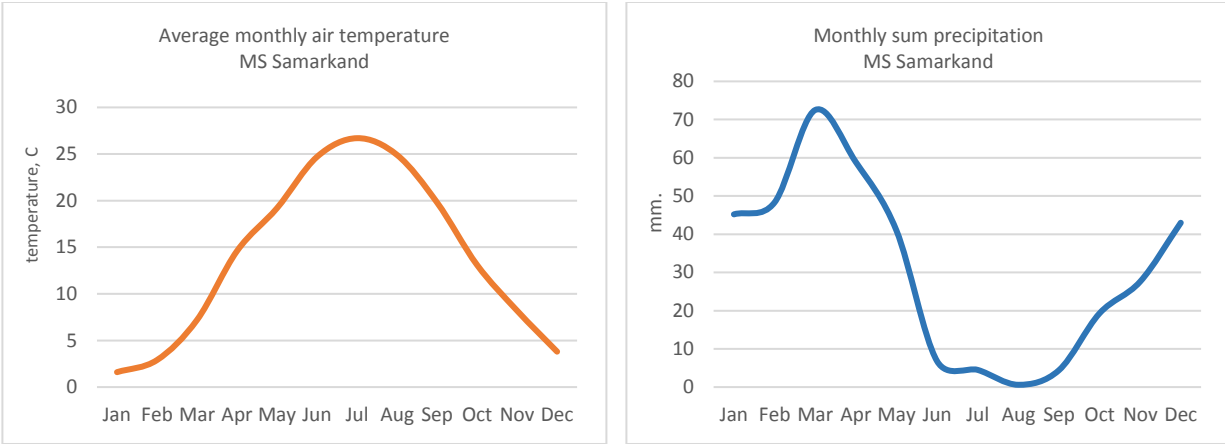
#### **4.1. Climatic data**

94. The Samarkand province is completely located in the Middle Zarafshan climatic region, that extends to the Samarkand and Sanzar-Nurata intermountaine basins with facing them mountain slopes.

95. Middle Zarafshan climatic region lays between Kashkadarya (on the south) and Golodnostepskiy (on the north) climatic regions. It borders with Lower Zarafshan climatic region (on the west).

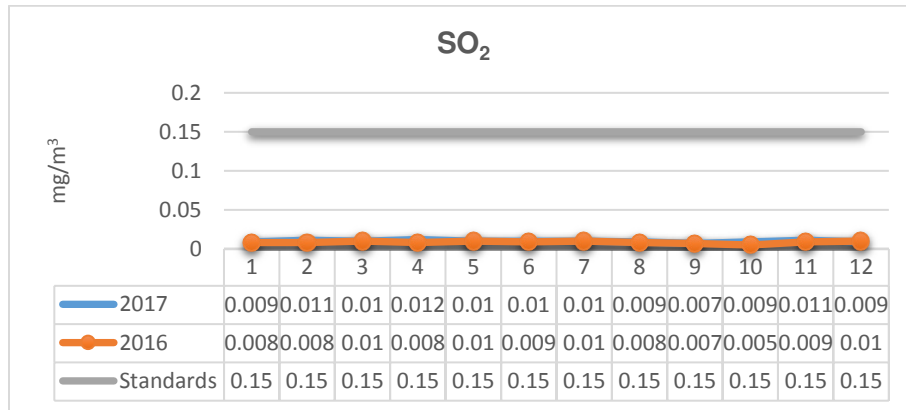
96. Average temperature of January ranges from  $0,5^{\circ}$  and  $-1^{\circ}$  till  $-2^{\circ}$   $-3^{\circ}$  degree. Real wintertime lasts 28-71 days. Absolut minimum of temperature is  $-25^{\circ}$ . The average temperature of July is  $28^{\circ}$ . Absolute maximum of temperature is  $42,4^{\circ}$ . Annual precipitation rises from 180-280 mm on the west to 425 mm on the east. Winter-spring portion of precipitation reaches 33-44% of annual sum. The region is located between 0,15 HTC (hydrothermal coefficient) contour line on the west and 0,32 HTC contour line on the east.

97. The whole flat part of the region has rich thermal resources from  $4500^{\circ}$  to  $4000^{\circ}$ .

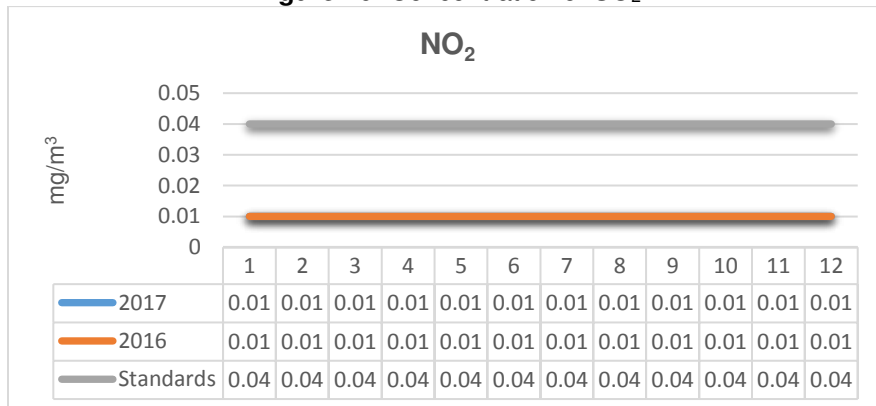


**Figure 15: Climatic Data on Samarkand Meteostation**

98. Air quality of the project site was analyzed based on the results of last years observations conducted by Samarkand meteostation under the Uzhydromet, which is closest to the project area. Meteostation conducts measurements of SO<sub>2</sub> and NO<sub>2</sub> gases as major pollutants in this area. In accordance with received results, baseline air quality complies with national<sup>12</sup> standards (Figures14-17) (Attachment 1).



**Figure 16: Concentration of SO<sub>2</sub>**



**Figure 17: Concentration of NO<sub>2</sub>**

<sup>12</sup> Hygienic norms. List of Maximum Allowable Concentrations (MACs) of pollutants in ambient air of communities in the Republic of Uzbekistan including Annex 1. SanR&N RUz No.0179-04.

99. As part of baseline survey, noise measurements on the project site were conducted in February 2018. As described in chapter 3 project area borders with agricultural lands, Nazar RCA, highway Samarkand-Tashkent and warehouse. There is also a transport college located in 150 meters to the west from the project site. Therefore, the Nazar RCA, the transport college, and the Dehkonobod RCA will be potential receptors which could be impacted by construction and operation of the ALC.

100. It should be noted, that there are two main noise pollution sources on the project site: (i) traffic flow, and (ii) stone crusher factory located in 100 meter to the east from the project site. Three different standards will be applicable for the reviewing receptors. The standards are presented in Table 3. As shown in the table national and international standards for living area are the same. However, for colleague stricter standard (national) were selected (40 dB). There are no standards for adjusted to highway. The national standard establish level in 65/55 dB for day and night time accordingly.

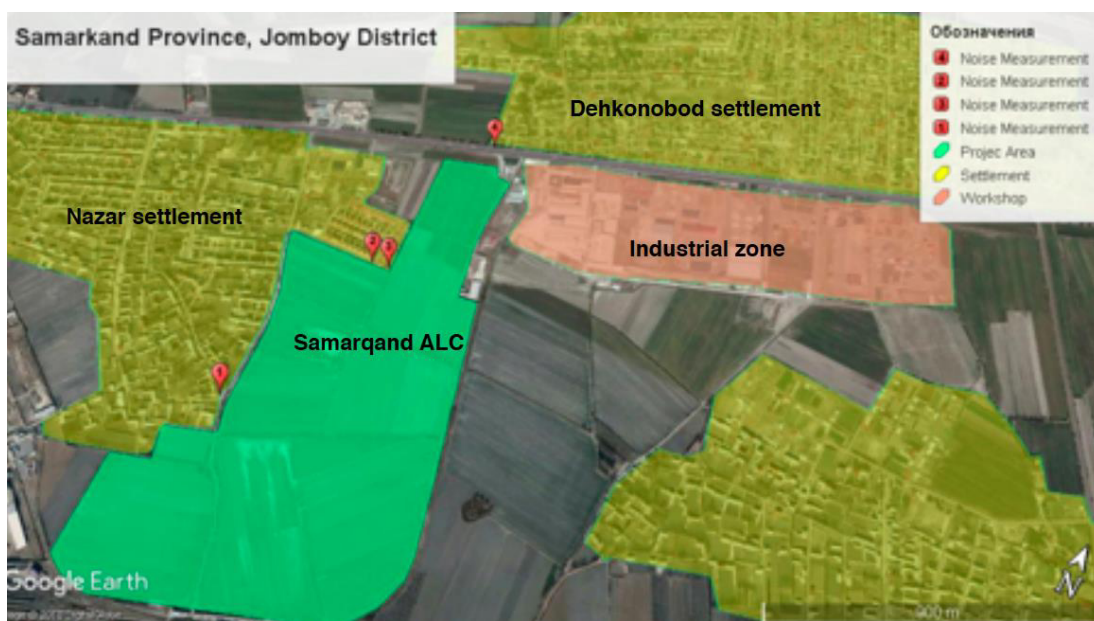
**Table 3: Standards for Noise Level for Different Receptors**

#	Type of receptor	National (dB) <sup>13</sup>		IFC (dB) <sup>14</sup>	
		Day time 7-23	Night time 23-7	Day time 7-23	Night time 23-7
1	Living area	55	45	55	45
2	Commercial area	60		70	70
3	Educational entities	40		55	45
4	Area adjusted to highway	65	55	-	-

101. Noise level measurement was conducted by an expert from the national Institute of Hygiene and Ministry of Health. Totally five points were reviewed: three points were located next to the Nazar RCA, third points – in front of college and fourth point next to the highway M-39 (Figure 18). The original copies of noise measurements and photos from the project site are presented in Attachment 2.

<sup>13</sup> Sanitarian Norms and Rules (SanPiN) # 0267 (2007) "Admissible noise level into the living area, public buildings and outside the buildings."

<sup>14</sup> IFC General EHS Guidelines: Environmental Noise Management, Table 1.7.1, 2007.



**Figure 18: Noise Measurements Points**

102. The results of noise measurements presented in Table 4 show, that the noise level in points P-4 exceeds standards for both – day and night time on 10 and 19 dB accordingly. The main source of impact is a traffic on highway M-39. In point P-3 (in front of living houses faced to the stone crush factory) admissible noise level is exceeded during the night time on 8 dB.

**Table 4: Results of Noise Measurements**

#	Location/Point	Results of measurements		Standards (Table 13)		Exceeding, dB	
		Day time 7-23	Night time 23-7	Day time 7-23	Night time 23-7	Day time 7-23	Night time 23-7
1	P-1 Nazar RCA	41	-	55	45	-	-
2	P-2 Nazar RCA	41	-	55	45	-	-
3	P-3 Nazar RCA	53	53	55	45	-	8
4	P-4 Dehkonobod RCA	75	74	65	55	10	19
5	P-5 Highway in front of college	76	-	65	-	11	-

Source: PPTA consultants, 2018.

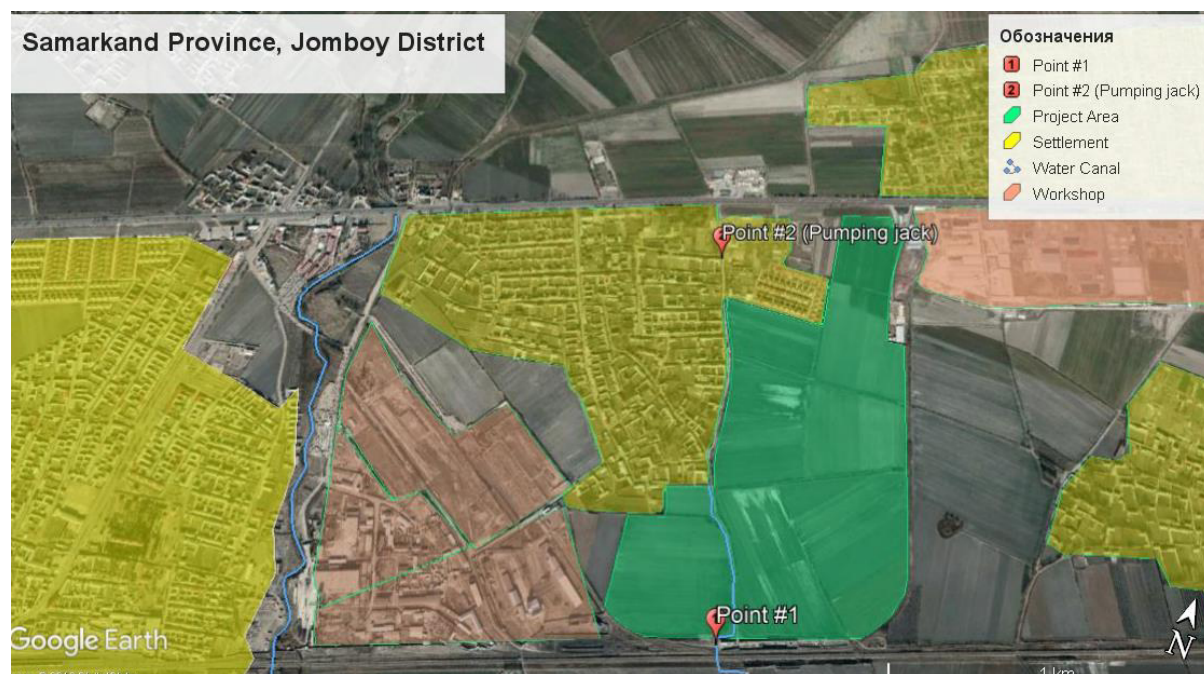
## 4.2. Water resources

103. The hydrographic network in the investigated area is represented by the Zarafshan River and its tributaries and a wide network of irrigation canals. The Zarafshan River originates near the node of the site of the Turkestan and Gissar ranges at the altitude of about 2750 m above the sea level of the Zarafshan Glacier. The river stretches from east to west, its length is 750 km. The upper course of the river passes among the mountain ranges, on average it emerges from the gorge and carries water along the wide multi-channel floodplain. In the middle reaches of the Zarafshan River, it divides into Akdarya and Karadarya rivers, which again merge, forming the channel of the Zarafshan River.

104. Within the territory of Uzbekistan, the river has no tributaries. The lower course of the river is lost in the sands in the middle and lower reaches, including in the Samarkand region, the waters of the river are intensively disassembled for irrigation by a network of irrigation canals. The flow of the river within the Zarafshan depression is regulated and greatly changed. More than 60 main canals emanate from large canals like: Dargom, Bulungur, Narpay, Eski-Angar, Big right-bank, Shakhruddin and others. Siab, Obi-Mashat, Siabcha canals pass through the city of Samarkand.

105. The chemical composition in the river is formed under the influence of pollution from industrial enterprises entering sewage waters in populated areas, including the city of Samarkand and sinks of farmland. In addition, it should be noted the high level of contamination of Zarafshan along the sleeve of the Karadarya and the Siab collector with nitrites (correspondingly registered maximum concentrations of 0.241 mg/l and 0.586 mg/l at annual average values of 0.167 mg/l), as well as copper compounds (1.3 mg/l) due to discharge of sewage from sewage treatment plants and unorganized city drains.

106. The canal Mirzaariq which is used for irrigation of agricultural land is the closest water course to the project site. The canal runs in 800-900 meter to the north from the project site. Small irrigation water canal crosses western part of the project site. Water quality from two points – from hand pump located inside of the Nazar RCA and from small water course located in the western part of the project site were taken to access water quality (Figure 19) (Attachment 3).



**Figure 19: Water Samples Point: (i) water #1 – small irrigation canal, (ii) – hand pump in Nazar RCA**

107. There are several standards for water quality in Uzbekistan. Depending on purpose of use of water course, the standards are defined for: fishery, communal, drinking and irrigation use. WHO Guideline<sup>15</sup> (2014) provides standards for drinking water, and General EHS Guideline (2007) provides standard for industrial waste water discharging into surface water. The IFC states that, “If sewage from the industrial facility is to be discharged to surface water, treatment to meet

<sup>15</sup> Guidelines for drinking water purposes, WHO, 2014

national or local standards for sanitary wastewater discharges or, in their absence, the indicative guideline values applicable to sanitary wastewater discharges shown in Table 1.3.1". The comparison of the national and international standards for water quality is presented in Table 5. National standards for drinking water<sup>16</sup> are the same, regardless of the source of water supply - surface or ground.

**Table 5: Comparison of National and international Standards for Water Quality**

<b>Maximum permissible concentration of pollutants in the water of surface water bodies by usage categories mg/m<sup>3</sup></b>						
	<b>Uzbek standards for different type of using water body</b>				<b>International Standards</b>	
<b>Pollutants</b>	<b>Fishery</b>	<b>Communal</b>	<b>Drinking water</b>	<b>Irrigation*)</b>	<b>WHO<sup>17</sup> standards (drinking)</b>	<b>IFC Standards (Table 1.3.1)</b>
COD	15	40	30	40		125
BOD <sub>20</sub> , mgO/L	3	3-6	3-7	10	3.6	30
pH	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-9.5	6.5-8.5
Suspended solids	15	30	30	50	**	50
Mineralization	1000	1000	1000-1500	1000	1000	500
Including: sulfates	100	500	400-500		500	250
Chlorides	300	350	250-350		250	250
Ammonium nitrogen (ammonium salt) (NH <sub>4</sub> <sup>+</sup> )	0,5	2	0,5	1,5	1.5	
Nitrite	0,08	3,3	3		3	1
Nitrate	40	45	45		50	10
Phosphate (PO <sub>4</sub> <sup>3-</sup> )	0,3	1	3,5	1		
Oil products	0,05	0,3	0,1	0,3		10

108. Results of water test are presented in Table 5a. As showed the results, water quality does not comply with national standards for water quality on BOD<sub>5</sub>, COD, oil product and suspended matter both for irrigation and drinking.

<sup>16</sup>"Drinking water." O'z'DST 950:2011 – Drinking water. Hygienic requirements and quality control.

**Table 5a: Water Quality in Points Close to Construction Sites**

<b>Components</b>	<b>Location</b>	<b>Standards<sup>18</sup></b>	<b>Location</b>	<b>Standards</b>
	<b>P1 (surface)</b>	<b>For irrigation</b>	<b>P2 (underground)</b>	<b>Drinking water</b>
Suspended matter, mg/l	26	50	24.8	30
pH	8.0	6.5-8.5	7.6	6.5-8.5
Dry residual, mg/l	556	1000	552	1000-1500
BOD <sub>5</sub>	8.4	10	13.2	3-7
COD	72	30	112	40
NO <sub>3</sub>	0.5	-	0.25	3
NH <sub>4</sub> <sup>+</sup>	n/a	1.5	n/a	0.5
Oil products	0.399	0,3	0.639	0.1

Source: PPTA, Baseline survey, February 2018.

### 4.3. Soils

109. The soils of the investigated area are of gray-loamy loamy loess on loess. These soils are significantly modified by irrigated agriculture and completely lost the structure of the profile of serozem, from which they divorced. They are characterized by greater thickness and monotonous brownish-gray coloration of the pro-humus part of the soil by soil-worms) and the absence of a carbonate horizon.

110. Characteristic features and properties acquired in the development of serozem-oasis soils are clearly pronounced glowing, an increase in the exchange capacity of the proportion of absorbed magnesium, mobile ferrous forms of iron, and general reserves of humus, nitrogen and assimilable phosphates. Soil-forming rocks of this subtype of serozem soils are mainly loess and loesslike loamy rocks. The thickness of the humus horizon is 10-20 cm. These soils are characterized by a high content of silty, the particles are not affected by salinity.

### 4.4. Biological resources

111. The vegetation of the Zarafshan valley is very diverse. The more complex the relief, the richer the vegetation cover and the brighter it reflects an entire ecological complex. As in other areas of Central Asia, xerophyte types of vegetation predominate in the region under study. The distribution of plant groups in the region is determined by the absolute height and terrain conditions, with an important role played by the exposure of slopes.

112. The project site is located in the area significantly impacted by anthropogenic factor. An area acquired for construction is agricultural land cultivated for growing cotton and wheat. Mulberry, cherry and poplar grow along small irrigation canals surrounded the field. Plane trees grows along highway M-39.

<sup>18</sup> Sanitarian Norms and Rules # 0056-96, "Sanitarian norms and rules for protection surface water from pollution", Ministry of Health of RUz.



**Figure 19: Mulberry Trees along the agricultural land**



**Figure 20: Poplar Trees along the Highway M-39 Samarkand-Tashkent**

113. The fauna of nearby territories is characterized by species typical of anthropogenic landscapes. Basically, these are rodents: a house mouse, a gray rat, a blindfold, a vole, a long-eared hedgehog.

114. Ornithofauna of the Samarkand province is represented by 25 species, among which dominates the field and Indian sparrows, the small turtledove, the ordinary starling, the swallow whale, the red-swallow swallow, the black swift and the Maina. In addition, there are black crow, magpie, jackdaw in the province.

115. The transformations that occurred over the last 30-50 years in the Samarkand region adversely affected wild animals, especially the changes near the city of Samarkand where the anthropogenic landscapes dominated over others, with which almost half of the species composition of the mammalian fauna is related. Changes occurring in biocenoses near Samarkand city as a result of human activities lead to the fact that the liberated ecological niches are filled with more plastic species and Sinanthropus species.

116. Synanthropic species - house mouse (*Mus musculus*), gray rat (*Rattus norvegicus*) are a constant human companion, these species are simultaneously found in other anthropogenic landscapes and in the wild. Some species - earthen rats (*Nesokia indica*), muskrat (*Ondatra zibetika*), a number of species of bats (Chiroptera), etc. - quickly adapt to man-made landscapes and human structures.

117. There is no fish in the small irrigation canals crossing territory of ALC site due to their small capacity – 200 l/sec.

#### **4.5. Natural protected areas**

118. There is natural reserve - Zarafshan State Reserve in the Samarkand province. The reserve was established in 1975. Its area is 2,518 hectares. The reserve area starts from Chapan-Ata heights and stretches along a narrow strip along the right bank for 46 km along the Zarafshan River. The reserve is valley, flood-tugai. The purpose of its creation is the restoration and preservation of the disappearing, beautiful Zarafshan pheasant, the valuable medicinal shrubbery of the sea-buckthorn, the tugai vegetation along Zarafshan in their primordial form and the conduct of scientific research.

119. A distance between the south border of the ALC and the Zarafshan state reserve is around 18 km. Therefore, the ALC will not impact on this reserve.



Figure 21: Location of Zarafshan Natural Reserve and ALC

#### 4.6. Socio-economic conditions

120. As of January 1, 2016, the population of the Samarqand province is 3 million 584 thousand 600 people and with this indicator is in the first place in terms of population among the regions of Uzbekistan. Of these, 1 million 520 thousand people live in cities, and 2 million 980 thousand people in rural areas. The main part of the population of the province are Uzbeks and Tajiks. Also in the region are Central Asian Iranians, Central Asian Arabs, Russians, Tatars and representatives of other nationalities.

121. Total population of Jomboy district is 159,122, from them 80,608 is male and 78,514 is females. There are 39 RCAs in the Jomboy district, 180 secondary schools, 7 colleges. From medical entities - one hospital, 27 polyclinics and 22 rural medical centers.

122. There are around 2,000 commercial farmers in the district and nearly 2/3 of them produce wheat. The rest are producers of fruits, vegetables and livestock. In Jomboy district, wheat is produced in more than half of the agricultural land. However, there is a tendency for areas under wheat to decrease and areas for fruits and vegetables to increase. As a result, production of fruits and vegetables, as well as potato and grapes, is increasing. It is also interesting that commercial farms dominate dehqan farms in production of wheat and vegetables only, while bulk of production of other crops, meat and dairy products is produced by smallholder dehqan farmers.

## 4.7. Cultural resources

123. Samarkand city is capital of Samarkand province. The city is famous historical center with famous architectural monuments and complexes. Advantageous geographical location, rather favorable climate, abundance of natural springs with fine water, nearness of mountains with large wild fowl, flowing Zarafshan river - all these factors always provided favorable conditions for human settlements in that area, where strong walls, castles, majestic buildings and temples of Samarkand raised some centuries before the Commune Era.

124. The main district of Jomboy province - Jomboy city is located in 13 km from Samarkand city. There are no known historical heritages in the area where the project will be implemented.

## 5. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

125. Anticipated the Project's environmental impacts were reviewed at the three stages – pre-construction, construction and operation stages. The summary of expecting impacts is presented in below table.

**Table 6: Summary of Potential Impacts**

Project activities	Potential impacts	Level of impacts and duration
<b>Construction stage</b>		
<b>Site preparation</b>		
(i) removing of top soil;	• Change in the land use;	• Moderate, long-term
(ii) site planning	• Loss of fertile layer;	• Moderate, short-term
(iii) (leveling)	• Soil disturbance (construction materials);	• Moderate, short-term
(iii) temporary road	• Generation of solid wastes – plants residual and stones;	• Moderate, median-term
	• Noise and vibration (from trucks and machinery);	• High, short term
	• Air pollution (traffic fumes and dust);	• High, median-term
	• Surface and ground water pollution	• Moderate, median-term
		• Moderate, median-term
<b>Main construction activities:</b> main pavilions and supporting facilities, external communal networks (including water supply, waste water networks, electricity and internet) and etc.	• Solid wastes:	• Moderate, median-term
	• Hazardous;	• Low, median-term
	• Non-hazardous;	• Low, median-term
	• Construction materials;	• High, median-term
	• Domestic wastes;	• Moderate, median term
	• Waste water generation;	• Moderate, short-term
	• Noise and vibration;	• Moderate, median-term
	• Air pollution (traffic fumes and dust)	• Moderate, median-term
	• Excavated soil	• Moderate, median-term
	• Pollution of water resources	• Moderate, median-term
<b>Construction of internal roads and landscaping</b>	• Solid wastes:	• Moderate, medium-term
	• Construction wastes;	• Low, medium-term
	• Domestic wastes;	• Moderate, medium-term
	• Waste water generation	• Moderate, short-term and long-term
	• Noise and vibration	• Moderate, short-term
	• Air pollution (traffic fumes and dust)	• Moderate, short-term
<b>Construction of access road</b>	• Noise and vibration,	• Low, short-term

Project activities	Potential impacts	Level of impacts and duration
	<ul style="list-style-type: none"> <li>• Air pollution (traffic fumes and dust)</li> <li>• solid wastes,</li> <li>• water resources pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Moderate,</li> <li>• Moderate, short-term</li> <li>• Moderate, short-term</li> </ul>
<b>Installation of the equipment</b>	<ul style="list-style-type: none"> <li>• Solid wastes: <ul style="list-style-type: none"> <li>• Construction materials;</li> <li>• Packing materials;</li> </ul> </li> <li>• Noise and vibration</li> </ul>	<ul style="list-style-type: none"> <li>• Low, short-term</li> <li>• Low, short-term</li> <li>• Low, short-term</li> </ul>
<b>Operation Stage</b>		
ALC operation	<ul style="list-style-type: none"> <li>• Noise and vibration from trucks movements;</li> <li>• Traffic safety;</li> <li>• Waste generation <ul style="list-style-type: none"> <li>• Non-hazardous: solid wastes and liquid wastes;</li> <li>• Hazardous wastes (used oil, chemicals from laboratory);</li> </ul> </li> <li>• Air pollution <ul style="list-style-type: none"> <li>• from traffic fumes and dust;</li> <li>• from operation processing facilities</li> </ul> </li> <li>• Increase in temperature due to refrigerators operation</li> </ul>	<ul style="list-style-type: none"> <li>• Medium, long-term</li> <li>• Medium, long-term</li> <li>• High, long-term</li> <li>• Low, long-term</li> <li>• Medium, long-term</li> <li>• Low, long-term</li> <li>• Low, long-term</li> </ul>

### 5.1. Pre-construction stage

126. During pre-construction stage the following aspects may impact on effectiveness of implementation of environmental safeguards during the whole project cycle and may lead to non-compliance with requirements:

- (i) Designed capacity of waste water treatment plant may not be efficient to treat whole volume and quality of waste water generating during the ALC operation stage;
- (ii) Improper set up of some of the ALC's facilities (waste management area, waste water treatment plant and cold storage place) may cause various inconveniences for people living in surrounded settlements;
- (iii) no compliance on receiving all required permissions from national authorities;
- (iv) improper organization of construction camps and activities;
- (v) non-inclusion environmental requirements into the bidding documents and contracts;
- (vi) purchase of goods, techniques and equipment which is not comply with with ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009) and national standards on requirements for refrigerators.

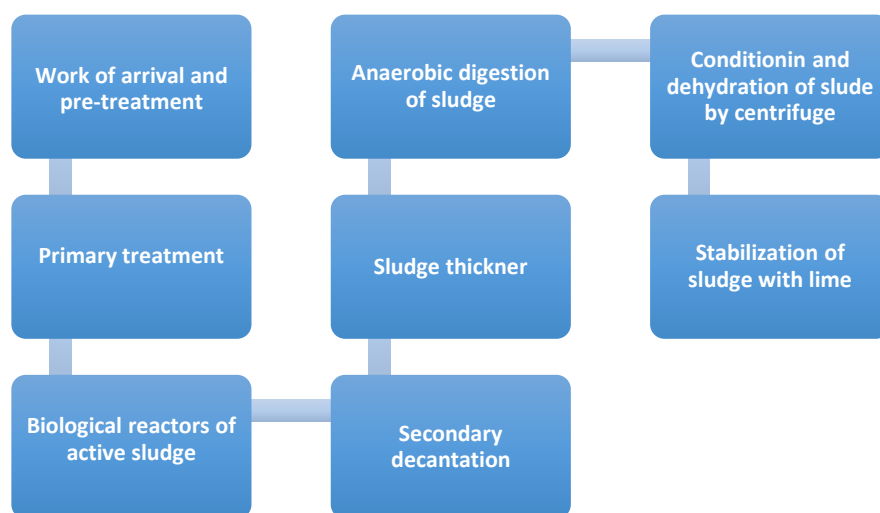
127. Water consumption on the stage of project implementation will be 779 m<sup>3</sup>/day. In addition to this daily consumption, around 200 thousand m<sup>3</sup>/year of rain water will be generated from asphalted surface and building's roofs.

128. Separate networks for sewage and rainwater are projected, in order not to load the purification station, a situation that would necessarily occur if the network were unitary and the same conduits would conduct sewage and rainwater. With the proposed solution, the rainwater can be directly evacuated to a nearby channel or trough, while the sewage flow will be exclusively to the sewage flow.

129. *Wastewater network.* Formed by corrugated PVC pipe. The end point of the network is expected to drain it in the area reserved for the purification station (waste water treatment plant). Logging wells are included in the network in branch meetings, alignments and grade changes. Valves are also projected to clean the network at the head of the branches. Finally, the network is completed with the connections to the parcels.

130. *Rainwater network.* First of all, it should be noted that the contribution of rainwater from lands outside the site is not expected. For the rainwater network, corrugated PVC ducts are projected although, as they are the largest diameters, and there is no availability of PVC pipes with diameters greater than 1,000 mm, reinforced concrete ducts are projected for the larger diameters. As in the residual network, record wells are included in branch encounters, alignments and flush changes. The network is completed with the drains for the collection of water in the roadways, and the connections to the plots.

131. It is recommended to use a compact biological-chemical treatment technology for the **waste water treatment plant** (WWTP). The waste water treatment process may consist of several stages presented in Figure 2.



**Figure 2: Waste Water Treatment Process**

132. Cleaning technology of water treatment plant will ensure quality of treated water in compliance with national standards<sup>19</sup> on water quality discharging into the water courses. Since water will be discharged into Mirzaariq, which is used for irrigation purposes, quality of water, discharging from WWTP have to comply with standards for irrigation water (Table 5). Baseline

<sup>19</sup> SanR&NRUz No 0088-99 Sanitarian requirements for development and approval of maximum allowed discharges (MAD) of pollutants discharged into the water bodies with waste waters.

survey showed that water quality in Mirzariq is below standards, therefore standards for irrigation water will be apply for effluent from the WTP.

133. The design of WWTP should meet the following criteria: minimum design flow - 300 m<sup>3</sup>/h, average design flow 779 m<sup>3</sup>/h, design tip flow – 1,026 m<sup>3</sup>/h, maximum predictable contribution – 1,026 m<sup>3</sup>/h, contamination in BOD<sub>5</sub> – 1,104 kg/day, contamination in S.S.T. – 20,520 kg / day.

134. Waste management facilities will be designed to collect, segregate and timely dispose all solid wastes generating during the ALC operation. The development of these facilities will be part of Strategic Plan, Cleaning and Waste Management Plan. Preparation of a cleaning and waste management plan, structured in a series of actions, infrastructure and operations. The tasks that will be taken into account will be, among others, the removal and disposal of solid waste, the cleaning of pavilions, dependencies and road cleaning, and finally the cleaning of the sewage and rainwater network of the ALC. This plan will also establish the cleaning and disinfection protocol of the common areas of the ALC. Development of the Strategic Plan, including waste management, will be under the responsibility of the Capacity Building Consultant.

135. During the ALC operation the waste management performance which will include solid wastes and sewage, will be under responsibility of the Operation Director. A separate Waste Management Department will be responsible for proper implementation of Clean and Waste Management Plan.

136. The location of such facilities as waste water treatment plant and waste management area close to settlements may generate such negative impact as unpleasant odor which will enhance during windy weather. The same issue may occur with a waste management area.

137. In addition, certain risk of spread of infectious diseases, various insects may happen in case of improper maintenance of the waste management processes. Therefore, proposing layout for the ALC in Jomboy district considers location of such facilities on the distance more than 600 meters away from the “Nazar RCA” on the west and around 500 meters from the “Dehkonobod” settlement located on the east (Figure 22).

138. Close location of cold storages to the living area may raise issue of increasing in local temperature due to continuously operation of chillers. The proposing location of the ALC facilities ensures no impact on the settlements (Figure 22).



**Figure 22: Location of Waste Water Treatment Plant (14), Waste Management Area (12) and Cold Storage Building (8) in ALC in Jomboy District**

139. In accordance with national legislation, permissions for cutting trees, temporary (for construction camps if any) water use, opening new borrow pits (if any), on waste disposal are needed to be received prior commissioning of construction works. The full list of required permissions is provided in Chapter 2, Table 1.

140. The PPTA's Resettlement team has calculated number of trees which are needed to be cut and amount of compensation which will be paid to affected people. In accordance with Land Acquisition Resettlement Plan (LARP), 83 ha of agricultural land will be acquired and compensations will be paid to the 6 farmers. For the trees, growing around acquired fields and plane trees along the highway M-39, the compensation will be paid to the State Committee on Ecology and Environment protection (SCEEP).

141. Prior construction works, PMO's should send a request to Jomboy khokimyat in order to get permission for cutting trees. Khokimyat will issue a letter to SCEEP to calculate a number of trees which have to be cut for the project purposes. SCEEP together with PMO's environmental specialist will calculate a number of affected trees and will provide a cost of compensation for cutting. After transferring payment to the SCEEP account, Contractor can start construction works.

142. During the public consultation conducted for this project, representatives of district level of SCEEP asked to leave cut trees to farmers which fields were surrounded by these trees. This request was included in Environmental Management Plan (Chapter 8).

143. Improper organization of construction camp and activities may lead to non-compliance with environmental and health safety requirements due to poor solid wastes and sewage management, provision of non-satisfactory living conditions for workers, improper setting storage places of construction materials and temporary storage for excavated soils, traffic management and etc. To minimize this, a Contractor has to develop site environmental management plan with requirements indicated in chapters 5 and 8, Traffic management plan, Wastes management plan and Construction camps management plans.

144. All environmental requirements are needed to be included into bidding documents and Contractor's contract(s). An Executive Agency will ensure an inclusion of environmental provisions along with EMP into these documents.

145. For the equipment and machinery purchasing within the project, Goods procured for project implementation will be done in compliance with ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009).

146. It is necessary to ensure that purchased refrigerators does not contain ozone-depleting substances, and their cooling reagents are included in the Attachment # 2 of Resolution of Cabinet Ministries of RUz # 17 dated from 9 January, 2018. Moreover, transformers needed for cold storage, processing and other facilities should not contain oil with polychlorinated biphenyl (PCB).

147. For the construction of the ALC, using of existing borrow pits (for gravel and sand), bitumen and batching plants located in Samarkand province is recommended. However, if Contractor decides to construct and to use own batching or bitumen plants, an additional study on noise and vibration impacts, air pollution needs to be undertaken. The study will be based on required capacity of plants. Moreover, all national procedures on conduction an environmental impact assessment, receiving permissions on water use and wastewater discharges and solid wastes disposal need to be received prior commissioning of these plants.

148. Summarizing anticipating impacts on the pre-construction stage, the following measures are needed to be undertaken:

- Project Supervision Consultant has to design waste water management plant with capacity no less than 779 m<sup>3</sup>/day. Selected water treatment technology has to ensure compliance of treated water with national standards and requirements indicated in para 129-131. If ALC's water consumption increases during the project detail design stage, the waste water treatment plant's capacity needs to be revised accordingly;
- Training and Capacity Building Consultant will develop waste management plan, which will include among others, the removal and disposal of solid waste, the cleaning of pavilions, dependencies and road cleaning, and finally the cleaning of the sewage and rainwater network of the ALC. This plan will also establish the cleaning and disinfection protocol of the common areas of the ALC;
- Prior commissioning of construction works on waste water treatment plant, additional study for noise, vibration and air pollution needs to be undertaken and national environmental assessment needs to be conducted along with receiving necessary permissions as indicated in Chapter 2, Table 1.
- If Contractor decides to use own batching or bitumen plants, a national environmental assessment needs to be conducted prior commissioning of construction works;

- The design of batching or bitumen plants need to ensure that during plants operation dust level in the Dekhonobod and Nazar settlements will not exceed baseline parameters, especially during the windy weather;
- New additional waste water treatment facilities need be constructed for the next stage of ALC construction;
- If any changes into the ALC layout takes place during the project detail design stage, make sure that waste management area, waste water treatment plant and cold storage places are located away from settlements (no close than 100 meters);
- All compensation payments for affected people need to be done prior commencement of construction works;
- Within 30 days after contract award and prior to commencing any physical works, Site-specific Environmental Management plans (SSEMPs), as well as Topic Specific Management Plans ((Waste Management Plan, Traffic management Plan, Construction Camps Management Plan and Occupational Health and Safety Plan (OHS Plan)) have to be developed by the Contractor and they will be endorsed by Project Management Consultant (PMC) before submission to Project Management Organization (PMO) for approval. A Traffic Management Plan has to be submitted local traffic authorities prior to mobilization;
- All environmental requirements are needed to be included into bidding documents and a Contractor's contractor(s);
- Bids evaluation has to be done with consideration of: capacity of bidders to meet EMPs requirements, proposing adequate budget efficient for implementation EMP, existence of good practice in environmental performance within other similar projects.

149. If any changes in the project design will take place, the IEE has to be updated accordingly by PMO with assistance of PSC's international environmental specialist.

150. An Environmental Management Plan (EMP) presented in Chapter 8 provides information when these measures need to be done and who is responsible for their implementation.

## 5.2. Construction stage

151. In accordance with plan, construction works will be implemented during period 2021-2023.<sup>20</sup>

152. The construction of ALC will consist of the following stages:

- Site preparation – removing of top soil and site planning;
- Main construction works – construction of pavilions and supporting facilities, external communal networks and etc.;
- Construction of the roads and landscaping;
- Installation of the equipment.

153. It is expected, that these stages will be implemented in sequence, therefore anticipated impacts are reviewed in the same order. In case, if some stages will be implemented simultaneously, the mitigation measures from previous stage need to be implemented also.

---

<sup>20</sup> FS for Samarkand ALC, Table 2.

## **5.2.1 Physical resources**

### **Impact on air quality**

#### ***Site preparation stage***

154. During the site preparation a top soil needs to be removed and surface leveled. It is expected, that surface may also needs to be compacted to bring it in compliance with construction standards. At this stage pollutants emissions will be discharged by the following machinery - excavators, bulldozers and compactors. Moreover, emissions will be discharged by trucks carrying wastes from the construction site.

155. The impact will intensify if Contractor uses equipment and vehicles with improper technical characteristics or in poor conditions. Moreover, burning of construction and domestic wastes will also cause air pollution.

156. Special attention needs to be paid to dust generation. It will occur during machinery operation, trucks movement and temporary storage of excavated soil. Besides adverse impact on people health, living in RCA "Nazar", dust pollution during the windy weather may affect on visibility on the highway Samarkand-Tashkent.

157. As per long-term observation data provided by Goskompriroda, dust level in Jomboy district does not exceed allowed concentration in 0.5 mg/m<sup>3</sup>. However, during public consultation the citizens of "Dehkonobod" and "Nazar" RCAs raised the concern, that dust pollution from construction activities may enhance pollution from stone crusher enterprise located on the eastern part of the project site.

158. Therefore, it is necessary prior commissioning of the construction works, to conduct baseline dust measurements in the "Nazar" RCA. The measurements need to be done in front of houses faced to stone crashing factory. Environmental Management and Monitoring Plans include this measure and monitoring requirements.

159. If Contractor decides to construct batching or bitumen plants, location of plants need to be selected in the way, minimizing dust impact on settlements. Moreover, a Contractor will be responsible for proper implementation of all mitigation measures indicated in national environmental assessment conducted for this plant.

#### **Main Construction activities**

160. During construction stage all main facilities such as wholesales pavilions, cold storage buildings, waste water treatment plants, customs service building, administrative buildings, buildings for support services will be constructed. All external communication will be installed also during this stage.

161. The main construction activities will consist of: digging of foundation pits for buildings, construction of buildings itself, external network for communication. These works can be conducted in parallel, if they not intersect with each other. As per engineering team's estimation of soil structure in the project area, a depth of foundation pits will be no more than 2 meters.

162. On this stage types of impacts on air quality will be similar to the previous stage. However, magnitude will be noticeable bigger. Significant amount of dust will be generated during excavation works for digging foundation pits, soil loading and unloading and trucks movement.

163. Soil, excavated after land leveling does not belong to highly fertilized soil, therefore, this soil could be disposed to the places, indicated by local authorities ("Toza hudud" agency under the Committee on Ecology and Environmental Protection (SCEEP)). To minimize volume of transported soil and, as consequences, dust generation, the excavated soil could be used for site leveling and creation necessary a natural slope for rain water collection during operation of the ALC. The surplus soil could be disposed in the way indicated above.

164. Transportation of soil from the construction site to the soil disposal places will also generate dust. Therefore, all trucks transporting soil or construction materials have to be covered by canvas or other material. In addition, wheels of trucks leaving construction sites have to be cleaned in order to avoid spread of soil residuals on the highway.

165. Another possible impact may occur due to usage of bitumen for foundation pits for waterproof purposes. To avoid pollution by harmful combustion products of bitumen it is recommended to use high density polyethylene for waterproof.

### **Construction of internal roads and landscaping**

166. During this stage asphaltting of access and internal roads, parking areas, greening of territory will be implemented. Impacts on air quality will be similar to impacts identified during the site leveling stage. Therefore, the same mitigation measures are recommended.

### **Installation of the equipment**

167. This activity could be implemented in parallel with landscaping process. Impact on air quality will be insignificant and mainly it will be caused by trucks movement, installation activities. Significant emissions of dust are not expecting during this stage.

168. Requirements for machinery maintenance and waste management during all construction stages will be the same.

169. Based on above described, the following mitigation measures need to be implemented during construction:

### **Mitigation measures:**

- apply watering of construction sites, access and internal roads;
- cover transported bulk materials and excavated soil;
- locate temporary soil storage piles away from south-east part of the site in order to avoid dust pollution of settlements during windy weather;
- as much as possible, based on engineering team design, use excavated soil (not top soil) for backfilling trenches for communication and infrastructure networks, foundation pits, site leveling to create necessary natural slope for rainwater run-off collection during operation of the ALC;
- use topsoil for landscaping at the last stage of the ALC construction. Distribute non-used topsoil among farmers/householders as per local authority decision;