Project Readiness Financing
Initial Environmental Examination

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Uzbekistan: Horticulture Intensification and Productivity Enhancement Project

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TABLE OF CONTENTS

Contents

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AASHTO	-	American Associations of State Highway and Transportation Officials
ADB	-	Asian Development Bank
ASO	-	Agroservis Operator
CCMP	-	construction camps management plan
CNR	-	construction norms and rules
COVID-19	-	coronavirus disease
CSEE	-	Center of the State Environmental Examination
EHS Guidelines	-	World Bank Group's Environment, Health and Safety Guidelines
EIS	-	environmental impact statement
EMP	-	environmental management plan
FTA	-	federal transit administration
GHG	-	greenhouse gas
GRM	-	grievance redress mechanism
IEC	-	information, education and communication
IEE	-	initial environmental examination
IFC	-	International Finance Corporation
ILO	-	International Labor Organization
ISC	-	implementation support consultants
ISCAD	-	International Center for Strategic Development and Research in the Field of Food and Agriculture
NES	-	national environmental specialist (of ISC)
IUCN	-	International Union for Conservation of Nature
LARP	-	land acquisition and resettlement plan
LLC	-	limited liability company
MAC	-	maximum allowance concentrations
MAD	-	maximum allowable discharge
MNR	-	Ministry of Natural Resources
MOA	-	Ministry of Agriculture
MPC	-	maximum permitted concentration
NGO	-	non-governmental organization
OHSE	-	occupational health and safety engineer
OHSP	-	occupational health and safety plan
PEIS	-	preliminary environmental impact statement
PIU	-	project implementation unit
RCCE	-	risk communication and community engagement
RCM	-	resolution of Cabinet of Ministries
REA	-	rapid environmental assessment (ADB checklist)
RUz	-	Republic of Uzbekistan
SAEMR	-	semi-annual environmental monitoring report
SanN&R	-	sanitary norms and rules
SAS	-	Swiss Association of Standardization
SCADA	-	supervisory control and data acquisition system
SEC	-	statement on environmental consequences
SEE	-	state environmental expertise
SPS	-	Safeguard Policy Statement of ADB (2009)
SSEMP	-	site specific environmental management plan
TMP	-	traffic management plan
TRTA	-	transactional technical assistance
UNFCCC	-	United Nations Framework Convention on Climate Change

WHO - World Health Organization

WEIGHTS AND MEASURES

km^2	–	square kilometer
kMh	–	kilowatt hour
dB	–	decibels
kV	–	kilovolts
km	–	kilometer
mm/s	–	millimeters per second
mg/m^3	–	milligram per cubic meter
g/m^3	–	micrograms per cubic meter
mg/dm^3	–	milligram per cubic decimeter
ºC	–	Celsius degree
mg/kg	–	milligram to kilogram
m	–	meter
MVA	–	mega volt ampere
ha	–	hectare
mm	–	millimeter
m^3/s	–	cubic meter per second
g/l	–	gram per liter
km^2	–	square kilometer
g/m^3	–	gram per cubic meter

GLOSSARY

BR&N	Building Rules and Norms
Hokimiyat	Regional or district government authority
KMK	National acronym for construction norms and regulations
Mahalla	Independent and self-governing community of neighbors
OVOS	National acronym for environmental assessment process
O'z DSt	National acronym for state standard of the Republic of Uzbekistan
Sanoatgeokontekhnazorat	State Inspectorate for Exploration Supervision, Operations Safety Supervision of Industry, Mining and Utilities Sector
SanR&N	Sanitary and epidemiological norms and regulations
Sum	National Uzbek currency
SNiP	Set of basic regulatory requirements and regulations governing the design and construction in all sectors of national economy of Uzbekistan
Uzhydromet	State governing body in the field of hydrometeorology in the Republic of Uzbekistan under the Cabinet of Ministers

NOTE

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

I. EXECUTIVE SUMMARY

1. Uzbekistan's gross domestic product (GDP) increased steadily between 2010 and 2015, with annual growth rates exceeding 7% per annum. After 2015, it declined to 5-6% until 2019, after which it declined further to 1.6% over the previous year, due primarily to the coronavirus disease pandemic. The agriculture, fisheries, and forestry sectors have consistently contributed to Uzbekistan's growth, accounting for about 32% of GDP until about 2017, at which stage sector contribution declined to 27%.

2. Government's strategic approach to agricultural development was consolidated in 2019 with its Strategy for Agriculture Development for 2020–2030.[1] The vision articulated in the strategy is to develop a competitive, market-based, diversified, and export-oriented agri-food sector that will increase farm incomes, create new jobs, enhance food security, and ensure sustainable use of natural resources. This will be achieved by: (i) enhancing food security; (ii) creating a favorable environment for agribusiness and value chains; (iii) decreasing state involvement in sector management and enhancing investment attractiveness; (iv) encouraging rational use of natural resources and environmental protection; (v) developing modern public institutions; (vi) diversifying state expenditure; (vii) developing research, education and advisory services; (viii) developing rural areas; and (ix) developing transparent statistics and information systems.

3. A specific focus has also been given to agro-processing as part of a broad economic policy and strategy defined in a Presidential Decree of February 2017.[2] As part of the general strategy for agricultural modernization and intensive development, the decree targets the implementation of investment projects for both the construction of new processing plants, and reconstruction and modernization of existing plants. Further, the decree also mandates that such plants should be equipped with modern high-technology equipment to promote agricultural product processing, and the production of semi-finished and finished food products, and packaging materials.

4. Low agricultural productivity remains a lingering concern given farmers' limited knowledge of modern production and management systems, the unreliability of water supplies to support horticultural development (impacted also by changing climatic conditions), and the continued presence of state-owned enterprises (SOEs) providing essential services (input supplies and marketing of agricultural produce) that might otherwise be provided by the private sector. Appropriately, the government has prioritized the development of higher value horticultural products to increase the value of agricultural outputs and stimulate rural employment. Given the importance of small-scale producers in total production, and other members of the value chain, inclusive, targeted initiatives are needed to facilitate their modernization and intensification through where appropriate, the (i) consolidation of farming units, (ii) expansion of farmer plots where land and water are available, (iii) development of suitable but, as yet unutilized land areas,[3] and (iv) support for 'missing links' in commodity value chains.

5. The Agency for Horticulture and Greenhouse Development under the Ministry of Agriculture (MOA) does not as yet, have its own strategic development plan, although horticulture is specifically mentioned in the main strategy. The sub-sector has, however, received considerable support from government, and multi-lateral and bi-lateral development agencies.

[1] Presidential Decree #PP-5853 on October 23, 2019.

[2] Government of Uzbekistan. 2017. Presidential Decree No. UP-4947.Tashkent. Under this Decree, the government set out a program of strategy of actions on further development of Uzbekistan.

[3] Under the World Bank financed Agricultural Modernization Project, ISCAD has recruited a Turkish consultant to identify areas suitable for expansion in their participating provinces. This has been used to guide the identification of both pilot commodity chains and districts where the pilots will be undertaken.

Although a recent government incentive has also offered farmers access to a line of credit, equivalent to about $10,000 to facilitate horticultural modernization, it has largely been ignored as the application cost for such a loan (documentary application requirements) is estimated at $5,000, leaving little for the actual on-farm investment.

6. There are two main types of horticultural farming enterprises in Uzbekistan – commercial farmers and dehkan farmers. While the structure of the sub-sector is changing with the growth of larger independent commercial horticultural farms, an estimated 60% of production is currently generated from dehkans.

7. The pilot project will assess the effectiveness and efficiency of alternate implementation arrangements targeting small-scale producers and private entrepreneurs that will not depend on collateral requirements of formal financial intermediaries. The project readiness finance (PRF) pilot will also evaluate the performance of MOA's Agroservis Operator (ASO) in managing small-scale horticultural intensification and expansion in two priority horticultural districts (i) in existing production areas, and (ii) in currently un-developed areas for subsequent allocation to small-scale farmers. Successful outcomes from the pilot will be replicated in future sector lending modality expected to be financed by ADB. The outputs of the project are summarized as follows.

A. Outputs and Activities

8. The PRF outcome is 'Alternate design and implementation arrangements tested and evaluated in pilot districts' - Output 1 is 'Climate resilient horticulture intensification piloted' while Output 2 is 'Commodity value chains consolidated and strengthened for value addition.'

1. Output 1

9. Bakhmal District (Jizzakh Region): On-farm productivity enhancement activities piloted on existing small-scale horticultural farms. The pilot will (i) identify small-scale farmers interested in improving production and management systems, (ii) identify eligible investments to improve productivity, (iii) implement the investments, (iv) hand over commissioned assets in exchange for loan agreements to service development funds required, and (v) supervise the collection of beneficiary loan repayments.

10. Kitob District (Kashkadarya Region): On-farm productivity enhancement activities piloted on un-utilized land at scale for subsequent transfer to small-scale farmers. The pilot will (i) identify contiguous land areas (suitable for horticultural development at scale) suitable for modern production and management systems, (ii) based on technical designs prepared by the transactional technical assistance (TRTA), implement the subprojects, (iii) operate and maintain the developed area until positive net income streams are generated, (iv) allocate subdivided portions of the developed land to interested beneficiaries, (v) hand over commissioned assets in exchange for loan agreements to service development funds required for the subdivided portion, and (vi) supervise the collection of beneficiary loan repayments.

2. Output 2

11. Output 2: Commodity value chains consolidated and strengthened for value addition. The pilot will (i) identify private entrepreneurs interested in supporting value addition in the two pilot districts, (ii) develop designs for the construction of the facility, (iii) implement the construction of works and supply of needed equipment, (iv) hand over commissioned assets in exchange for loan agreements to service development funds required, and (v) supervise the collection of beneficiary

loan repayments. Activities will focus on improving the supply of raw materials from aggregated producing areas as a precursor for subsequent land aggregation strategies.

B. Implementation Arrangements

12. Project implementation will be for 4.5 years (January 2024–June 2028). The Ministry of Agriculture will be the executing agency with the International Center for Strategic Development and Research in the Field of Food and Agriculture (ISCAD) will be the main implementing agency. The ASO under MOA's Agency for Orchards and Greenhouse Development will assist ISCAD in implementing the two pilot sites.

13. ISCAD **project implementation unit** (PIU) will be responsible for monitoring the environmental management plan (EMP) implementation to comply with ADB's safeguards requirements and environmental national regulations. The ISCAD's PIU will hire one full time (36 person-months) National Environmental Specialist (PIU-NES) exclusively for the project, who will be assisted by the ISC-NES in overseeing the implementation of the EMP.

14. **Implementation Support Consultant** (ISC). The ISC will assist the ISCAD and the ASO in implementing the activities of the project to achieve its outputs: (i) Kitob and Bakhmal district on-farm intensification and expansion activities, (ii) value-chain initiatives in both districts, and (iii) project management.

15. **Maintenance Contractor**. This contractor will be in charge of EMP implementation during the maintenance period – 3 years after construction. Environmental, health and safety specialists will be in charge of the development and implementation of the SEMP during the maintenance period (18 persons-months).

16. **Design and Construction Contractor** (DCC). The DCC will be responsible for EMP/site specific environmental management plan (SSEMP) implementation during the construction phase. Prior to commencing any physical works, SSEMPs including topic specific environmental management plans (TSEMPs) will be developed by the contractor under the guidance of the ISC and be endorsed by the ISC before submission to the ISCAD PIU for approval. The DCC will appoint an Environmental, Health and Safety specialist (12 person-months), who will be responsible for SEMP implementation during the construction period.

C. Project Category

17. **Project Category**. In accordance with ADB Safeguard Policy Statement (SPS, 2009), the project is classified as category B for the environment, as the project will have site-specific impacts, some of which are irreversible, and in most cases the mitigation measures can be readily designed. The project therefore requires an IEE, based on data received from the TRTA technical team and site visits, as well as primary and secondary data including feedback received during the public consultations.

18. The national Law "On Environmental Expertise" and the Resolution of Cabinet Ministries (RCM) of Republic of Uzbekistan "On the State Environmental Expertise (SEE)" # 541 dated from 2020, requires an environmental impact assessment (EIA) for all types of activities which may have an impact on the environment. According to the national legislation, the sub-project activities are classified as III (moderate risk). The ISCAD's PIU will be responsible for the preparation of two national EIAs, followed by their submission to Kashkadarya Department under the Ministry of

Natural Resources and Receiving of Environmental Appraisal (Environmental Permission) before the loan signing.

19. **Due Diligence**. The project will be implemented in areas which previously were used as agricultural plots, but were abandoned due to the lack of water. There are no protected areas, species included in the Red Book of Uzbekistan or International Union for Conservation of Nature (IUCN) Red List and historical heritage within the project area.

D. Project Impacts

20. **Project Impacts**. Evaluation of the project impacts has been done using an impact significance matrix, which is a combination of receptors' sensitivity and impact magnitude. The sensitivity of each environmental and social receptor was defined. Further assessment of the impact magnitude was done with consideration of duration, probability, extent, and frequency of each impact. The following impacts were assessed for each type of project activity: direct, indirect, and cumulative.

21. All anticipated environmental impacts have been assessed at three stages – pre-construction, construction and maintenance/operation.

22. At the **Pre-construction Stage**, it will be imperative to ensure that all necessary permissions for the project are secured and received from government agencies, and that the IEE is updated if any unanticipated environmental impacts become apparent, to reflect any modifications, such as changes in the project design, scope etc., if any. For vineyards, it will also be necessary to obtain additional permits from the National Electric Networks of Uzbekistan (NEGU) regarding the implementation of agriculture works under the high voltage power line that crosses the territory of the project plot.

23. **Construction Period**. During the construction phase, impacts are expected in the form of increased dust generation, soil pollution and emissions of pollutants from operating machinery. These impacts can be reduced by applying the mitigation measures described in the EMP and SSEMPs.

24. Fertilization will be used on a regular basis during the entire operational phase, therefore there is a potential risk of soil pollution. Contractors will therefore be required to develop a Pest Management Plan based on the good agricultural practices (GAP) and will ensure it is properly implemented. Contractors will also be required to develop Site Specific and Topic Specific Environmental Management Plans (SSEMP) before commissioning of construction activities.

25. The project will not have a significant impact on water resources due to their sufficient remoteness from the project area. Thus, the impact on water resources will be negligible.

26. Impacts on biodiversity will also be minimal, because all construction activities will be implemented on agricultural lands and there are no species included in the national Red Book and IUCN Red List.

27. Besides impacts on air and soil quality, risks also relate to community and occupational health and safety. Traffic will have potential impacts on local community safety, workforce safety, and traffic flows in the project sites. Contractors will be required to inform the population of the closest settlements about planning works in advance. Safe working conditions, together with compliance with sanitary, fire protection, and other construction norms and requirements, will be

strictly adhered to in order to prevent risk to workers' health at the construction sites. Each contractor will be required to develop an occupational health and safety plan (OHSP).

28. Labor camps will be located within residential areas, or on suitable open spaces. To ensure proper organization of the camps operations, the contractor will develop a Construction Camp Management Plan (CCMP) and ensure its proper implementation.

29. All national regulations related to the construction works and the World Bank Group's Environment, Health and Safety Guidelines (hereafter referred to as the EHS Guidelines)[4] will have to be complied with. The ISCAD's PIU will closely coordinate with the communities regarding the planning and implementation of project works.

30. **Operation Phase**. Impacts on air quality during the project maintenance and operation phases could be caused by maintenance works related to the spraying of grapes by chemicals, and by vehicles movements. The Maintenance Contractor will be responsible for applying mitigation measures described in the EMP.

31. Noise generated by machinery and equipment will be short-term and will not exceed the standards, therefore noise impacts will be minor.

32. The main impacts on water resources will come from the use of groundwater for irrigation, and the potential for pollution. The Maintenance Contractor will be required to obtain permits for water use from the relevant governmental agencies. However, due to the application of drip irrigation systems, water will be used in limited amounts, with minimal losses and unnecessary evaporation.

33. Organic and municipal waste will be generated during the maintenance and operation phase. The improper storage and disposal of household waste can lead to the emergence and spread of infectious diseases among workers and in populations of surrounding settlements. Plastic bags can also be carried by the wind over long distances and pollute nearby communities. The Maintenance Contractor will therefore conclude agreements with local companies for the removal and disposal of all waste.

34. Hazardous waste will be generated during the repair of machinery and equipment, and when batteries and lightning bulbs are replaced and disposed. In addition, inorganic fertilizers and agro-chemicals will be used to improve soil quality and protect crops during the maintenance and operation period. Improper disposal of used containers may therefore lead to adverse impacts. Applying mitigation measures described in the EMP will manage these impacts.

35. The practice of GAP will be introduced for the growing and processing of crops at the project plots. This will allow the introduction of advanced innovative technologies in growing crops, while ensuring environmental sustainability and food security. The GAP also provides for compliance with worker safety requirements and environmental protection.

36. Implementation of the project will have a significant positive impact on socio-economic resources by creating job opportunities, enhancing markets for farmers, and improving the general economy of Kashkadarya region.

[4] Environmental, Health, and Safety Guidelines (ifc.org)

E. Information Disclosure

37. **Information Disclosure**. The grievance redress mechanism (GRM) for the project takes into account the national legislation, the specificity of the project sites, and the results of public consultations. The main components of the project, expected environmental and social impacts, proposed mitigation measures, the GRM, and the principles and contacts for feedback were discussed with the leaders of the affected mahallas and with several residents.

38. To deliver information about the planning activities, environmental impacts, and the GRM, the TRTA consultants prepared leaflets in the Russian and Uzbek languages with brief information on these topics (Appendix 1. Leaflet distributed during the public consultation). The leaflets also provided information on the type of mitigation measures to be implemented, and contacts for clarifications and grievance submission, if any. The information in the leaflet was printed (100 copies) and distributed in hokimiyats located in the project mahalla in Kitob district in Kashkadarya region. In total, 100 leaflets were distributed among the citizens of the project area.

39. Public Consultations were held on 15 November 2022 in Kitob district of Kashkadarya region by the TRTA team.

40. ISCAD's PIU will be responsible for monitoring EMP implementation in order to comply with ADB's safeguards requirements and national environmental regulations. ISCAD's PIU will hire one full time National Environmental Specialist exclusively for this project, who will be assisted by the ISC environmental specialist in overseeing the EMP implementation.

41. Contractors will be responsible for (i) mitigation measures during the construction phase, (ii) the preparation, implementation and updating of the SSEMPs, and (iii) reporting on mitigation measure performance throughout the contract period. The OHSE will be in charge of the implementation of occupational health and safety requirements and ensure proper establishment of construction camps.

42. Costs for EMP implementation will cover the following activities: (i) implementation of the environmental measures as indicated in the EMP, and (ii) implementation of the capacity building program.

43. This IEE will be updated if any unanticipated environmental impacts become apparent during the project implementation period. The updated IEE will be submitted to ADB for clearance and disclosure on the ADB's website.

II. INTRODUCTION

A. Project Overview

44. Uzbekistan's gross domestic product (GDP) increased steadily between 2010 and 2015 with annual growth rates exceeding 7% per annum. After 2015, it declined to 5-6% until 2019 after which it declined further to 1.6% over the previous year. Agriculture, fisheries and forestry have consistently contributed to this growth accounting for about 32% of GDP until about 2017 at which stage, sector contribution declined to 27%. Sector growth still remained positive, increasing by just over SUM 20 trillion each year in constant terms. The declining sector contribution to GDP resulted from significantly higher growth in construction and manufacturing sectors since 2017.

45. The structure of agricultural output has also changed dramatically since the early post-Soviet era when government played a significant role in the production and marketing of agricultural produce (informing what to grow and nominating production targets). Agricultural GDP was dominated by cotton and wheat that government regarded as strategic crops, managing their production through preferential access to land, inputs and finance.[5] However, since 2000, there has been a shift in their contribution to GDP. The share of cotton production in GDP declined from 3.6% in 2000 to 2.3% in 2017.

46. While agriculture's share in the country's GDP is declining, it remains a priority sector for the country given its importance in maintaining food security and as a source of rural incomes and employment. The horticulture subsector has developed more under the influence of market signals although controls on exports were in effect until 2017. Horticulture accounted for an increasing share of the value of agricultural production (50%) and exports (35%) in 2021 while the country ranks among the top exporters for several horticultural products.[6]

47. Government's strategic approach to agricultural development was consolidated in 2019 with its Strategy for Agriculture Development for 2020–2030. [7] The vision articulated there-in was to develop a competitive, market-based, diversified, and export-oriented agri-food sector that will increase farm incomes, create new jobs, enhance food security, and ensure sustainable use of natural resources through: (i) enhancing food security; (ii) creating a favorable environment for agribusiness and value chains; (iii) decreasing state involvement in sector management and enhancing investment attractiveness; (iv) encouraging rational use of natural resources and environmental protection; (v) developing modern public institutions; (vi) diversifying state expenditure; (vii) developing research, education and advisory services; (viii) developing rural areas; and (ix) developing transparent statistics and information systems.

48. Specific focus was given to agro-processing as part of the broad economic policy and strategy defined in a Presidential Decree of February 2017.[8] As part of a general strategy for modernization and intensive development of agriculture, the Decree targeted the implementation of investment projects for construction of new processing plants and reconstruction and

[5] In 2018, the area planted to cereals and cotton were 1.65 million ha and 1.11 million ha respectively with an estimated value of output of 3.18 million soum ($333)/ha and 4.44 million soum ($460)/ha. The value of output/ha for potatoes, vegetables and grapes was estimated at 111 million soum ($11,600)/ha, 54 million soum ($5,650)/ha, and 69 million soum ($7,225)/ha respectively.

[6] Some 80% of horticultural exports comprise fresh produce mainly grapes, raisins, cherries and apricots (the latter fresh and dried). Uzbek cherry exports rank 8th, grapes 10th and apricots 4th in quantity globally. Uzbekistan is second largest exporter of dried apricots behind Turkey.

[7] Presidential Decree #PP-5853 on October 23, 2019.

[8] Government of Uzbekistan. 2017. Presidential Decree No. UP-4947.Tashkent. Under this Decree, the government set out a program of strategy of actions on further development of Uzbekistan.

modernization of existing plants, with such plants to be equipped with modern high-technology equipment for greater processing of agricultural products, production of semi-finished and finished food products, and production of packaging materials. The Strategy proposes the establishment of horticulture clusters where production and post-harvest services can be consolidated to improve efficiency and realize economies of scale.

49. Low agricultural productivity remains a lingering concern given farmers' limited knowledge of modern production and management systems, the unreliability of water to support horticultural development (impacted also by changing climatic conditions), and the continued presence of SOEs providing essential services (input supplies and marketing of agricultural produce) that might otherwise be provided by the private sector. Appropriately, the government has prioritized the development of higher valued horticultural products to increase the value of agricultural output and stimulate rural employment. Given the importance of small-scale producers in total production and other members of the value chain, inclusive targeted initiatives are needed to facilitate their modernization and intensification through, where appropriate, consolidation of farming units, expansion of farmer plots where land and water are available, the development of suitable but, as yet, unutilized areas,[9] and support for missing links in commodity value chains.

50. The Agency for Horticulture and Greenhouse Development under MOA does not have its own strategic development plan although horticulture is specifically mentioned in the main Strategy. The sub-sector has been the recipient of considerable support from government, multi- and bi-lateral development agencies. A recent government incentive also offered farmers access to a line of credit equivalent of $10,000 to facilitate horticultural modernization that has largely been ignored as the cost of applying for such loans (documentary application requirements) is estimated at $5,000 leaving little for the actual on-farm investment.

51. There are two main types of horticultural farming enterprises in Uzbekistan – commercial farmers and dekhan farmers. The essential differences between these are (i) the size of land holding – dekhans tend to be less than 1 ha whereas commercial farmers have a wide range of size from 1 ha extending to very large commercial orchards of over 100 ha, (ii) the extent of hired labor used in production - dekhans relying more on family labor while commercial farmers tend to employ external labor, (iii) land utilization / cropping decisions - dekhans make their own decisions about what crops to grow while commercial farmers were previously influenced by state order requirements,[10] and (iv) decisions-making process on marketing produce - dekhans make independent decisions on produce marketing while farmers were previously required to sell to state-nominated organizations.

52. The proposed project will finance on-farm investments to improve horticultural productivity for eligible and interested farmers. Investments are likely to include the upgrading of unproductive assets that have deteriorated due to their age or inappropriate management systems applied. These include (i) the rehabilitation of orchards and improvement of vegetable growing areas both on existing and abandoned land, (ii) the development of water sources, storage and application systems using more water-efficient application technologies, (iii) the development of modern

[9] Under the World Bank financed Agricultural Modernization Project, ISCAD has recruited a Turkish consultant to identify areas suitable for expansion in their participating provinces. This has been used to guide the identification of both pilot commodity chains and districts where the pilots will be undertaken.

[10] Farmers were previously told what to plant and had production targets that, if not achieved, could result in the loss of land being allocated to that farmer. The system of crop production targets has been terminated although these farmers are still influenced by what the state requires to be grown. The consequence of state land allocation and insecurity of tenure was that farmers could not maintain soil fertility (because of mono-cropping) and productivity declined.

horticulture production systems (trellising and shade cloth), and (iv) the introduction of mechanized farming machinery and equipment on developed blocks. In addition, the proposed project will finance the development of associated value chains (infrastructure and equipment) used in handling, storage and processing and marketing of horticultural produce. The proposed project is a pilot to test implementation approaches and the capacity of the implementing agencies. If the PRF is shown to be effective, it is anticipated the concept will be replicated in other locations within the 55 priority horticulture districts of the country.

53. As such, the project will help improve the livelihoods of the rural population in the target area by (i) increasing access to markets, agricultural inputs, and downstream processing facilities; (ii) increasing employment opportunities; and (iii) reducing vulnerability to natural disasters. The project areas will be identified during project preparation in consultation with the central government and regional administrations to ensure overall financial, economic, and social cost-efficiency of the project investment.

54. The PRF outcome is 'Alternate design and implementation arrangements tested and evaluated in pilot districts' - Output 1 is 'Climate resilient horticulture intensification piloted' while Output 2 is 'Commodity value chains consolidated and strengthened for value addition.'

1. Output 1

55. Bakhmal District (Jizzakh Region): On-farm productivity enhancement activities piloted on existing small-scale horticultural farms. The pilot will (i) identify small-scale farmers interested in improving production and management systems, (ii) identify eligible investments to improve productivity, (iii) implement the investments, (iv) hand over commissioned assets in exchange for loan agreements to service development funds required, and (v) supervise the collection of beneficiary loan repayments.

56. Kitob District (Kashkadarya Region): On-farm productivity enhancement activities piloted on un-utilized land at scale for subsequent transfer to small-scale farmers. The pilot will (i) identify contiguous land areas (suitable for horticultural development at scale) suitable for modern production and management systems, (ii) based on technical designs prepared by the transactional technical assistance (TRTA), implement the subprojects, (iii) operate and maintain the developed area until positive net income streams are generated, (iv) allocate subdivided portions of the developed land to interested beneficiaries, (v) hand over commissioned assets in exchange for loan agreements to service development funds required for the subdivided portion, and (vi) supervise the collection of beneficiary loan repayments.

2. Output 2

57. Output 2: Commodity value chains consolidated and strengthened for value addition. The pilot will (i) identify private entrepreneurs interested in supporting value addition in the two pilot districts, (ii) develop designs for the construction of the facility, (iii) implement the construction of works and supply of needed equipment, (iv) hand over commissioned assets in exchange for loan agreements to service development funds required, and (v) supervise the collection of beneficiary loan repayments. Activities will focus on improving the supply of raw materials from aggregated producing areas as a precursor for subsequent land aggregation strategies.

B. Environmental Assessment Requirement

1. National Requirements

58. The national Law “On Environmental Expertise” and the Resolution of Cabinet Ministries (RCM) of Uzbekistan "On the State Environmental Expertise (SEE)" # 541 dated 2020, requires an environmental assessment for all types of activities which may have environmental impact.

2. Purpose of IEE Study

59. This IEE forms a part of preparations for the project. It has been prepared in accordance with ADB SPS (2009), and the Uzbekistan’s Law on Nature Protection (1992) and Law on Environmental Expertise (2000), and other relevant laws, regulations, and requirements. The objective of the IEE is to (i) identify and assess potential project impacts and risks on the physical, biological, cultural, and socio-economic environments of the project area, and (ii) recommend measures to avoid, mitigate and provide compensation for adverse impacts, while enhancing positive impacts. Relevant references, desk assessments, site reconnaissance, community consultations, and discussions with government agencies, non-governmental organizations (NGOs) and other stakeholders have provided the basis for the IEE preparation.

60. The project has been screened and classified by the ADB as Environmental Category B, and accordingly requires an IEE, including an EMP.

3. IEE Structure

61. The IEE is structured in accordance with ADB SPS requirements. It has been prepared based on the infrastructure design undertaken by technical experts; primary surveys and secondary data collection and analyses carried out by environmental, biodiversity, hydrogeology, and social experts; and public and stakeholder consultations. Briefly, each section provides the following information:

(i) **Executive Summary**: Summary of the main aspects related to the environment and project details, highlights of mitigation and residual significant effects, recommends mitigation measures.

(ii) **Policy, Legal, and Administrative Framework**: Summarizes the project policy context. Provides information on legislation and national and international standards applicable to the project and the receiving environment. Gap analysis, compliance with good practices and national legislation;

(iii) **Project Description**: Provides overview of project objectives. Summarizes main elements of the project and key activities which may have some environmental impacts;

(iv) **Description of Environment (Baseline Data):** Provides description of the relevant environmental and social baseline conditions, information on presence of any protected areas within the project area;

(v) **Anticipated Environmental Impacts and Mitigation Measures**: Anticipated positive and negative environmental impact assessment. The chapter is based on the findings of the primary and secondary data collection, field surveys, site reconnaissance, stakeholder consultations, applicable sections of the Uzbekistan Environmental Impact Assessment regulations and ADB SPS.

(vi) **Analysis of Alternatives**: Reviews alternatives of consideration of situation "without project".

(vii) **Information Disclosure and Public Consultations**: Provides concise information on consultation process with data of consultations and summary of comments and concerns. Includes how the project responded to the comments.

(viii) **Grievance Redress Mechanism** (GRM): Includes both environmental and social aspects, updated ADB requirements and relevant national legislation.

(ix) **Environmental Management Plan** (EMP): Defines mitigation measures to avoid or minimize identified potential negative impacts with pointing the responsible parties for EMP implementation. The EMP provides for required institutional arrangements and costs.

(x) **Conclusion and recommendation**: Provide information about the significant project impacts on the environment.

62. Primary physical and biological baseline data was collected through a range of baseline surveys within the study area as well as from consultation meetings and literature reviews (mainly desk based). Secondary data was collected from Uzbekistan Hydrometeorological Service (Uzhydromet), State Statistic Committee, Institute on Hydrogeology and Geology, Academy of Science of Republic of Uzbekistan (RUz), other governmental and academic institutions and atlases to receive data on topography, demographical situation, and another project relevant information.

63. Institutional part and GRM were developed in collaboration with the MOA (Executing Agency), ISCAD (Implementing Agency), stakeholders, and NGOs present in the project area.

4. Environmental Assessment Methodology

64. Impact identification and assessment started with scoping and continued through the environmental assessment process. Any potential significant impacts are subject to a detailed impact assessment. The principal environmental assessment steps included the following:

(i) Impact prediction: Determine what could potentially happen to resources or receptors because of the project and its activities.

(ii) Impact evaluation: Evaluate the significance of the predicted impacts by considering their magnitude and likelihood, and sensitivity, value and/or importance of the affected resource or receptor.

(iii) Mitigation and enhancement: Identify appropriate and justified measures to mitigate negative impacts and enhance positive impacts.

(iv) Residual impact evaluation: Evaluate the significance of impacts assuming effective implementation of mitigation and enhancement measures.

65. More detailed information on impact assessment is provided in Chapter V.

III. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

66. The ADB SPS sets out policy principles and outlines the delivery of the ADB's safeguards policy in relation to environmental safeguards. ADB has adopted sets of specific safeguards

requirements that borrowers/clients are required to meet in addressing environmental and social impacts and risks. ADB staff will ensure that borrowers and clients comply with these requirements during project preparation and implementation.

67. The safeguard requirements are operation policies that seek to avoid, minimize, or mitigate the adverse environmental and social impacts of projects. The ADB safeguard policy framework consists of three operational safeguard requirements: (i) environmental safeguards requirements, (ii) involuntary resettlements safeguards requirements, and (iii) indigenous people safeguards requirements.

68. In accordance with ADB SPS, the project is classified as Category B for environment, as the project will have site-specific impacts, some of which are irreversible, and in most cases adequate mitigation measures can be readily implemented. The project requires preparation of an 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 feedback received during the public consultation process.

A. National Environmental Requirements

1. National Institutional Framework for Environmental Assessment

69. During the IEE preparation, institutional changes have occurred. The Ministry of Natural Resources (MNR) of the RUz is the primary environmental regulator. The MNR reports directly to the Parliament and is responsible at national, regional (oblast) and local (rayon) levels for the development and enforcement of the national environmental and conservation policy, environmental compliance, integrated environmental management across various sectors, and securing healthy environment conditions across the country.

70. According to its structure, the MNR has a central body in Tashkent, and regional branches and agencies providing research and technical support. Regional environmental authorities are structured similarly to the MNR.

71. The other state agencies involved directly or indirectly in the regulation and protection of the environment are:

72. **Ministry of Construction, Housing and Communal Services**. This ministry is responsible for conducting unified scientific and technical policy in the field of urban planning, engineering and technical surveys for construction, introducing energy-efficient innovative projects and solutions in construction activities that will increase labor productivity, reducing the cost of construction and installation works, and rationalizing the use of resources.

73. **Ministry of Agriculture**. The main task of this ministry is the implementation of a unified policy in the field of agriculture and food security, aimed at the comprehensive modernization of the industry, the introduction of resource-saving and intensive agricultural technologies, the promotion of best practices in agriculture, as well as organizing the formation of stocks of agricultural and food products in volumes necessary for year-round and uninterrupted supply to the population.

74. **ISCAD**. This agency was established under the Ministry of Agriculture. The main tasks of the agency are (i) development and implementation of targeted comprehensive programs aimed at ensuring the sustainable development of intensive horticulture, viticulture and greenhouse

farms, (ii) intensive cultivation of vegetables and fruits using modern resource-saving technologies, including drip and sprinkler irrigation systems, (iii) the expansion of horticulture areas, vineyards and greenhouse farms, and also taking into account the analysis of market conditions, and (iv) intensive measures to increase the types of fruit and vegetable and grape products grown in this way.

75. **Ministry of Health**. This ministry develops and approves sanitary regulations, rules, and hygienic standards, and 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.

76. **Ministry of Water Resources**. The main tasks of the Ministry are the implementation of a unified state policy in the field of water resources management, as well as the coordination of the activities of state bodies, economic management bodies and other organizations in the field of rational use and protection of water resources, prevention and elimination of the harmful effects of water.

2. National Environmental Assessment Legislation

77. The Constitution of RUz, under its nature protection and management framework, defines the rights and responsibilities of its citizens to include the following:

(i) All citizens shall protect the environment (Article 50);
(ii) Any property shall not inflict harm to the environment (Article 54); and
(iii) Land, subsoil, flora, fauna, and other natural resources are protected by the state and considered as resources of national wealth, subject to sustainable use (Article 55).

78. Uzbekistan has enacted the following natural resources and media-specific environmental management laws:

79. Law "**On Nature Protection**" (1992, amended in 2021) states legal, economic, and organizational foundations for the conservation of the environment and rational use of natural resources. Its purpose is to ensure balanced relations between humans and nature to protect the environmental system and to guarantee the rights of the population to live in a safe environment. Article 25 of the law states that the SEE is a mandatory measure for environmental protection, preceded to a decision-making process. In addition, Article 25 says that the implementation of a project without Positive Conclusions on the SEE is prohibited.

80. The Law "**On Ambient Air Protection**" (1996, amended in 2006). This law specifies regulations on air protection and its objectives. It also includes standards, quality and negative impact, norms, and requirements on fuels and lubricants, the production and operation of vehicles and other machinery and equipment, ozone layer protection requirements, the obligations of enterprises, institutions and organizations toward air protection, and compensations for damages from air pollution.

81. Law "**On Water and Water Use**" (1993 the latest amended in 2021). This law regulates water relations, and efficient water use by the population and economy. The law regulates the pro76tection of water from pollution and depletion, prevention, and elimination of harmful impacts

on water, the improvement of water bodies, and the protection of the rights of enterprises and institutions, organizations and dehkan farms and individuals in the field of water relations.

82. **Land Code of the RUz** (1998). The Land Code aims to regulate land relations to ensure that present and future generations have evidence-based sustainable use and conservation of land and improvements of soil fertility, conservation and improvement of the environment and conditions for equitable development of all forms of management, protection of individuals and legal entities' rights for land, as well as strengthening the rule of law in this area.

83. Law on **Waste** (2002, amended in 2011). This law addresses waste management, exclusive of emissions and air and water pollution, and confers authority to the MNR concerning inspections, coordination, and environmental expertise. It also establishes certain parameters regarding locations for waste disposal. The key 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 waste generation, and encourage rational use of waste reduction methods in household activities.

84. Law on **Environmental Audit** (2021). This law was adopted to regulate environmental audits in the field of environmental protection and rational use of natural resources, including voluntary or mandatory environmental audits. The law states that 'an environmental audit can be carried out on a voluntary form by businesses with low or insignificant (local) risk of environmental impact and on a mandatory form on an annual basis for businesses with high and medium risk of environmental impact.'

85. Law on **Environmental Control** (2013 amended 2021). This law provides the approach regarding: (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, poor use of natural resources, and create a threat to life and health of citizens; (iii) determination of compliance with the environmental requirements of planned or ongoing economic and other activities; and (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.

86. Law on "**Protection of Flora**" (1997, amended in 2016). This law regulates relations in the field of protection and use of the plant world growing in natural conditions, as well as wild plants contained in the conditions of culture for their reproduction and conservation of genetic resources.

87. Law on "**Plant Quarantine**" (2018). This law regulates measures on external and internal plant quarantine, aimed at the protection of the territory of the Republic from the penetration of quarantined and other dangerous pests, and diseases of plants and weeds from foreign countries, which can cause significant economic damage to the national economy.

88. Law on "**Agricultural Plants Protection from Pests, Diseases and Weeds**" (2000). This law regulates relations related to the protection of agricultural plants from pests, diseases and weeds, and the prevention of harmful impacts of plant protection products on human health, and the natural environment.

89. Law on "**Protection and Use of the Wildlife**" (2016). This law regulates relations in the field of protection, use, restoration and reproduction of wildlife in order to ensure the conditions of its existence, conservation of species diversity, integrity of natural communities and habitat.

90. Law on "**Veterinary Medicine**" (2015). This law regulates state policy in the field of veterinary medicine; development and implementation of measures in the field of veterinary medicine; state regulation in the field of veterinary medicine; implementation of state veterinary supervision; and development of international cooperation in the field of veterinary medicine.

91. Law on "**Organic Products**" (2022). This law regulates relations in the field of organic products (production, conversion, storage, transportation, marking and realization of organic products, and also assessment of conformity and authorization). Operation of this law does not extend to organic products made for private consumption.

92. Law on **Seed Production** (2019). This law regulates relations in the field of seed production.

93. Resolution of Cabinet Ministries of RUz "On Approval of Rules on **Electrical Facilities Protection**" #1050 dated from 2018.

94. The Red Data Book of Uzbekistan (UZRDB) is the main document containing aggregate information on the state of rare, population decreasing, and endangered species of plants and animals in the territory of Uzbekistan. The first edition of the Red Data Book of the Republic of Uzbekistan (1984) included 163 species of plants; the second edition (1998), 301 species; the third edition (2006), 302 species of higher plants and three fungi species; the fourth edition (2009), 321 species of higher plants and three fungi species. The first edition of the UZRDB (1983) included 63 species; the second edition (2003), 184; the third edition (2006), 184; the fourth edition (2009), 184 animal species and subspecies. In the last 10-15 years, according to the International Union for the Conservation of Nature (IUCN), the threat of extinction of species in the wild has grown for a number of species and subspecies, which is connected with the reduction of their habitats and decline in population size. This primarily concerns hoofed mammals as the most vulnerable and susceptible to anthropogenic influences of components of fauna. The latest version of the UZRDB was released in 2019 and included 202 species of fauna, and 314 species of flora, however it is understood it has not been completed in conjunction with the IUCN.

B. Environment Quality Standards

1. Air Quality Standards

95. The following regulatory documents define standards for the main pollutants in air in the living area: SanR&N 0293-11 Hygienic standards. The list of maximum permissible concentrations of pollutants in the ambient air of settlements in the territory of the RUz" (Table 1).

Table 1: Summary of Relevant Ambient Air Quality Standards for Protection of Human Health (mg/m^3)

Air quality parameter	Maximum allowed during 30 min	Maximum allowed average daily	Maximum allowed average monthly	Maximum allowed average yearly
NO_2	0.085	0.06	0.15	0.04
NO	0.6	0.25	0.12	0.06
SO_2	0.5	0.2	0.1	0.05

Air quality parameter	Maximum allowed during 30 min	Maximum allowed average daily	Maximum allowed average monthly	Maximum allowed average yearly
CO	5	4	3.5	3
Dust (PM_{10})	0.15-0.5	0.1-0.35	0.08-0.2	0.05-0.15

96. The WHO standards[11] for air quality are presented in Table 2 below.

Table 2: WHO Air Quality Standards

Air Quality Parameter	Period	Norm ($\mu g/m^3$)
SO_2	24 hours 10 minutes	20 500
NO_2	1 year 1 hour	40 200
PM_{10}	1 hour 24 hours	50 20
$PM_{2.5}$	1 hour 24 hours	25 10

97. The air quality standards recommended for assessment of ambient air quality are presented in Table 3.

Table 3: Ambient Air Quality Standards

Pollutant	Average Period	Norm in $\mu g/m^3$	Norm mg/m^3	Source of standards
SO_2	10 min	500	0.5	EHS Guidelines
	30 min	500	0.5	Uzbekistan
	24 hours	20	0.02	EHS Guidelines/
	1 month	500	0.5	Uzbekistan
	1 year	50	0.05	Uzbekistan
NO_2	10 min	200	0.2	EHS Guidelines/ Uzbekistan
	30 min	85	0.085	Uzbekistan
	24 hours	60	0.06	Uzbekistan
	1 month	50	0.05	Uzbekistan
	1 year	40	0.04	EHS Guidelines/ Uzbekistan
NO_x	30 min	600	0.6	Uzbekistan
	24 hours	250	0.25	Uzbekistan
	1 month	120	0.12	Uzbekistan
	1 year	600	0.6	Uzbekistan
CO	30 min	5000	5.0	Uzbekistan

[11] WHO Air Quality Guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide , Global Update 2005, Summary Risk Assessment.

Pollutant	Average Period	Norm in μg/m³	Norm mg/m³	Source of standards
	24 hours	4000	4.0	Uzbekistan
	1 month	3500	3.5	Uzbekistan
	1 year	3000	3.0	Uzbekistan
PM_{10}	1 year	20	0.02	EHS Guidelines
	24 hours	50	0.05	EHS Guidelines
PM_{25}	1 year	10	0.1	EHS Guidelines
	24 hours	25	0.025	EHS Guidelines

2. Water Quality Standards

98. There are different standards for various type of water bodies in Uzbekistan. Depending on the purpose of use, water bodies are categorized as for domestic use (could be used as a source for potable water after treatment), fisheries, municipal use, and irrigation purposes. Table 4 and Table 5 present the national general effluent standards into the water bodies classified by type of use.

Table 4: General Requirements for Water Quality[12]

Indicators	Purpose of Water Use			
	Domestic Use	Recreation and Service	Fishery Needs	
			Highest and First Category	Second Category
Suspended solids	Depending on natural conditions, the content of suspended solids in wastewater discharge shall not exceed			
	0.25 mg/dm³	0.75 mg/dm³	0.25 mg/dm³	0.75 mg/dm³
	For reservoirs and watercourses containing at low water above 30 mg/dm³ of suspended solids, there may be an increase to 5%. Discharge of suspensions with fallout rate of more than 0.4 mm/s for watercourses and more than 0.2 mm/s in water reservoirs are prohibited.			
Floating matter	There shall not be a film of oil products and concentrations of other contaminants on the water surface			
Color	Shall not be detected in the column of height		There shall be no adulterants	
	20 cm	10 cm		
Smell and test	Intensity of more than 1 point is not permitted		Water must not give extraneous odors and flavors to fish meat	
Temperature	Temperature of water at the discharge point shall not exceed 3ºC as compared with average monthly temperature of the hottest month		Temperature of water at the discharge point shall not exceed 5ºC as compared with average monthly temperature of the hottest month. Increasing of temperature more than 28ºC in summer and till 8ºC in winter is not allowed	
Hydrogen exponent (pH)	Shall not be beyond 6.5...8.5 pH		Shall not be beyond 6.5...8.5 pH	

[12] SanR&N No 0172-04 "Hygiene requirements for protection of surface waters in RUz" and Attachment to Construction Norms and Rules (CNR) 1.03.01-96 "Guidelines on content, order, approval and endorsement of design estimate for enterprises, building construction".

Indicators	Purpose of Water Use			
	Domestic Use	Recreation and Service	Fishery Needs	
			Highest and First Category	Second Category
Water salinity	Dry residue shall not exceed 1000 mg/dm^3, including chlorides – 350 mg/dm^3 and sulphate - 500 mg/dm^3		Rated according to water bodies intoxications	
Dissolved oxygen	No less than 4 mg/dm^3 in any period of the year in a sample taken by 12 a.m. on the same day		In winter shall be no less than 6 mg/dm^3	
			No less than 6 mg/dm^3 in any period of the year in a sample taken by 12 a.m. on the same day	
BOD	At 20ºC shall not exceed		At 20ºC shall not exceed 3.0 mg/dm^3. if in winter the dissolved oxygen content in water of the first* category fishing water bodies falls to 6.0 mg/dm^3, and in the second** – to 4 mg/dm^3, then discharge is only permitted to wastewater that does not change the BOD	
	3.0 mg/dm^3	6.0 mg/dm^3		
COD	Shall not exceed			
	15.0 mg/dm^3	30.0 mg/dm^3	-	-
Causative agent (of a disease)	Not allowed			
Chemicals (pollutants)**	Shall not be contained in concentrations exceeding the MAC			

*- The first category includes water bodies, where valuable fish species are highly sensitive to oxygen are kept and reproduced)
** - The second group includes water bodies used for other aquatic economy needs.

99. The maximum allowed concentrations of most spread chemical pollutants are presented in Table 5. As shown in the table, the national standards for irrigation water fully comply with FAO standards. Therefore, the national standards for fishery are taken as a basis for this IEE.

Table 5: Maximum Permissible Concentration of Pollutants in Water Bodies by Water Use Category (mg/m^3)

Pollutants	Water Use Category (Handbook of Environmentalist, Tashkent 2010)					
	Fishery	Municipal	Potable Water		Irrigation water for direct use without blending	
			Nat	WHO[13]	Nat	FAO[14]
COD	15	30	30	-	40	-
BOD_{20}, mgO_2/L	3	3-6	3-6	-	10	-
pH	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5
Water salinity	1,000	1,000	1,000-1,500	1,000	1,000	0-2,000
Including: sulphates	100	500	400-500	-	-	1,900
Chlorides	300	350	250-350	-	-	300

[13] WHO, Guidelines for drinking water quality, Fourth edition, 2017.
[14] FAO Guidelines for interpretations of water quality for irrigation, http://www.fao.org/3/t0234e/t0234e01.htm

Pollutants	Water Use Category (Handbook of Environmentalist, Tashkent 2010)					
	Fishery	Municipal	Potable Water		Irrigation water for direct use without blending	
			Nat	WHO[13]	Nat	FAO[14]
Ammonium nitrogen (ammonium salt) (NH_4^+)	0.5	2	0.5	-	1.5	0-5
Nitrogen	9.1	25	45	-	25	-
Nitrogen nitrite	0.02	0.5	3	-	0.5	0-10
Nitrite	0.08	3.3	3	3	-	-
Nitrate	40	45	45	50	-	-
Phosphate (PO_4^{3-})	0.3	1	3.5	-	1	0-2
Ether soluble	0.05	0.8	0.8	-	0.8	-
Oil products	0.05	0.3	0.1	-	0.3	-
Sodium alkyl sulfates (SAS)	0.1	0.5	0.5	-	0.5	-
Phenol	0.001	0.001	0.001-0.1	-	0.001	-
Fluorine (F)	0.05	1.5	0.7	1.5	1	-
Arsenic (As)	0.05	0.05	0.05	0.01	0.1	-
Iron (Fe)	0.05	0.5	0.3-3	-	5	-
Chromium (Cr^{6+})	0,001	0.1	0.05	0.05	0.1	-
Copper (Cu)	0,001	1	1	2	1	-
Zinc (Zn)	0.01	1	3	-	5	-
Cyanides	0.05	0.1	0	0	-	-
Lead (Pb)	0.03	0.1	0.03	0.01	0.2	-
Nickel (Ni)	0.01	0.1	0.1	0.07	-	-
Cadmium (Cd)	0,005	0.01	-	0,003	-	-
Cobalt (Co)	0.1	1	-	-	-	-
Molybdenum (Mo)	0.0012	0.5	0.25	-	-	-
Strontium (Sr^{2+})		2	7	-	-	-
Selenium (Se)	0.001		0.01	0.04	-	-
Mercury (Hg)		0.005	0.0005	0.006	-	-
Boron (B)		0.53		2.4	0.53	0-7.3

3. Noise and Vibration Standards

100. National and international noise standards are presented in Table 6. National norms comply with international standards for both daytime (55 dB) and nighttime (45 dB) periods in residential areas. They are more stringent for offices by 10 dB.

Table 6: Maximum Allowable Noise Standards: Comparison of National and International Maximum Allowable Noise Standards

(dB)

Receiver	National[15]		General EHS Guidelines[16]	
	Day time (7.00 am – 11 pm)	Night time (11.00 pm – 7.00 am)	Day time (7.00 am – 10.00 pm)	Night time (10.00 pm – 7.00 am)
Residential	55	45	55	45
Offices, commercial	60	-	70	70

101. There are some differences in defining daytime and nighttime noise standards between General EHS Guidelines and the national standards. General EHS Guidelines consider that a nighttime period is from 10 pm to 7 am, while the national standards define this period between 11 pm and 7 am. On this aspect, more stringent standards (General EHS Guidelines) will be applied for this Project.

102. The national standards for vibration levels in residential houses are provided in Sanitarian Norms and Rules (SanN&R) № 0331-16 "Residential house design in climatic conditions of Uzbekistan". For residential houses, the standard is 67 dB for nighttime and 72 dB for daytime, with a frequency of 37 and 61 Hz. For non-continuous vibration, the standards should be decreased by 10 dB (Table 7). However, the standard does not provide any coefficient/allowance for non-frequent events such as passing trains. For the construction phase, the vibration limit will be 72 dB.

Table 7: National Vibration Standards

	Permanent Vibration, dB
Daytime	72
Nighttime	67

103. The manual cites criteria developed by the United States Federal Transit Administration, which indicates vibration impact levels on residences and buildings where people normally sleep (Table 8).

[15] Sanitarian Norms and Rules (SanPiN) # 0331 (2016) Admissible noise level into the living area, both inside and outside the buildings, Table 10.2.4.2

[16] *World Bank Group, Environmental, Health, and Safety Guidelines*, April 30, 2007, Washington, USA. https://www.ifc.org/wps/wcm/connect/29f5137d-6e17-4660-b1f9-02bf561935e5/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES&CVID=nPtguVM in English. https://www.ifc.org/wps/wcm/connect/be37221a-fc47-4379-b539-eca3fe72c3e6/General%2BEHS%2B-%2BRussian%2B-%2BFinal_.pdf?MOD=AJPERES&CVID=nPtgFKk&ContentCache=NONE&CACHE=NONE in Russian.

Table 8: Federal Transit Administration Vibration Impact Criteria

Land Use Category	Vibration Impact Level for Frequent Events (VdB)	Vibration Impact Level Infrequent Events (VdB)
Category I: Buildings where low ambient vibration is essential for interior operations	65	65
Category II: Residences and buildings where people normally sleep	72	80
Category III: Institutional land uses with primarily daytime use	75	83

Note: "Frequent events" is defined as more than 70 events per day. "Infrequent events" is defined as fewer than 70 events per day.

104. For non-residential areas, standards for building integrity were accepted in accordance with Table 9. Table 9 presents maximum continuous vibration levels for preventing damages to different type of buildings, as set by the American Association of State Highway and Transportation Officials (AASHTO) and Swiss Association of Standardization (SAS). This data could be used as thresholds for both phases – construction and operation for structural integrity of buildings/houses.

Table 9: Maximum Continuous Vibration Levels for Preventing Damage
(mm/s)

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

AASHTO = American Association of State Highway and Transportation Officials, SAS = Swiss Association of Standardization.
Source: California Department of Transportation (2013), US Transportation Research Board (2012).

105. As international standards for vibration were used, the standards provided in general guidance on human response to building vibrations is given in: (i) AS 2670.2–1990 Evaluation of human exposure to whole-body vibration: continuous and shock-induced vibration in buildings" (1 to 80 Hz); (ii) ISO 2631–2:2003 Mechanical vibration and shock: evaluation of human exposure to whole body vibration, Part 2: Vibration in buildings (1 Hz to 80 Hz); and (iii) BS 6472 –1:2008 Guide to evaluate human exposure to vibration in buildings. Vibration sources other than blasting. Based on these guidelines, the ground vibration limits are presented in Table 10.

Table 10. Ground Vibration Limits for Human Comfort[17]

Category	Period	Peak Component Particle Velocity (mm/s)	Vibration, dB
Residential	Nighttime	0.2 mm/s	72
	Daytime	0.3 mm/s	76
Offices	When occupied	0.6 mm/s	82
Occupied non-sensitive sites, such as factories and commercial premises	When occupied	2.5 mm/s	94

mm/s = millimeters per second
A sensitive site includes houses and individual residential buildings, theatres, schools, and other similar buildings occupied by people.

106. Therefore, as a result of comparison of both national and international standards for vibration, it was accepted that national standards for vibration in residential areas are more stringent, and therefore will be applied for the project, i.e. 72 dB during daytime and 65 dB during nighttime.

4. Soil Quality Standards

107. The soil quality standards are defined in the SanR&N # 0191-05 dated from 2005 "Sanitary maximum permitted concentrations (MPC) and tentatively acceptable concentration of exogenous pollutants in the soil". The national standards have been compared with international standards (Table 11).

Table 11: Maximum Allowable Concentration of Pollutants in Soil

Parameter	Unit	Uzbek Standard (1)	Dutch Intervention Values (2)	EHS Guidelines[18]
Antimony	mg/kg	4.5	22	There are no detailed numerical requirements to soil quality established by EHS Guidelines
Arsenic	mg/kg	2.0	76	
Cadmium	mg/kg		13	
Chromium	mg/kg	6.0		
Chromium VI	mg/kg		78	
Cobalt	mg/kg	5.0	190	
Copper	mg/kg	3.0	190	
Mercury (organic)	mg/kg	2.1	4	
Lead	mg/kg	32.0	530	
Molybdenum	mg/kg	10.0	190	
Nickel	mg/kg	4.0	100	
Selenium	mg/kg		100	
Zinc	mg/kg	23.0	720	
Cyanides	mg/kg		20 (free) 50 (complex)	
Benzene	mg/kg	0.3	1.1	
Ethylbenzene	mg/kg		110	

[17] https://industry.gov.au/resource/Programs/LPSD/Airborne-contaminants-noise-and-vibration/Vibration/Pages/Ground-vibration-limits.aspx

Parameter	Unit	Uzbek Standard (1)	Dutch Intervention Values (2)	EHS Guidelines[18]
Toluene	mg/kg	0.3	32	
Xylenes (sum)	mg/kg		17	
Styrene (vinylbenzene)	mg/kg	0.1	86	
Phenol	mg/kg		14	
Vanadium	mg/kg	150.0	250	
Nitrates	mg/kg	130.0	-	
Sulphate (H_2SO_4)	mg/kg	160.0	-	
Total Petroleum Hydrocarbons (Mineral Oil)	mg/kg		5,000	
PAHs (total)	mg/kg		40	
Ammonia Nitrogen	mg/kg		1.5	

Notes:
General EHS Guidelines (footnote 16), Wastewater and Ambient Water Quality).
SanR&N #0191-05. Sanitary Permissible Concentrations (MPC) and Indicative Acceptable Concentrations (IAC) of Exogenous Harmful Substances in the soil (November 5, 2005).

5. Environmental Impact Assessment

108. The national environmental assessment procedure is regulated by the law "On State Environmental Expertise" (SEE) and the regulation “On further improvement of the environmental impact assessment mechanism”, approved by Resolution of the Cabinet of Ministers No. 541 (2020). The resolution specifies the legal requirements for environmental assessment documents in Uzbekistan. According to the Law, SEE is a type of environmental examination carried out by specialized expert bodies to (i) ensure compliance of the planned activities with environmental requirements. and (ii) determine permissibility of project implementation.

109. The Ministry of Natural Resources (MNR) is the authorized state body in the field of the SEE. The Center of State Environmental Examination (CSEE) under the MNR carries out the SEE for projects classified under Categories I and II to assess their environmental impact (high and medium risk).

110. The CSEE in the regions and in the Republic of Karakalpakstan carries out the SEE for projects classified as Category III and IV (low risk and local risk) to assess their environmental impacts.

111. The regulation sets out a procedure of arrangement and carrying out the SEE (Annex 2 to RCM). The environmental assessment stages and their required results are summarized as follows:

(i) **Stage I**: A Preliminary Environmental Impact Statement (PEIS) shall be prepared during preparation of a proposed project prior to any fund allocation for development.

(ii) **Stage II**: An Environmental Impact Statement (EIS) shall be carried out on a basis of a conclusion of the environmental expertise issued at the first stage of the assessment. The second stage of the assessment is also submitted to the CSEE, and the conclusion must be received before the start of construction.

(iii) **Stage III**: State Environmental Consequences (SEC) is the final stage of the SEE process and shall be carried out prior to the project start. The report will include (i) a detailed description of changes to be made to the project design as a result of

the CSEE review during the first two stages of the environmental assessment process, (ii) comments received during public consultations, (iii) environmental standards applicable to the project, (iv) environmental monitoring requirements related to the project, and (v) the key opinion.

112. Types of economic activities assessed by SEE are classified as one of four categories:

(i) Categories I and II are "high and medium risks of environmental impact" (all stages of environmental assessment are required);
(ii) Category III is "low risk of impact" (all stages of environmental assessment are required); and
(iii) Category IV - "local impact" (only the first stage of environmental assessment - PEIS is required).

113. The SEE opinion is valid for three years from the date of its issuance. If a project is not implemented within three years from the date of issuing the opinion, the environmental assessment reports (PEIS or EIS) need to be revised and re-submitted to the CSEE for revision and approval.

114. The opinion of the SEE shall be shared with the relevant regional (city) Control Environmental Inspectorates for their follow up and supervision. Such Inspectorates under the MNR supervise the compliance with the requirements and terms specified in the SEE's opinion.

115. This project belongs to category III in accordance with RCM # 541 (Attachment 2, para 43). Therefore, national EIA will be required prior commissioning of the construction works.

6. Uzbekistan National Labor Requirements

116. The Constitution of the Republic of Uzbekistan (1992) includes a chapter on the economic and social rights of citizens. According to it, everyone has the following rights:

(i) "Have the right to work, free choice of work, fair conditions of labor and protection against unemployment in the procedure specified by law. Any forced labor shall be prohibited except for punishment under the sentence of a court or some other instances stipulated by law" (Chapter IX, Article 37);
(ii) The right to rest is included in the Article 38: "Citizens, working on hire, shall be entitled to a paid rest. The number of working hours and paid labor leave shall be specified by law";
(iii) Social security in old age in the event of disease, disability, loss of breadwinner and in other cases stipulated under the law (Article 39);
(iv) Have the right to skilled medical care (Article 40);
(v) A guarantee of equal rights for men and women (Article 46); and
(vi) "Have the right, both individually and collectively, to submit applications and proposals, and to lodge complaints with competent state bodies, institutions or public representatives. Applications, proposals and complaints shall be considered in the procedure and within the time-limit specified by law" (Chapter VIII, Article 35).

117. The **Labor Code of the Republic of Uzbekistan**. The Labor Code of the Republic of Uzbekistan, introduced in April, 1996, is considered as a base document for work relations. It addresses provisions relating to non-discrimination in labor relations, protection of labor rights, subjects of labor relations, representation of workers and employers, collective agreements and collective bargaining, job placement, labor contracts, working time, rest and leave, wages, guarantee and compensation payments, labor discipline, the material responsibilities of labor contract parties, labor protection, additional guarantees and advantages to certain categories of workers, labor disputes, and State social security.

118. Article 6 of the Labor Code prohibits discrimination and guarantees that all citizens have equal rights to work; discrimination in labor relations is prohibited. Any differences, non-admission or preference, denial of employment, regardless of nationality, race, gender, language, religion, political beliefs, social status, education, property, leading to a violation of equality of opportunities in the field of labor, are prohibited. A person who considers that he or she has been subjected to discrimination at work may apply to the court for the elimination of discrimination and compensation for material and moral damage caused to him/her.

119. The Ministry of Employment and Labor Relations of the Republic of Uzbekistan is the main state institution responsible for labor, employment, and social protection policy making. The ministry is tasked with the development and regulation of the labor market and ensuring the employment of the population, the regulation of labor relations and labor protection, the provision of social services for the population, and medical-social rehabilitation of persons with disabilities.

120. The supervision and monitoring of compliance with Labor Code requirements and the protection of labor rights of citizens is implemented by the State Labor Inspection under the Ministry of Employment and Labor Relations, and its territorial subordinate structures according to the Statement on the State Labor Inspection.[19]

121. **Occupational Health and Safety** (OHS) legislation comprises the Labor Code, the Law on Occupational Health and Safety, the decrees of the President of the Republic of Uzbekistan, Occupational Health and Safety standards, decisions of executive government agencies taken within their competence in the form of decrees, executive orders, regulations, directives, rules, etc.

122. The Law on "**Labor Protection**", enacted on September 22, 2016, further improves the labor protection system by strengthening the responsibilities of employers and workers, defining public authorities' powers to ensure the proper monitoring of working conditions and safety, increasing the efficiency of public control, and bringing certain provisions of the current law in accordance with the requirements of the newly adopted legislative acts into the modern market economy.

123. The Law introduces new concepts and clarifies issues regarding the certification of workplaces on working conditions, audit of the OHS management system, investigation and registration of accidents at work, and occupational diseases. It establishes specific mechanisms for public and trade union participation in the implementation of public control in this field, and secures their rights related directly to OHS activities.

[19] Attachment #3, Resolution of the Cabinet of Ministers #1066 of 31.12.2018 "On measures to improve the performance of the Ministry of Employment and Labor of Relations of Uzbekistan."

124. The Law on **Occupational Safety in Hazardous Production Facilities**, enacted on August 25, 2006, stipulates the legal, economic and social terms of ensuring safe exploitation of hazardous production facilities, with the aim of building enterprise capacity and preventing accidents.

125. In addition to the main legislation, the Republic also has national normative documents addressing the issues of occupational health and safety. These include (i) Sanitary Rules and Norms (SanPiN), (ii) State Occupational Safety Standards (GOST, SSBT), (iii) Construction Norms and Rules (SNiPs), (iv) standards of the content of harmful substances (maximum allowable concentrations and levels), and (v) normative methodological documents on individual issues setting forth requirements for occupational safety in hazardous facilities, when manufacturing or applying various products. In addition to state normative documents, various sectors of industry enforce departmental and interdepartmental norms, requirements and rules of occupational safety and health.

126. Enforcement of OHS legislation. The main state bodies responsible for the implementation of OHS policy are:

(i) Ministry of Employment and Labor Relations, including the State Labor Inspection under the ministry with territorial branches distributed throughout the Republic;
(ii) State Inspection for Safety in Industry, Mining and Housing and Utilities Sector; and
(iii) Department of State Sanitary Epidemiological Supervision under the Ministry of Health of the Republic of Uzbekistan.

127. The Ministry of Employment and Labor Relations has an OHS directorate and the State Labor Inspection and its regional branches in the Republic of Karakalpakstan, viloyats (provinces), and the Tashkent city and district directorates and branches on labor, employment and social security. They constitute a single system of supervision and monitoring compliance with OHS requirements for ministries and agencies, institutions, organizations, and industrial and agricultural enterprises, with the exception of hazardous facilities that are under the jurisdiction of the State Inspection on Safety in Industry, Mining and the Housing and Utilities Sector.

128. Other laws and standards applicable for the Project are:

(i) Resolutions of the President # 5863 “On Approval of Concept of Environmental Protection of the Republic of Uzbekistan till 2030”;
(ii) SanR&N No 0339-16 - Sanitary Rules and Norms for Planning and Development of Populated Areas of Uzbekistan;
(iii) SanR&N No 0289-10 - Sanitation rules hygiene requirements for the organization of construction production and construction work;
(iv) Law on Protection and Use of Archeological Heritage (2009);
(v) SanR&N No 0318-15 - Hygienic and anti-epidemic requirements for the protection of water in reservoirs on the territory of the Republic of Uzbekistan;
(vi) SanR&N No 0255-08 - Main criteria for hygienic assessment of the water bodies contamination for assessing health risks for population in Uzbekistan;
(vii) SanR&N 0202-06 - The procedure for issuing permits for special water use, development and approval of projects of maximum permissible discharges (MPD) of substances entering with wastewater into water bodies and on the terrain;

(viii) SanR&N 0293-11 - Hygienic standards list of maximum permissible concentrations (MPC) of pollutants in the atmospheric air of populated areas on the territory of the Republic of Uzbekistan;

(ix) KMK 3.01.02-00 - Construction safety;

(x) O'z DSt 1057:2004 - Vehicles. Safety requirements for technical conditions;

(xi) SanR&N No 0212-06 - Hygienic assessment of the degree of soil pollution of different types of land use under specific conditions of Uzbekistan;

(xii) SanR&N No 0183-05 - Hygienic requirements for the quality of the soil in settlements areas in specific natural and climatic conditions of Uzbekistan;

(xiii) BR&N No 2.01.08-96 – Noise protection;

(xiv) BR&N No 3.01.02-00 - Construction Safety Standards;

(xv) Law of the Republic of Uzbekistan on dehkan farms (01.04.2021 #680);

(xvi) Decree of the President of the Republic of Uzbekistan # 6243 "on measures to ensure equality and transparency in land relations, reliable protection of land rights and their transformation into a marketable asset";

(xvii) Decree of the President of the Republic of Uzbekistan #4246 on measures for further development of horticulture and greenhouse farming in the Republic of Uzbekistan;

(xviii) Decree of the President of the Republic of Uzbekistan #4919 on measures to further accelerate the organization of the implementation of water-saving technologies in agriculture;

(xix) Decree of the President of the Republic of Uzbekistan #5995 on additional measures to ensure compliance of quality and safety indicators of agricultural products with international standards;

(xx) Resolution of the Cabinet of Ministers of the Republic of Uzbekistan #24 on measures for financial support for lemon producers who have introduced a heating system working on alternative energy, as well as for the construction of lemon plantations and the purchase of seedlings;

(xxi) Resolution of the Cabinet of Ministers of the Republic of Uzbekistan #327 on measures for state financial support of subjects engaged in viticulture, gardening, greenhouse facilities and production of wine products;

(xxii) Resolution of the Cabinet of Ministers of the Republic of Uzbekistan #52 on measures for the development of horticulture, viticulture and greenhouse facilities within the framework of family business support programs; and

(xxiii) Resolution of the Cabinet of Ministers of the Republic of Uzbekistan #51 on the approval of the regulation on horticulture and viticulture associations.

C. ADB Safeguard Policy Statement (2009)

129. ADB's SPS (2009) sets out policy principles and outlines the delivery process for ADB's safeguard policy in relation to environmental safeguards. The ADB has adopted a set of specific safeguard requirements that borrowers/clients are required to meet in addressing environmental and social impacts and risks. ADB staff will ensure that borrowers/clients comply with these requirements during project preparation and implementation. The safeguard policies are operational policies that seek to avoid, minimize or mitigate the adverse environmental and social impacts of projects including protecting the rights of those likely to be affected or marginalized by the development process.

130. The SPS (2009) consists of three operational policies on the environment, involuntary resettlement, and indigenous peoples. The ADB has developed Operational Procedures to be followed in relation to the ADB SPS (2009) and these are included in the ADB Operations Manual.

131. The SPS applies to all ADB-financed and/or ADB-administered projects and their components, regardless of the source of financing, including investment projects funded by a loan; and/or a grant; and/or other means, such as equity and/or guarantees. The ADB works with borrowers and clients to put into practice the requirements of the SPS.

132. The objectives of the 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) Assist borrowers and clients to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.

133. The ADB's SPS sets out the policy objectives, scope and triggers, and principles for three key safeguard areas:

(i) Environmental safeguards;
(ii) Involuntary resettlement safeguards; and
(iii) Indigenous peoples' safeguards.

134. To help borrowers and clients and their projects achieve the desired outcomes, the ADB adopts a set of specific safeguard requirements that borrowers and clients are required to meet in addressing environmental and social impacts and risks. These safeguard requirements are as follows:

(i) Safeguard Requirements 1: Environment (Appendix 1 of SPS),
(ii) Safeguard Requirements 2: Involuntary Resettlement (Appendix 2 of SPS),
(iii) Safeguard Requirements 3: Indigenous Peoples (Appendix 3 of SPS), and
(iv) Safeguard Requirements 4: Special Requirements for Different Finance Modalities (Appendix 4 of SPS).

135. In accordance with the ADB's SPS (2009), ADB funded projects are classified into the following categories:

(i) Category A. The proposed project is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented; impacts may affect an area larger than the sites or facilities subject to physical works. A full-scale environmental impact assessment including an environmental management plan (EMP), is required.
(ii) Category B. The proposed project's potential environmental impacts are less adverse and fewer in number than those of category A projects; impacts are site-specific, few if any of them are irreversible, and impacts can be readily addressed

through mitigation measures. An initial environmental examination (IEE), including an EMP, is required.

(iii) Category C. The proposed project is likely to have minimal or no adverse environmental impacts. No environmental impact assessment or IEE is required although environmental implications need to be reviewed, and

(iv) Category FI. The proposed project involves the investment of ADB funds to, or through, a financial intermediary.

136. The ADB has defined its environmental safeguard requirements under the ADB SPS (2009). The ADB SPS' (2009) key requirements include screening for significant impacts and categorization, consultation, and disclosure. Proposed projects are screened according to type, location, scale, and sensitivity and the magnitude of their potential environmental impacts, including direct, indirect, induced, and cumulative impacts.

137. The project is classified as B for environment under the ADB SPS (2009) and subject to preparation of an IEE.

138. The gap analysis between ADB environmental safeguard requirements and national legislation is provided in Table 12. The table also presents information on how the identified gap has been harmonized.

Table 12: Gap Analysis Between ADB Safeguard Requirements and Uzbek National Environmental Legislation

Aspect	Asian Development Bank	National Regulations	Harmonized Framework
Environmental Policy and Regulations	i. ADB SPS sets out the policy objectives, scope and triggers, and principles for three key safeguard areas: ii. Environmental safeguards, iii. Involuntary resettlement safeguards, and iv. Indigenous people safeguards.	Environmental assessment and permitting procedure in Uzbekistan are set out in the following laws and regulations: i. Law on Nature Protection (1992); ii. Law on Environmental Expertise (2000), and iii. Resolution of Cabinet Ministries (RCM) "On the further improvement of the environmental impact assessment mechanism" No. 541 (2020)	National regulatory requirements for the environmental assessment of the project are fully consistent with ADB procedures
Screening	ADB carries out project screening and categorization at the earliest stage of project preparation when sufficient information is available for this purpose using rapid environmental assessment (REA) checklist. Categories A, B, C, FI	A project category is classified in accordance with Appendix 2 to RCM No. 541. The Appendix provides a list of activities split for 4 categories.	The project is classified as Category B (ADB classification) and Category III (low risk) (national legislation).
Scoping	Avoid, minimize, mitigate and/or offset any adverse impacts and enhance positive impacts through environmental planning and management	The environmental assessment should evaluate: (i) compliance of a proposed project with the 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 Impact Assessment that will consider potential environmental (including labor, health, and safety) risks and project impacts.
	Executing Agency considers 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 physical, biological, socio-economic, and cultural resources, including cumulative impacts.	The Environmental Impact Assessment will consider natural environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, indigenous people, and physical cultural resources).
Alternatives	Examination of financially and technically feasible alternatives to the project location,	For the EIS (national Environmental Impact Assessment), consideration of	Assessment of alternatives will include alignment of the pipeline, type of water

Aspect	Asian Development Bank	National Regulations	Harmonized Framework
	design, technology and components, their potential environmental and social impacts Consider "without project" scenario.	alternatives is required. Alternatives that may be assessed include alternatives of processing, technical design, location of a facility, architectural and planning options. Another mandatory requirement is consideration of the **zero option**.	meters and "without project" project scenario.
Environmental Assessment Report	Guidelines and Table of Contents are provided for environmental assessment report in ADB SPS: (i) Executive Summary, (ii) Policy, Legal and Administrative Framework, (iii) Description of the project, (iv) Description of the Environment, (v) Anticipated Environmental Impacts and Mitigation Measures, (vi) Analysis if Alternatives, (vii) Information disclosure, Consultations, and Participation, (viii) Grievance Redress Mechanism, (ix) Environmental Management Plan, and (x) Conclusion and Recommendation. EMP will include proposed mitigation measures, monitoring and reporting requirements, institutional arrangements, schedules, cost estimates and performance indicators.	The RCM No.541 defines activities to be undertaken under EIS preparation. Description of undertaken activities should be included into the EIS report. The RCM requires the following: (i) assessment of the existing environmental and socio-economic conditions, (ii) project description, (iii) anticipating discharges, emissions, wastes, their impact on environment and disposal methods, (iv) collection, storage and waste disposal (v) review of alternatives, (vi) institutional, technical and technological mitigation measures, (vii) emergency risk assessment, probability of occurrence and emergency response measures, (vii) forecast of changes in the environment after project operation. The complexity of the report depends on the project category.	The IEE and EMP reports will follow the table of contents proposed in ADB SPS. PEIS will be prepared separately following the national regulation, but in line with the IEE.
Public Consultations	Carry out meaningful consultations with affected people and facilitate their informed participation. Ensuring women's participation in consultation. Involving stakeholders, project- affected people and concerned NGOs early in the project preparation and ensure that their views and concerns are made known and understood by decision makers and considered.	Public meetings are mandatory only for the projects under Categories 1 and 2.	Consultations will be carried out with stakeholders, affected people, NGOs in accordance with COVID-19 restrictions. Questions and concerns raised during public consultations held during FS stage have been considered. All questions and concerns raised during public consultation will be included in IEE. Also, signed list of participants, photos from meetings will be attached to this IEE.

Aspect	Asian Development Bank	National Regulations	Harmonized Framework
	The consultation process and its results are to be documented and reflected in the environmental assessment report.		
Public Disclosure	IEE will be disclosed on the websites of ADB. The borrower needs to provide relevant environmental information in a timely manner, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. For illiterate people, other suitable communication methods will be used.	National environmental legislation does not require disclosure of PEIS/EIS.	The summary of the final IEE, EMP and GRM will be translated into Uzbek language, a full report will be translated into Russian and both documents will be posted on ISCAD's PIU website (footnote **Ошибка! Закладка не определена.** and **Ошибка! Источник ссылки не найден.**). The final IEE report translated into Russian and Uzbek will be sent to the Jjizzakh branch of the MNR, and administrative units in the project area.
Monitoring and Reporting	The borrow/client must 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 mitigation measures developed under IEE is a responsibility of design consultant developed Feasibility Study (design supervision). External monitoring could be conducted by representatives of the MNR. There are no requirements to submit report during construction phase. The report on waste generation will have to be submitted by the Implementing Agency to MNR.	Environmental Monitoring Plan (EMP) 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 PIU-ISCAD websites.
Grievance Redress Mechanism	The GRM must be established to receive and facilitate resolution of affected peoples' concerns and grievances about the project/s environmental performance.	A grievance redress procedure in Uzbekistan is also regulated by the national legislation, by the law "On Citizens' Applications" and the law "On procedure of submission of appeals from individuals and legal entities" (#378, 03 December 2014), and others.	The GRM for this subcomponent will be developed in accordance with ADB and national requirements.

D. International Legislation

139. ADB's SPS requires the borrower to, during the design, construction, and operation of the project, apply pollution prevention and control technologies and practices consistent with international good practice, as reflected in internationally recognized standards such as the EHS Guidelines.[20] These standards contain performance levels and measures that are normally acceptable and applicable to projects. When host country regulations differ from these levels and measures, the borrower will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the borrower will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB's SPS.

1. World Bank Group's Environment, Health and Safety Guidelines

140. ADB SPS indicates that during design, construction and operation, a project initiator shall prevent pollution consistent with international good practice, as reflected in internationally recognized standards such as EHS Guidelines.

141. Following requirements of ADB's SPS, MOA will apply pollution prevention and control technologies and practices consistent with international good practice as reflected in internationally recognized standards such as EHS Guidelines. When Government regulations differ from these levels and measures, MOA will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, MOA will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS.

142. In this project, the following EHS Guidelines have been considered:

(i) General EHS Guidelines (2007) – (i) provides prevention and control measures for each source of pollution applicable to this type of industry Environmental Monitoring Programs; and (ii) provides occupational health and safety sources of threats, prevention and control measures and monitoring;

(ii) EHS Guidelines for Water and Sanitation (2007) - includes information relevant to the operation and maintenance of (i) potable water treatment and distribution systems, and (ii) collection of sewage in centralized systems (such as piped sewer collection networks) or decentralized systems (such as septic tanks subsequently serviced by pump trucks) and treatment of collected sewage at centralized facilities;

(iii) A guidance note by International Finance Corporation (IFC) and the EBRD:[21] Workers' accommodation: processes and standards.

2. COVID-19

143. During the project implementation, including both construction and operation, COVID-19 related restrictions will be applied. The national procedures on organizing works during the pandemic will have to be followed by all subcomponent participants. The relevant national regulations and procedures are based on WHO Guidance on COVID-19.

[20] World Bank Group, Environmental, Health, and Safety Guidelines for Water and Sanitation, 2007, Washington, USA.
[21] A guidance note by IFC and the EBRD Workers' Accommodation: Processes and Standards (August 2009).

144. To stimulate the employees of the Sanitary and Epidemiology Service during the COVID-19 pandemic, the following were approved: Decree of the President of the RUz dated March 19, No. UP 5969, resolution of the President of the RUz dated 24 April 2020 No. PP 4695.

145. The World Health Organization (WHO) has issued technical guidance in dealing with COVID-19, including: (i) Risk Communication and Community Engagement (RCCE) Action Plan Guidance Preparedness and Response; (ii) RCCE readiness and response; (iii) COVID-19 risk communication package for healthcare facilities; (iv) getting your workplace ready for COVID-19; and (v) a guide to preventing and addressing social stigma associated with COVID-19. These documents are available on the WHO website.[22]

146. The Ministry of Health of the RUz, together with WHO, developed the National COVID-19 Guidelines.[23]

147. Guidelines on labor protection and safety are reflected in SANR&N No.0372-20 "Temporary sanitary rules and standards for organizing the activities of government bodies and other organizations, as well as business entities in the context of the COVID-19 pandemic."

3. International Agreements

148. The Government of Uzbekistan has ratified the following international conventions relevant to this IEE. These are shown in Table 13 below. Fulfillment of these commitments contributes to environmental sustainability, promotes external funding for stabilization and prevention of degradation of natural resources and cultural heritage, and enhances the country's capacity to use its natural and cultural resources as a basis for poverty reduction and socio-economic development.

Table 13: Participation of Uzbekistan in International Conventions Relevant to the Project

International Conventions and Treaties	Date of Ratification	Date of coming into force for Uzbekistan	Main Objectives
United Nations Framework Convention on Climate Change	20 June 1993 (acceptance)	21 March 1994	Stabilizing greenhouse gas concentrations at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system.
Kyoto Protocol	20 August 1999	16 February 2005	Setting internationally binding emission reduction targets.
United Nations Convention Combat Desertification	31 August 1995	29 January 1996	Reversing and preventing desertification and land degradation in affected areas to support poverty reduction and environment sustainability.
United Nations Convention on Biological Diversity	6 May 1995 (accession)	17 October 1995	Conservation of biodiversity, sustainable use of its components, and equitable sharing of the benefits.

[22] https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance
[23] http://minzdrav.uz/openData/csv/nation_rukovodstvo_COVID-19.pdf

International Conventions and Treaties	Date of Ratification	Date of coming into force for Uzbekistan	Main Objectives
Convention on the Conservation of the World Cultural and Natural Habitats	22 December 1995	15 June 1996	Protection of natural and cultural heritage.
Convention on International Trade in Endangered Species of Wild Fauna and Flora	25 April 1997 (accession)	8 October 1997	Ensuring that international trade does not threaten wild animals and plants.
Convention on the Conservation of Migratory Species	1 May 1998 (accession)	1 September 1998	Global platform for the conservation and sustainable use of migratory animals and their habitats.
Ramsar Convention on Wetlands of International Importance Especially as Wildlife Habitat	30 August 2001 (accession)	8 February 2002	Conservation and wise use of all wetlands through local and national actions and international cooperation to achieve sustainable development.
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	22 December 1995 (accession)	7 May 1996	Regulation, reduction, and restriction of hazardous wastes transboundary movement.
Stockholm Convention on Persistent Organic Pollutants	22 May 2001	8 May 2019	Convention is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment.

4. International Labor Organization

149. Uzbekistan ratified the following eight fundamental conventions of the International Labor Organization:

(i) Forced Labor Convention, 1930 (No.29), ratified by Uzbekistan in 1992 and Protocol of 2014 to the Forced Labor Convention (1930), ratified by Uzbekistan in 2019;
(ii) Freedom of Association and Protection of the Right to Organize Convention, 1948 (No.87), ratified by Uzbekistan in 2016;
(iii) Right to Organize and Collective Bargaining Convention, 1949 (No.98), ratified by Uzbekistan in 1992;
(iv) Equal Remuneration Convention, 1951 (No.100), ratified by Uzbekistan in 1992;
(v) Abolition of Forced Labor Convention, 1957 (No.105), ratified by Uzbekistan in 1997;
(vi) Discrimination (Employment and Occupation) Convention, 1958 (No.111), ratified by Uzbekistan in 1992;

(vii) Minimum Age Convention, 1973 (No.138), ratified by Uzbekistan in 2009; and
(viii) Worst Forms of Child Labor Convention, 1999 (No.182), ratified by Uzbekistan in 2008.

150. The other applicable ratified conventions of the International Labor Organization are:

(i) Forty-Hour Week Convention, 1935 (No.47), ratified by Uzbekistan in 1992;
(ii) Holidays with Pay Convention, 1936 (No.52), ratified by Uzbekistan in 1992;
(iii) Maternity Protection Convention (revised 1952) (No.103), ratified by Uzbekistan in 1992;
(iv) Employment Policy Convention, 1964 (No.122), ratified by Uzbekistan in 1992;
(v) Workers' Representatives Convention, 1971 (No.135), ratified by Uzbekistan in 1997;
(vi) Collective Bargaining Convention, 1981 (No.154), ratified by Uzbekistan in 1997;
(vii) Labor Inspection (Agriculture) Governance Convention 1962 (No.129), ratified by Uzbekistan in 2019; and
(viii) Tripartite Consultation (International Labor Standards) Convention 1976 (No.144), ratified by Uzbekistan in 2019 (not yet in force).

151. Uzbekistan acknowledges the issue of child and forced labor in the country.[24] It is now implementing the Decent Work Country Program that has been established as the main vehicle for delivery of International Labor Organization support to the country in implementing its standards.

IV. PROJECT DESCRIPTION

A. Background

152. The TRTA developed a process by which provinces with the greatest potential were identified. This involved identifying the production of various horticultural commodities, then ranking the provinces according to the quantities produced therein. In addition to this identification process, the TRTA proposed to work in those provinces where international development assistance was minimal to avoid crowding. Two provinces identified were also to be in close proximity of each other to achieve efficiency in implementation.

153. Considerations for the identification of each project area include the following:

(i) The province must be able to substantiate a significant volume of production of horticultural products;
(ii) The province must be in reasonable proximity to potential export and domestic markets;
(iii) The province must have the opportunity for expanded or modernized horticultural production enterprises – both dekhans and small-scale commercial enterprises;

[24] Decree of the Cabinet of Ministers No.349 of 10.05.2018 No.349 "On Additional Measures to Eradicate Forced Labor in Uzbekistan."

(iv) A pilot-intensive horticultural area will be identified in one of the 55 priority horticultural districts; and

(v) The district selected should be recognized as having unique 'geographic indications' in horticultural products to promote its international reputation.

154. Based on this process, Kashkadarya Province was identified as a participating province. Within this province, a priority horticultural pilot district was also identified in consultation with the respective provincial authorities and ISCAD. The pilot district identified was Kitob district in Kashkadarya province, Figure 1.

Figure 1: Location of Kashkadarya Province

155. In Kitob district, the pilot will develop areas of horticultural production at scale. It will evaluate (i) the development of two new areas (table grapes and pomegranate), (ii) the maintenance of these areas until commercial yields are achieved, and (iii) mechanisms for transferring sub-plots (from the developed areas) to small-scale farmers under leases with subsequent long term user rights once their debt has been paid in full.

156. The pilot will support missing links in the horticulture value chains. It will evaluate (i) the mechanisms used to identify value chain operators and any deficiencies therein, (ii) mechanisms for supporting these private operators to enhance their functioning within the identified value chain, and (iii) mechanisms for recovering sub-loan funds needed to carry out the development.

157. In addition, the pilot will demonstrate the capacity of MOA's ASO to implement the project on a larger scale for a subsequent proposed ADB loan.

158. There are design consequences for adopting this three-pronged approach for project activities. In the case of new areas to be developed (table grapes and pomegranates in Kitob

district), cost estimates can be determined at preparation for advanced procurement - even though final beneficiary farmers will not be confirmed prior to commencement of development. An 'investment modality' design is appropriate for on-farm investments in Kitob district. Value chain investments cannot be identified at preparation (in detail), rendering a 'sector modality design' more appropriate.

1. Grapevine Area - Tupchok

159. As a first project, the pilot area grapevine in the Tupchok settlement has been identified. The area under preparation comprises 100 ha of undulating land that will be planted to a number of sub-plots, each of about 20 ha in size, to facilitate management of the area and allow the establishment of a range of grape varieties best suited to local and export market requirements. The site will be managed under a maintenance contract until vines reach fruit bearing age, at which time the sub-plots will be broken into smaller units and long-term user rights allocated to local and interested farmers who will assume responsibility for their operation and maintenance. These individual farmers will provide their labor to operate the plots, but will also have access to mechanized operations, such as weed control and spraying, for greater efficiency at scale and be charged for the same accordingly. In turn, the beneficiary farmers will enter into a sub-loan repayment agreement to recover development costs on a pro-rata basis that will be paid to an account nominated by the project used to service the ADB loan to the Government.

160. HIPEP will finance the following activities in the development of the identified area:

(i) Detailed design of the plot layout based on the topographic data provided by local district authorities, including water source identification and buildings;
(ii) Land preparation, including deep ploughing, ripping the planting lines, harrowing, and surface levelling for drainage;
(iii) Vineyard establishment, including planting materials, basal fertilizer application, organic fertilizer application, and hydrogel assimilation;
(iv) Trellising costs, including end of line strainer posts and in-line posts to carry trellising wires;
(v) An irrigation network, including water source development, storage reservoir, pump station, electric connections including a transformer, delivery pipes to the site, site distribution pips, and a trickle irrigation system throughout the plot;
(vi) Construction of internal roads to facilitate plot management and the extraction of harvested produce;
(vii) Purchase of machinery and equipment needed to operate the estimated 100 ha of vines;
(viii) Construction of essential buildings needed to house machinery and equipment used on the site; and
(ix) Site maintenance of the developed area during the 3-years after establishment (includes pruning, tying leaders, weed control - mechanical, pest and disease control, and field maintenance etc.)

161. The following provides detailed information on the planned works.

162. **Preparation of Detailed Design**. A contracting company will be procured to execute a 'design, build and operate' contract for the entire area. The TRTA has prepared concept level layout drawings for the development that will require greater detail before the commencement of

construction. Based on the detailed drawings, more precise cost estimates will be prepared for government approval and ADB ratification.

163. **Land Preparation**. Land preparation is needed to prepare the area for planting the cuttings and creating the right conditions for rapid plant growth. It is done to ensure that drainage is assured, that rotting stumps no longer pose a disease threat, and that the soil is sufficiently friable and with adequate drainage to prevent excessive surface run-off and erosion. There are three mechanical operations carried out during this phase:

(i) deep ploughing to incorporate organic material at the surface further down the topsoil profile (also partially flattens the area);
(ii) deep ripping the planting lines to a depth of 0.5 m to improve soil drainage and aeration of the root zone, and
(iii) harrowing the surface to break down clods and leave a relatively smooth, flat surface.

164. **Basal Fertilization and Planting**. Two types of fertilizer are required in the soils of this area: (i) those to increase the organic content of the soil environment to improve hydroscopic soil characteristics (wettability), and (ii) inorganic fertilizer to provide incremental nutrients required for optimal plant growth – mainly phosphorous, and potassium together with trace elements. Basal fertilizers are placed deeper in the soil profile in close proximity to the root zone of the growing vine. Hydrogel is also proposed as a soil additive to improve the water retention characteristics of the soil from natural precipitation and irrigation water.[25] Strict adherence to application rates and the mobility (type) of nutrients must be observed to ensure that excess nutrients are not leached readily from the soil profile. Vines are grown from certified rooted cuttings (to promote early yields), being placed directly into the soil along the planting lines.

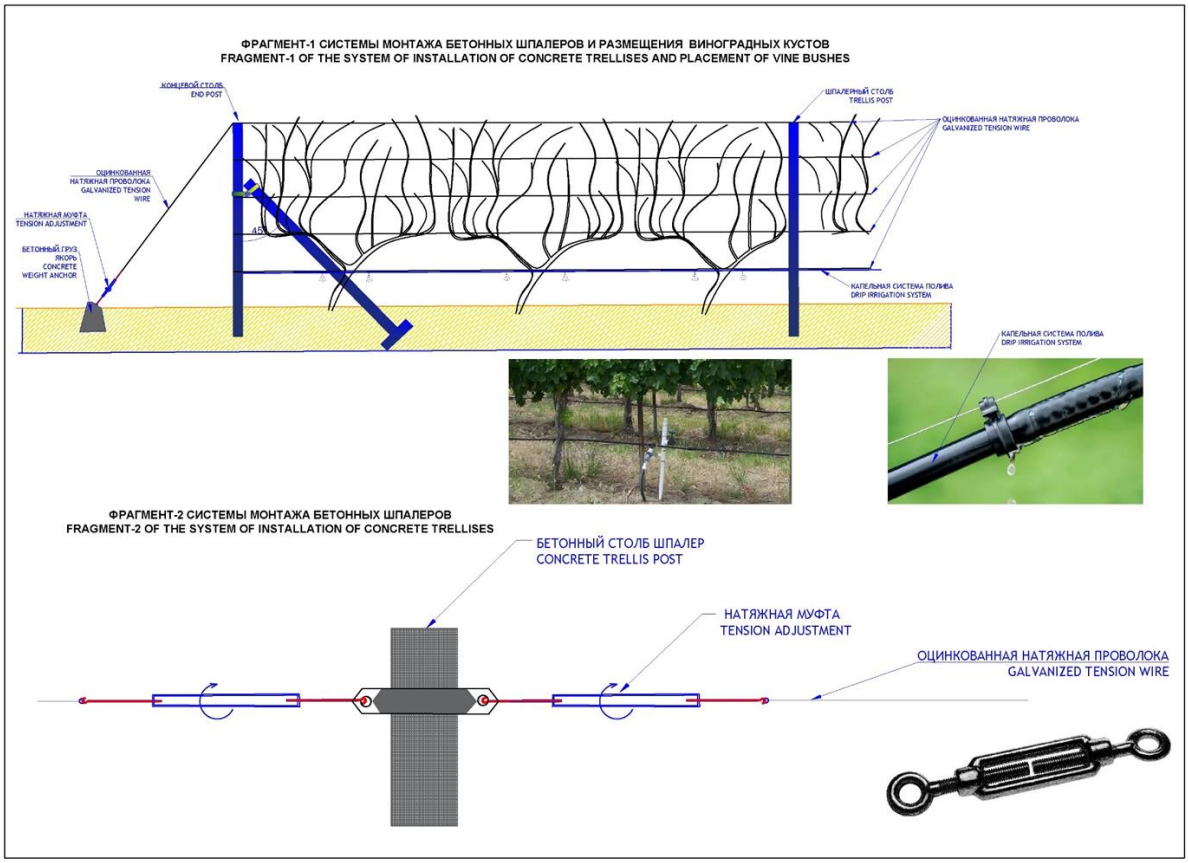
165. **Trellising**. The construction of trellising will be undertaken in the first year of establishment after planting. It requires excavating holes at the ends of planting lines for the angled strainer posts that are required at depth to carry the weight of fruit on the wires. The installation of in-line posts does not require strong footings as they handle only vertical loads. The proposed trellising has three wires, the bottom carrying the drip irrigation lines. Concrete posts of 2.7 m in length will be inserted to a depth of 80 cm into the ground and wires set at 60 cm intervals vertically above the ground. The operation is performed both manually with tractor and post-hole diggers for speedier hole digging. Tractor mounted hydraulic presses can also be used to install vertical in-line posts while wire placement is mostly a manual task with little environmental impact, if any. An example of trellising is presented in Figure 2 below.

166. **Irrigation System**. The project will establish an estimated four boreholes, either within or close to the area to be farmed. Power will be supplied to each of these locations (the number depending on the final layout) from the existing electricity grid, requiring transformers and two phase power lines with transmission poles (every 60 m). Casing and screens will be used to line the drilled boreholes (at an estimated depth of 160 m compared with the water table found at 60 m). Submersible pumps will be installed to lift the water, which will then be delivered through 120 mm diameter pipes to a reservoir to be established at the highest point of the area. The reservoir will be excavated to 5 m depth and lined with plastic to prevent water losses. Its dimensions will depend on the irrigation design adopted but likely to comprise a surface area of 40mx20 m. Pipes

[25] Hydrogel is a locally manufactured product – a dry, fine powder or granulated from 0.1 mm to 2 mm in diameter. It is manufactured from starch and cellulose and slowly breaks down in the soil profile over time. It provides some protection against unanticipated breaks in the regular supply of water to the vines.

from the boreholes to the reservoir will be buried at a depth of 0.5 m in machinery-dug trenches and buried to avoid deterioration and physical damage from vehicular traffic. The planning irrigation network is presented on Figure 3.

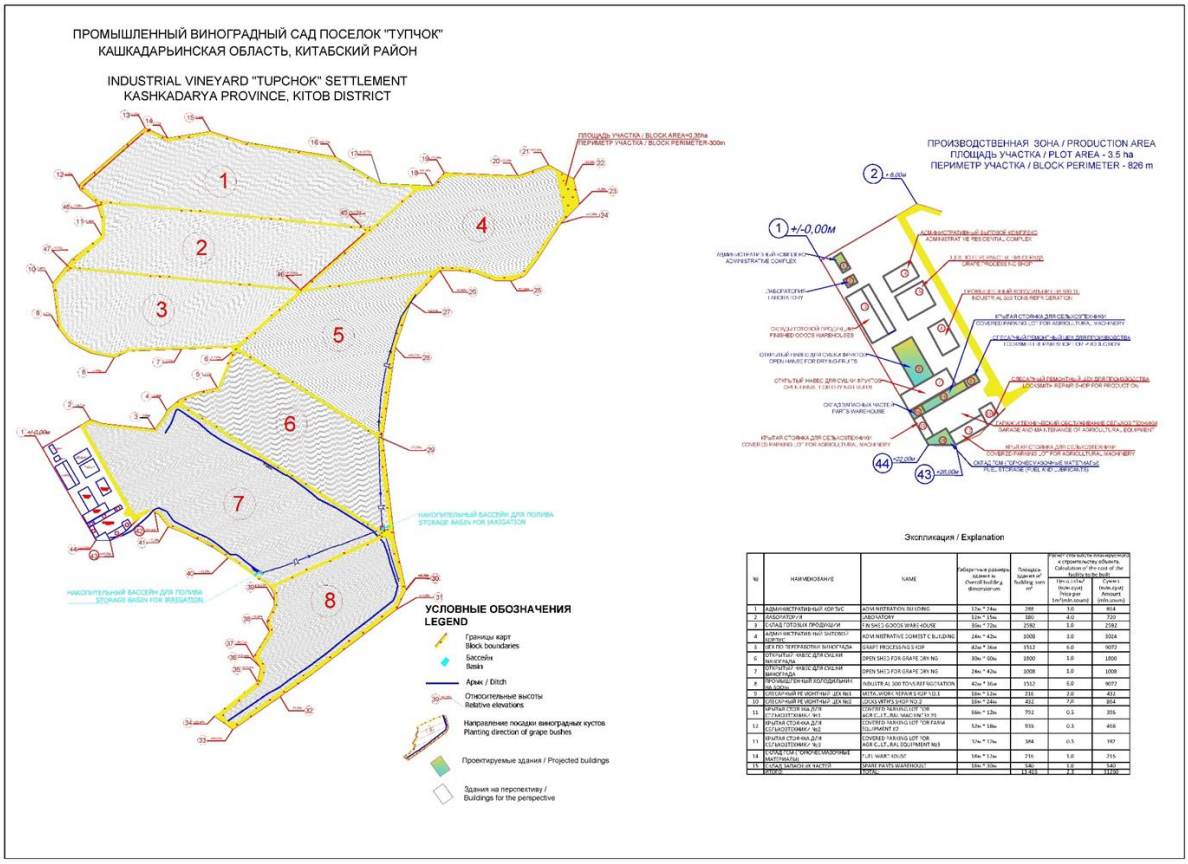
Figure 2: Example of Trellising for Vineyard



167. The project will establish a pump-house and fertigation building close to the reservoir that will also require power connection. Water will be distributed to the vine area through one mainline (160 mm diameter) pipe, strategically located to provide access to secondary pipes for the distribution of water (and liquid fertilizer) throughout the area. At different locations along the main line, secondary take-off points will be installed (with solenoids) to deliver water to the dripper lines to be set up on the trellising. In-line delivery and dripper systems will be installed on the lowest trellis wire (60 cm) to enable mechanized weed control between vines in the same planting row and for ease of maintenance. Some mechanized operations are considered necessary to bury the pipes using a 'ditch-witch' or similar machinery. Main and secondary delivery pipes must be buried at sufficient depth to protect them from breakage from heavy vehicular traffic above.

168. **Internal Roads**. Internal roads are required to allow mechanized farming equipment to traverse throughout the plot. The roads are also used as access points to maintain the vineyard and remove harvested produce from the plot. Similar to farm tracks, they will be constructed from compressed gravel/aggregate with appropriate drainage to minimize erosion. Sealed alignments are not appropriate for this scale of enterprise. Heavy equipment will be needed to construct the internal roads, and compaction is necessary to sustain their economic life. These roads will require regular maintenance every year with a grader to maintain drainage throughout the plot.

Figure 3: Schematic Plan of Project Plots for Vineyard

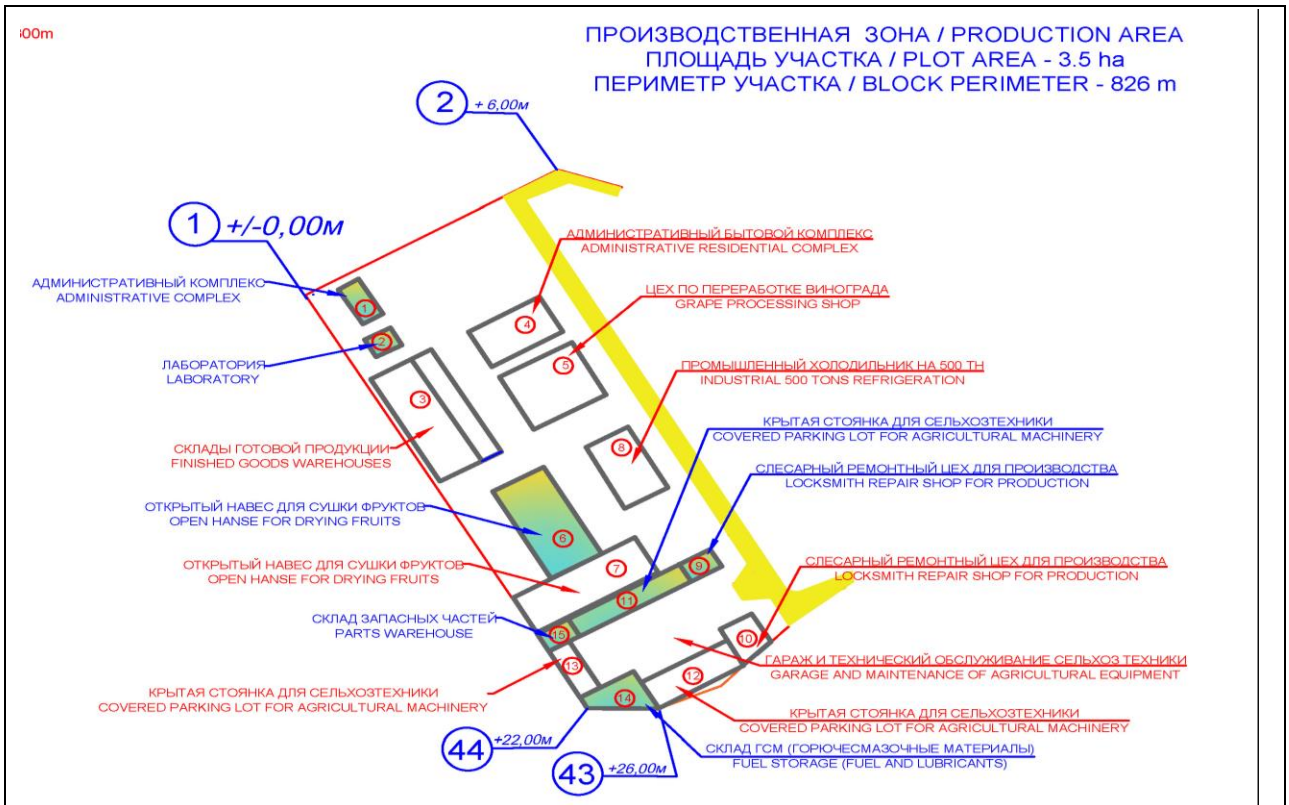


169. **Essential Buildings**. Buildings will be needed for farm management and administration of the project, and for accommodation of a resident farm manager. They will also include housing for the pump station, vehicles and equipment, and a materials storage shed. There may also be a need for a packing/storage facility that has been proposed in the design although it remains uncertain if this on-farm facility will eventuate. The buildings will require site development, establishment of footings, and the construction of permanent buildings on the site. They will require access to both power and water supplies and also have facilities for wastewater disposal through septic tanks. The potential concern relates to cool-room structures, where refrigeration gases might escape from poorly maintained facilities compressors.

170. **Machinery and Equipment**. Machinery and equipment will be needed to maintain the efficient operations of the plot for weed control (ploughing to incorporate vegetative weed material into the soil profile), pest and disease spraying, anti-fungal spraying, and other maintenance operations. Pruning is a manual task and requires trained workers to execute the task. The equipment will be procured for the operation of the entire area together with implements needed to carry out farm management operations. Equipment and machinery supplies will be housed in buildings to be constructed by the project that will require some form of mechanical workshop. Associated with this machinery is the need for diesel, oil, and lubricant storage, and a waste

storage and disposal area that will need to meet environmental standards.[26] A list of equipment which is planned to be purchased under the project is presented below:

Figure 4: Schematic Layout of Buildings



Экспликация / Explanation

№	НАИМЕНОВАНИЕ	NAME	Габаритные размеры здания м Overall building dimensionsm	Площадь здания м² Building area m²	Расчет стоимости планируемого к строительству объекта. Calculation of the cost of the facility to be built	
					Цена за1м² (млн.сум) Price per 1m²(mln.soum)	Сумма (млн.сум) Amount (mln.soum)
1	АДМИНИСТРАТИВНЫЙ КОРПУС	ADMINISTRATION BUILDING	12м * 24м	288	3.0	864
2	ЛАБОРАТОРИЯ	LABORATORY	12м * 15м	180	4.0	720
3	СКЛАД ГОТОВЫХ ПРОДУКЦИИ	FINISHED GOODS WAREHOUSE	36м * 72м	2592	1,0	2592
4	АДМИНИСТРАТИВНЫЙ БЫТОВОЙ КОРПУС	ADMINISTRATIVE DOMESTIC BUILDING	24м * 42м	1008	3.0	3024
5	ЦЕХ ПО ПЕРЕРАБОТКИ ВИНОГРАДА	GRAPE PROCESSING SHOP	42м * 36м	1512	6.0	9072
6	ОТКРЫТЫЙ НАВЕС ДЛЯ СУШКИ ВИНОГРАДА	OPEN SHED FOR GRAPE DRYING	30м * 60м	1800	1,0	1800
7	ОТКРЫТЫЙ НАВЕС ДЛЯ СУШКИ ВИНОГРАДА	OPEN SHED FOR GRAPE DRYING	24м * 42м	1008	1,0	1008
8	ПРОМЫШЛЕННЫЙ ХОЛОДИЛЬНИК НА 500тн	INDUSTRIAL 500 TONS REFRIGERATION	42м * 36м	1512	6,0	9072
9	СЛЕСАРНЫЙ РЕМОНТНЫЙ ЦЕХ №1	METALWORK REPAIR SHOP NO.1	18м * 12м	216	2.0	432
10	СЛЕСАРНЫЙ РЕМОНТНЫЙ ЦЕХ №2	LOCKSMITH'S SHOP NO.2	18м * 24м	432	2,0	864
11	КРЫТАЯ СТОЯНКА ДЛЯ СЕЛЬХОЗТЕХНИКИ №1	COVERED PARKING LOT FOR AGRICULTURAL MACHINERY #1	66м * 12м	792	0.5	396
12	КРЫТАЯ СТОЯНКА ДЛЯ СЕЛЬХОЗТЕХНИКИ №2	COVERED PARKING LOT FOR FARM EQUIPMENT #2	52м * 18м	936	0.5	468
13	КРЫТАЯ СТОЯНКА ДЛЯ СЕЛЬХОЗТЕХНИКИ №3	COVERED PARKING LOT FOR AGRICULTURAL EQUIPMENT №3	32м * 12м	384	0.5	192
14	СКЛАД ГСМ (ГОРЮЧЕСМАЗОЧНЫЕ МАТЕРИАЛЫ)	FUEL WAREHOUSE	18м * 12м	216	1.0	216
15	СКЛАД ЗАПАСНЫХ ЧАСТЕЙ	SPARE PARTS WAREHOUSE	18м * 30м	540	1.0	540
	ИТОГО:	TOTAL:		13 416	2.3	31260

[26] This can be achieved by either having ASO develop their business model for providing agricultural services to nearby farmers, or from the privatization of the machinery and equipment hire as a private commercial operation – to be determined at a later date.

Table 14: List of Equipment Purchased under the Project

№	Name	Model	Quantity	Price per unit (Million UZS)	Total price (Million UZS)
1	**Tractor** 	Lovol Foton TE-404 is equipped with a liquid-cooled four-stroke diesel engine, rated at 60 HP and developing a traction force of 16 kN. Lovol Foton TE-404 tractor is designed for agricultural and municipal works, can be used with both mounted and trailed equipment, including excavator, front loader, various agricultural implements for tillage and harvesting of grown crops, municipal works.	**6 pcs**	**≈ 232.0**	**1,392.0**
2	**Sprayer** 	Sprayer with PTO (power take-off) drive via shielded shaft. The sprayer has a capacity of 2,000 liters. Required tractor power of 60 HP. Suitable for spraying of garden fields and orchards.	**2 pcs**	**105.0**	**210.0**
3	**Rotary Hoe** 	The rotary hoe is designed for loosening the soil without turning the layer against the background of the seedbed or spring plowing. The tiller performs the following operations in one pass: milling the soil with active working tools, weed killing and leveling the microrelief is performed with a working width of up to 3 meters.	**4 pcs**	**48.0**	**192.0**

№	Name	Model	Quantity	Price per unit (Million UZS)	Total price (Million UZS)
4	**Mower** 	The Berkut mower is perfect for high-yield fields - it mows, conditioners and swaths grass of all moisture and yields at high speed.	**2 pcs**	**55.0**	**110.0**
5	**Vertical Milling Cultivator** 	Standard Toscano Vertical Milling Cultivator Designed to cultivate the soil without actively mixing the horizontal layers, which ensures the preservation of moisture.	**2 pcs**	**95.0**	**190.0**
6	**Four-disc Hinged Plough** 	Four-disced hinged plough ПЛН-4-35ПА is designed for ploughing the soil for grain and industrial crops to a depth of 30 cm.	**2 pcs**	**135.0**	**270.0**
7	**Four-disced Hinged Plough** 	The 4-disced hinged plough ПЛН-4-35П (ПЛН-4-35П-2) is designed for plowing the soil for grain and industrial crops to a depth of 35 cm, uncluttered by rocks, flagstone and other obstacles, with a resistivity up to 0.1 MPa (1.0 kgf/cm^2).	**2 pcs**	**50.0**	**100.0**

№	Name	Model	Quantity	Price per unit (Million UZS)	Total price (Million UZS)
8	**Mounted Sprayer** 	Garden Mounted Sprayer is driven by the tractor PTO and supplies liquid under pressure to the nozzles installed on the fan of the machine. A pressure driven propeller creates a jet of air in the field. The direction of the air jet can be adjusted with the wings.	**4 pcs**	**36.0**	**144.0**
9	**Back Hoe** 	Dongfeng BK-215 can easily dig trenches for irrigation, construction or landscaping. Strength and digging force are enough to work in different soils, remove stumps and tree roots. Quick-release rear-mounted excavator for tractors. Required power of tractor (hp): from 24 HP. Digging depth (mm.): 2,219 Slewing angle: 180°	**2 pcs**	**55.0**	**110.0**
10	**Tipping Trailer** 	Tipping trailer 2 ZKT065200	**4 pcs**	**95.0**	**380.0**
11	**Rotary rake** 	Rotary rake	**2 pcs**	**35.0**	**70.0**

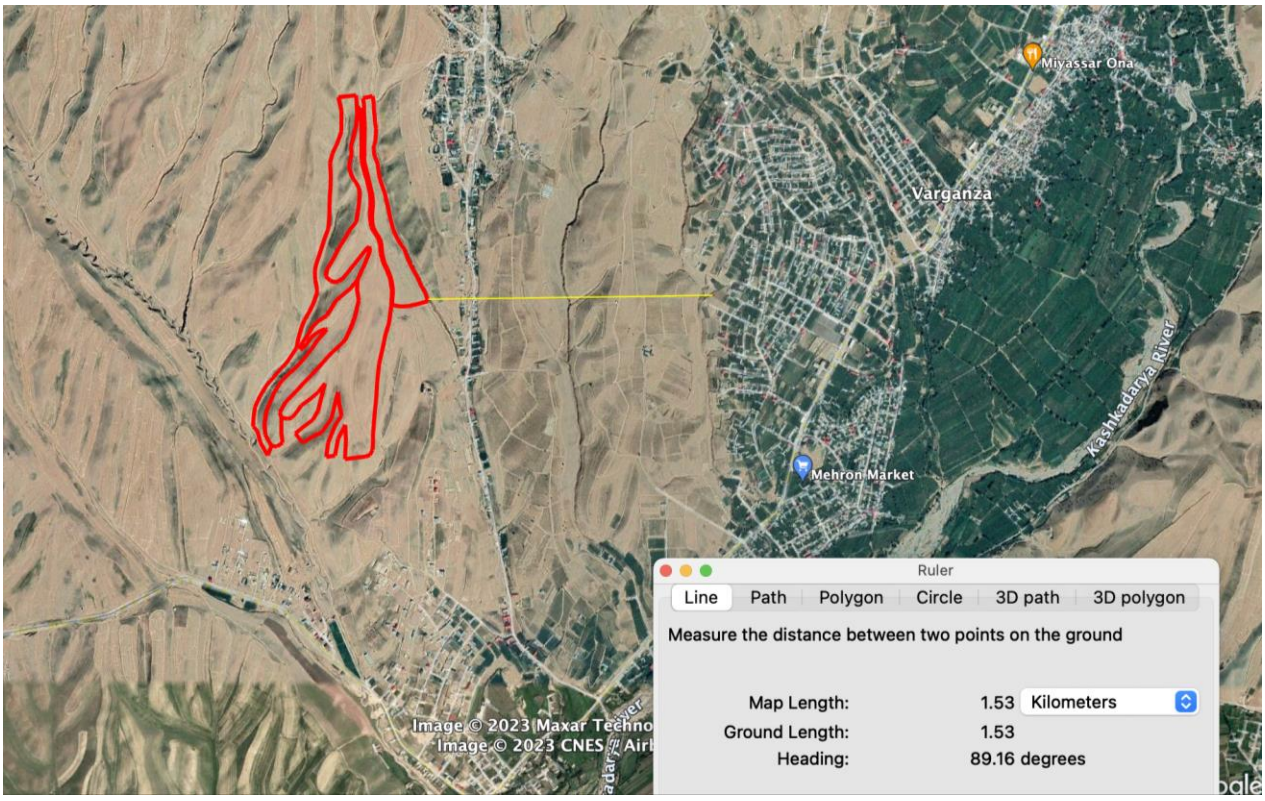
№	Name	Model	Quantity	Price per unit (Million UZS)	Total price (Million UZS)
12	**Cultivator** 	Cultivator	**2 pcs**	**75.0**	**150.0**
	Total:				**3,318.0**

171. **Site Maintenance**. Site maintenance will be carried out under the design, build and operate contract on the consolidated plot. Although there is some merit in having potential plot recipients engaged in the farm operations as a capacity building feature of the project, this may not be possible as farmers will want to see the vines to assess their ability to service the debt associated with their development before expressing interest in obtaining long term user rights. The maintenance contract will remain in effect until the plots are distributed to individual farmers. Even after plot allocation is completed, there is a requirement for the farming operations to be undertaken at scale for reasons of efficiency – fertilizing, weed control, disease control etc. that can be undertaken using existing equipment. Fertilizers will be applied topically and placed for maximum impact round root zones of growing vines. Application rates should be in accordance with good agricultural practices so that nutrient leaching or groundwater acidification does not occur. The application of fertilizer through drip irrigation systems using fertigation will contribute to appropriate levels of inorganic fertilizer being applied. Application rates will be adjusted each year based on soil analyses to determine application rates.

2. Pomegranate Area - Varganza

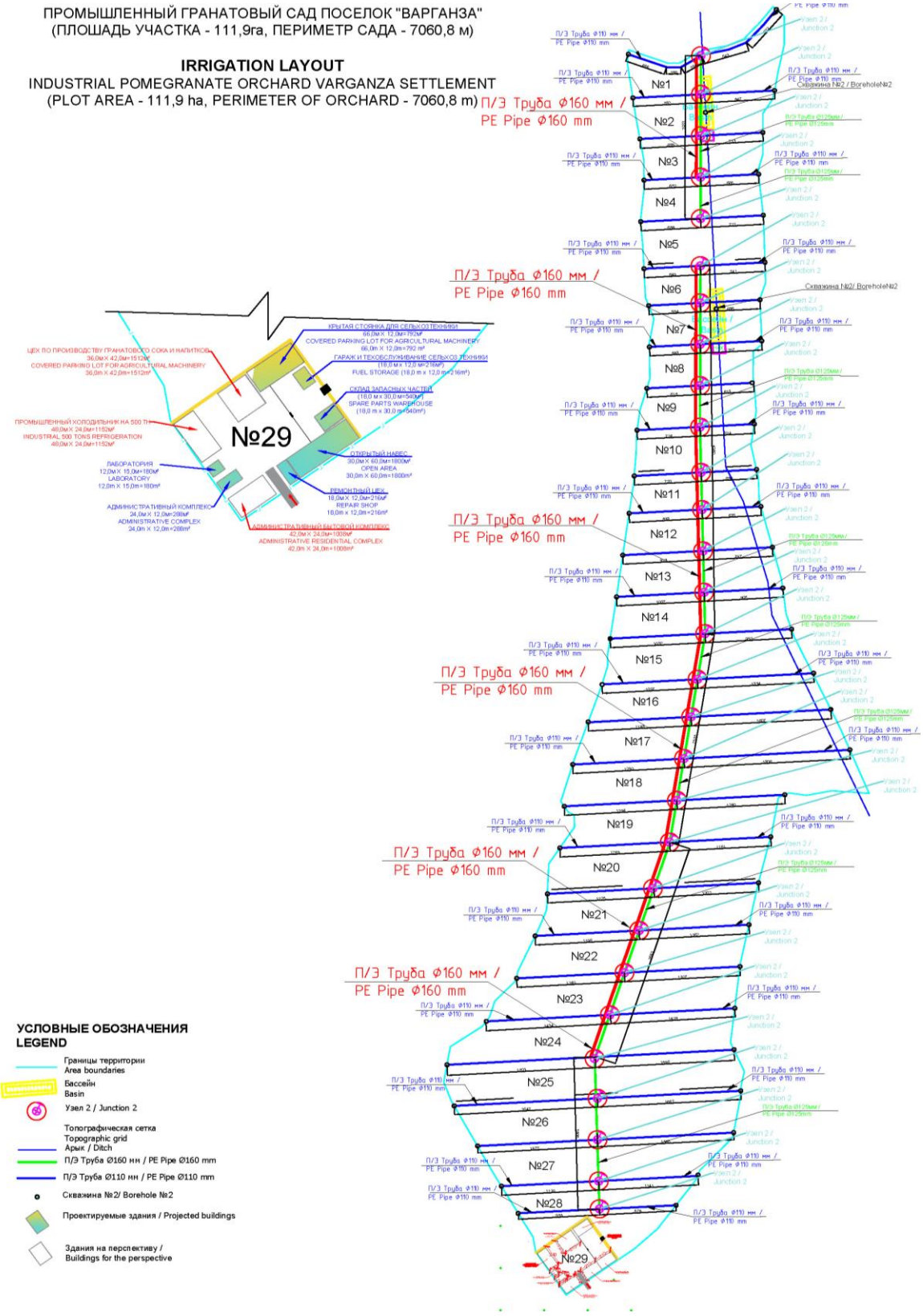
172. The second plot was selected within the same district, Kitob district, approximately 1.5 km to the west of a settlement named Varganza, and around 200 m to the nearest house. The plot territory will be about 110 ha (Figure 5).

Figure 5: Location of Pomegranate Plot - Varganza



173. The layout of the irrigation network and administrative building on the pomegranate plot is presented in Figure 6.

Figure 6: Layout of the Irrigation Network and Administrative Building - Varganza



174.. Planned works to be implemented on this plot will be identical to those defined for the vineyard plot, except for trellising that will not be installed for the pomegranate. All other activities for pre-construction, construction and maintenance stages will however be similar. HIPEP will finance the following activities in the development of the pomegranate plot:

(i) Detailed design for the plot layout based on topographic data provided by local district authorities and including the identification of water sources and buildings;
(ii) Land preparation, including deep ploughing, ripping the planting lines, harrowing, and surface levelling for drainage;
(iii) Pomegranate planting, basal fertilizer application, organic fertilizer application, and hydrogel assimilation;
(iv) Irrigation network establishment including water source development and provision of a storage reservoir, pump station with electric connections, transformer, delivery pipes to the site, site distribution pipes, and a trickle irrigation system throughout the plot;
(v) Construction of internal roads to facilitate plot management and the extraction of harvested produce;
(vi) The purchase of machinery and equipment needed to operate the estimated 11-ha of pomegranate trees;
(vii) Construction of essential buildings needed to house the machinery and equipment used on the site; and
(viii) Site maintenance of the developed area during the 3-years after establishment, including pruning, tying leaders, weed control, pest and disease control, and field maintenance.

175. Similar equipment will be purchased for the pomegranate plot, as indicate in Table 14.

V. DESCRIPTION OF THE ENVIRONMENT

176. This chapter presents the baseline of the project area under the following headings:

(i) Physical environment.
(ii) Biological environment.
(iii) Cultural heritage.
(iv) Socio-economic conditions, and
(v) Climate change.

177. Baseline data has been collated from desktop research of available data. Secondary data was collected from various government agencies. Socioeconomic data was obtained from yearbooks and from socio-economic reports prepared under the current project. Data on cultural resources was collected from available sources.

A. Introduction

178. This section presents the baseline of the project area under the following headings:

a. Physical Environment
    i. Climatic conditions

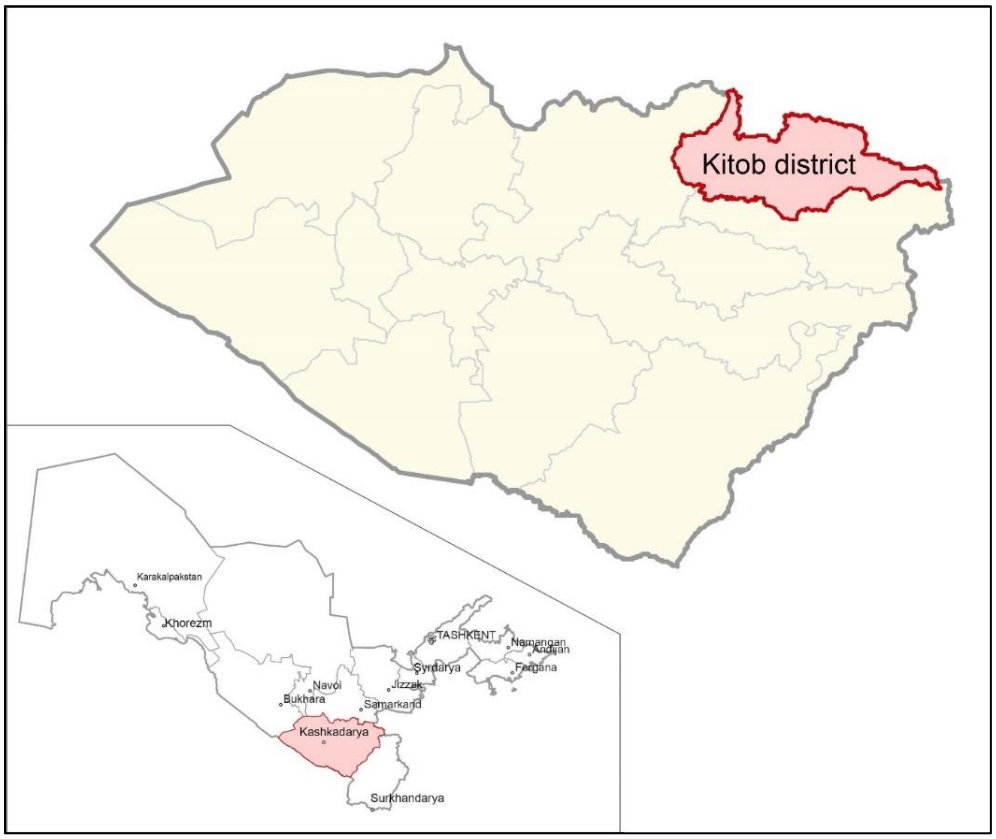
ii. Geography and topography
iii. Water resources
iv. Soils

b. Biological environment
i. Flora
ii. Fauna
iii. Protected areas and habitats

c. Cultural heritage
d. Socio-economic environment
e. Climate change

179. The location of two subprojects is shown in Figure 7.

Figure 7: District Locations for Subprojects



1. Physical Environment

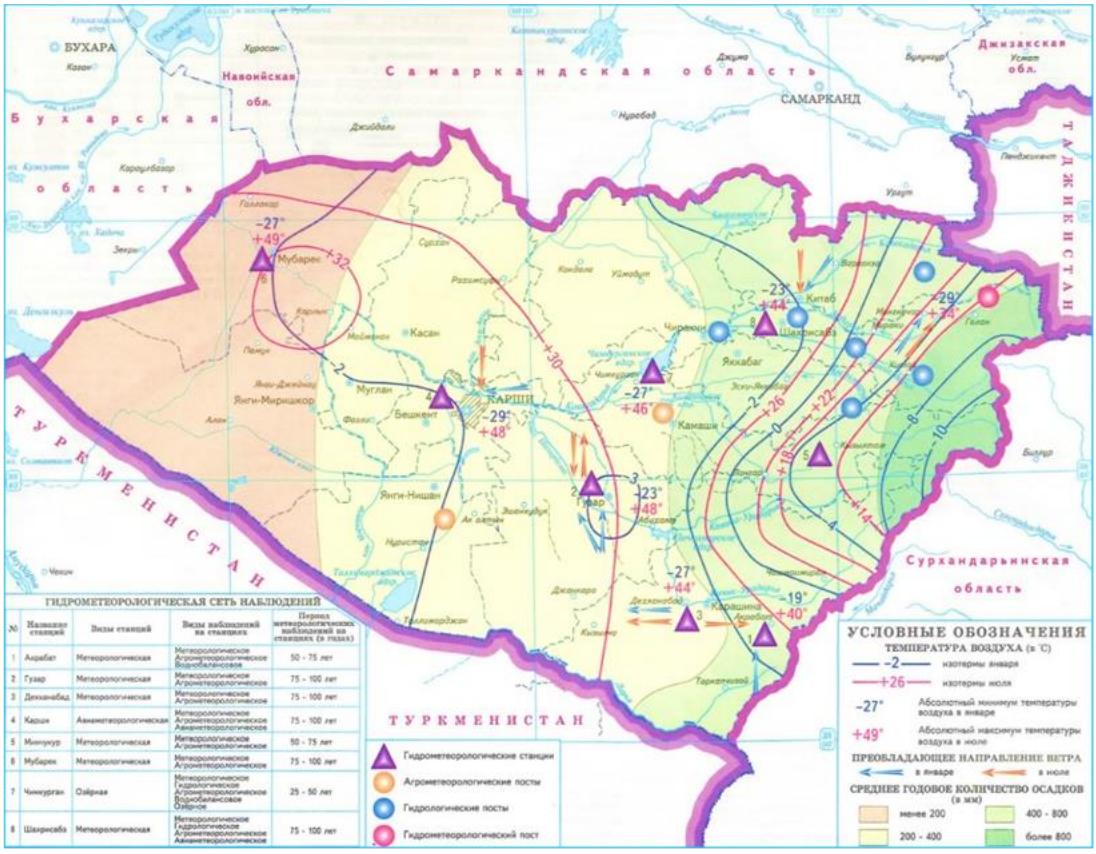
a. Climatic Conditions

180. Kashkadarya province is located in the northern part of the subtropical climate belt, almost on the border with the temperate belt. The climate is sharply continental, desert, in some places subtropical dry. Mountain ranges that border the region from the northeast and south prevent the penetration of cold air masses into the territory of the region and favor the condensation of western humid air masses. The average annual air temperature is +14-16°C. The summer is hot, with an average temperature of 29-30°C in July. The average temperature in January is -2 °C. The maximum temperature recorded at the Karshi hydrometeorological station was +48 °C, while the

minimum temperature was -29 °C (Figure 8). Average temperatures in April are +16 °C and in October are +14-15 °C.

181. The region is located in different zones with an average number of days with dust storms per year. All eastern, mountainous and foothill parts of the region are in the area with low number of days with dust storms up to 10 days per year. From central to western parts of the region the number of days with dust storms increases from 10 to more than 40 days per year. The maximum number of days with dust storms up to 129 days per year was recorded in Karshi city.[27]

Figure 8: Climate Map of Kashkadarya Province



ГИДРОМЕТЕОРОЛОГИЧЕСКАЯ СЕТЬ НАБЛЮДЕНИЙ

№	Название станций	Виды станций	Виды наблюдений на станциях	Период метеорологических наблюдений на станциях (в годах)
1	Акрабат	Метеорологическая	Метеорологическое Агрометеорологическое Водобалансовое	50 - 75 лет
2	Гузар	Метеорологическая	Метеорологическое Агрометеорологическое	75 - 100 лет
3	Деканабад	Метеорологическая	Метеорологическое Агрометеорологическое	75 - 100 лет
4	Карши	Авиметеорологическая	Метеорологическое Агрометеорологическое Авиметеорологическое	75 - 100 лет
5	Миришкур	Метеорологическая	Метеорологическое Агрометеорологическое	50 - 75 лет
6	Мубарек	Метеорологическая	Метеорологическое Агрометеорологическое	75 - 100 лет
7	Чимкурган	Озёрная	Метеорологическое Гидрологическое Агрометеорологическое Водобалансовое Озёрное	25 - 50 лет
8	Шахрисабз	Метеорологическая	Метеорологическое Гидрологическое Агрометеорологическое Авиметеорологическое	75 - 100 лет

182. The temperature regime is favorable for animal husbandry and the cultivation of fine-staple varieties of cotton. However, there are frosts in spring and autumn; in summer - dry hot winds (garmsil). Precipitation falls mainly in spring and winter. The climate of the region is arid, the amount of precipitation for the region is on average 200-300 mm per year. Most of the precipitation of 180-250 mm falls from November to March. The amount of precipitation and temperature values for the entire region does not spread evenly, and this is due to the altitudinal difference. The eastern, mountainous part of the region is characterized by lower average annual temperatures and more precipitation up to 600 mm per year.[28]

183. The average humidity in January in the Kitob district is relatively high and amounts to 75-85%. The prevailing wind direction is northwest recorded on 23.6% of the days.

[27] Geographical Atlas of Uzbekistan.
[28] Geographical atlas of Uzbekistan 2012.

Figure 9: Average Annual Wind Directions at Karshi Hydrometeorological Station

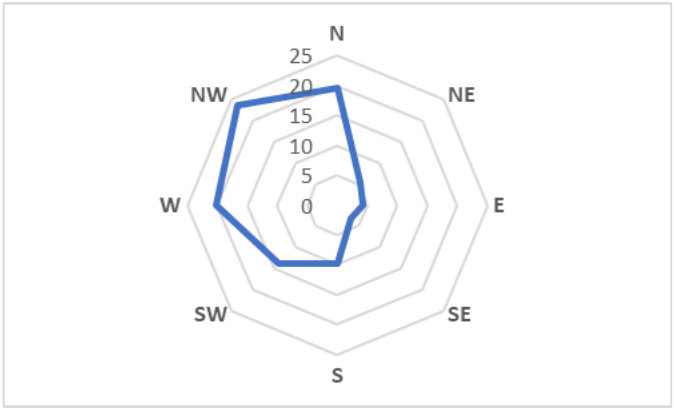
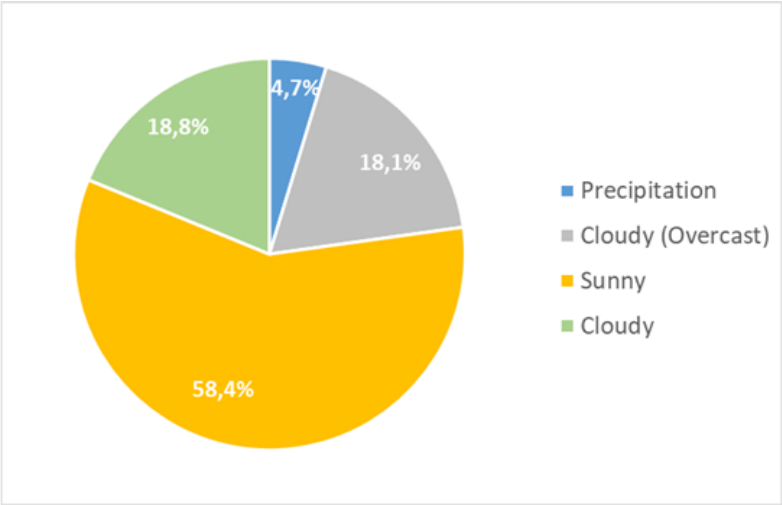


Table 15: Average Annual Wind Direction at Karshi Hydrometeorological Station

North	Northeast	East	Southeast	South	Southwest	West	Northwest
19.5%	5.3%	4.3%	3.3%	9.7%	13.9%	20.3%	23.6%

184. The number of fully sunny days is 213, and 17 days with precipitation, the remaining 135 days are partly cloudy, cloudy or overcast (Figure 10[29]). Throughout the south of Uzbekistan (Khorezm, Bukhara, Kashkadarya and the south of Surkhandarya region), the largest duration of sunshine in hours is more than 2,900 hours per year. The total solar radiation arriving on a horizontal surface during medium cloudiness varies around 6,700 MJ/m^2.

Figure 10: Percentage of Sunny, Cloudy and Rainy Days



[29] Geographical Atlas of Uzbekistan 2012.

b. Geography and Topography

185. Kashkadarya is located in the southern part of Uzbekistan between N39°31' and N38°00. The region is located in the south of Uzbekistan and borders on Bukhara, Navoi and Samarkand regions in the north, Tajikistan in the northeast, Surkhandarya region in the southeast and Turkmenistan in the south.

186. The relief of the surface of the Kashkadarya physical-geographical district is diverse. In its northern, northeastern and eastern parts are the Zarafshan, Gissar and Baysun mountains and associated spurs.

187. In the north-east of Kashkadarya, lie the Chakylkalyan and Karatepa mountains, which are considered the western continuation of the Zarafshan ridge. The highest point of the Chakylkalyan Range (Zebon) is 2,336 m. These mountains end in the west with the Takhtakaracha pass (1,630 m), from where the Karatepe mountains begin further to the west, their high point being 2,197 m. 1,115 m and Ziyavuddinskiye (peak being Dardkul - 914 m) mountains.

188. In the eastern part of Kashkadarya, the Gissar ranges and its spurs, the Khazret Sultan, Chakchar, Baysuntau ranges extend in different directions. To the south-west of the Chakchar Mountains are the mountain ranges of Osmontarash, Beshnau, Eshonmaydan. In the mountain junction where the Chakchara and Gissar mountains, there are small glaciers Batyrbai, Severtsova and others.

189. The mountainous part of the Kashkadarya descends to the west and southwest, merging with the Kitob-Shakhrisabz depression, then with the adyrs and plains area. The surface of the plains is heterogeneous and is interrupted by remnant mountains and plateaus.

190. In the western part of the Kashkadarya, there is the Karshi steppe with the oasis of the same name. Within the Karshi steppe, a number of solonchak depressions are located, the most noticeable of which are Dultalishor, Shorsai, Sokhtashor, Yonboshshor and others.

191. There are several other deserts in the Kashkadarya Okrug, including the Karnab and Jam steppes in the northwest and north of the Okrug, and the Nishan steppe in its southeastern part.

192. The geological structure of Kashkadarya is not the same across the territory. Its mountainous part, having risen in the Hercynian era of mountain building in the Paleozoic era, is composed of such rocks as crystalline schist, limestone, marble, and granite. Due to the fact that the Chakylkalyan mountains are composed mostly of gypsum, marl, limestone, karst processes are developed in these mountains. The deepest cave in Central Asia, Kilsi Cave (1,082 m), is located in this ridge.

193. The flat part of the Kashkadarya occupies the extreme eastern part of the Turan plate. Its foundation is covered with such rocks as sand, clay, and conglomerates. The remnant mountains (Alauddintau, Kasantau, etc.) are composed of Paleozoic and Mesozoic rocks.

194. There are deposits of gas, oil, marble, gypsum, feldspar, and various building materials in this area.

195. The plain area is located on the eastern extreme part of the Turan plate. Its surface is covered with sands, clays, conglomerates. The residual mountains located on this plain are formed from Paleozoic and Mesozoic rocks.

196. Kashkadarya province is a large region rich in natural resources. The region is the main fuel and energy base of the Republic, providing about 90% of natural gas, condensate and oil. Kitob district, like Kashkadarya province, belongs to the Bukhara-Khiva oil and gas region, which occupies the southwestern flat part of the territory of the Republic of Uzbekistan. Administratively, these are the main parts of the Bukhara, Kashkadarya and Khiva regions with the adjacent southern regions of the Navoi and Samarkand regions. The largest number and largest deposits of gas and oil are located in the Bukhara and Kashkadarya provinces.

c. Water resources

197. The main waterway of the province is the Kashkadarya river, which has numerous tributaries flowing from the mountains. The other is the Dzhinidarya river rising in the mountains of Kitob district. Reservoirs and irrigation canals form an oasis of irrigated agriculture - Kitob-Shakhrisabz, Guzar-Kamash and the largest - Karshi oasis. More than 25 species of fish live in the reservoirs and lakes, of which five species are commercial. In the mountainous and foothill areas of the region, about 140 springs have been recorded, the most famous of which are: (i) Karabulak, located 10 km north-east of the town of the district capital; and (ii) Khoja Imkon, which is located on the southeastern outskirts of the village of the same name, in the east of the district. Groundwater collects in covered sediments of the province, and groundwater is found in the underlying, permeable sands. The groundwater level is found at a depth of 1.5-4 m. Mineralization of groundwater varies widely from 3 to 5 g/l, and in places - 10 g/l. According to the chemical composition, groundwater chloride-sulfate and sulfate, including sulfates SO_4 - 3.2 g/l.

198. Kashkadarya is a river in the Sughd region of Tajikistan and the Kashkadarya province of Uzbekistan. In the initial section of the course it is called Obikhunda, then - Shinachasai, in the lower reaches - Maimanakdarya.

199. **River flow of the basin**. Kashkadarya is formed on the western extremities of the Zarafshan and Gissar ranges. When leaving the mountains in the valley, the Kashkadarya river receives a number of tributaries on the left, most of which exceed Kashkadarya in terms of water content. Its first tributary is the low-water river Djinydarya. Downstream, the most water-bearing river in the basin, Aksu, also flows to the left, and even lower, Tankhaz. The second most water-bearing river, the Yakkabag, does not reach Kashkadarya; leaving the mountains, it is divided into two almost equal branches: Karabag and Kyzylsu. The latter flows into the river. Tankhaz and already along its bed the waters of the Yakkabag river reach Kashkadarya. The last left tributary of the Kashkadarya, bringing water is the Guzardarya river, formed by the confluence of the Kattauru and Kichikuru rivers. The lower course of the Guzardarya is called Karasu.

200. The length of the river is 378 km, the basin area, according to the Great Soviet Encyclopedia, is 8,780 km^2, according to the National Encyclopedia of Uzbekistan - about 12,000 km^2.

201. Kashkadarya river has many tributaries: Djinidarya, Akdarya (Aksu), Yakkabag, Tankhiz (Tankhizydarya), Guzardarya, Langar, Kyzyldarya. They are snow fed, the average runoff rate is 5.7 l/s per km^2, the average long-term water consumption is 25.3 m^3/s (Chirakchi city) and 7.68 m^3/s (Kasan city).

202. The waters of the Kashkadarya and many of its tributaries are widely used for irrigation, and behind the Karshi oasis in the Karshi region, the channel is gradually lost before reaching the sands of Sundukli. The lower reaches of the river are fed by the waters of the Zeravshan through the Eskiankhor canal.

203. Dzhinidarya is a mountainous river in Kitob, and forms the left tributary of the Kashkadarya river. In the upper course it is called Zugatasay.

204. The length of the Dzhindy Darya is 57 km, the catchment area is 367 km^2. The source of the river is mixed and includes snow, rain and springs, and, according to some, also groundwater. Water is plentiful from March to June, which accounts for 56% of the annual flow, especially high-water discharges are observed in April, on average 3.30 m^3/s. The runoff minimum is recorded in August and September. The average long-term water flow measured near the village of Javuz is 1.35 m^3/s. During spring heavy rains in the channel of the river and its tributaries, medium and strong mudflows are also observed, when the water flow was recorded up to 46.2 m^3/s (March 26, 1970). The width of the river before its confluence is 2.0 m; depth - 30 cm, rocky bottom.

205. Dzhinidarya originates at the junction of the Zeravshan and Gissar ranges at an altitude of about 2,500 m, collecting water from about 100 sources flowing down from the western slope of Mount Sherdag. It flows in a general westerly direction, in the upper reaches - with a noticeable slope to the north, on average - with a slight slope to the south. In the lower reaches, the channel forms meanders in places. Near the settlement of Beshkaltak, it flows into the Kashkadarya river on the left.

206. The main waterways and its remoteness from subcomponents' sites are presented in Figure 11. The territory is characterized by the presence of both natural and artificial watercourses.

Figure 11: Main Waterways and Distance from Tupchoc Subproject

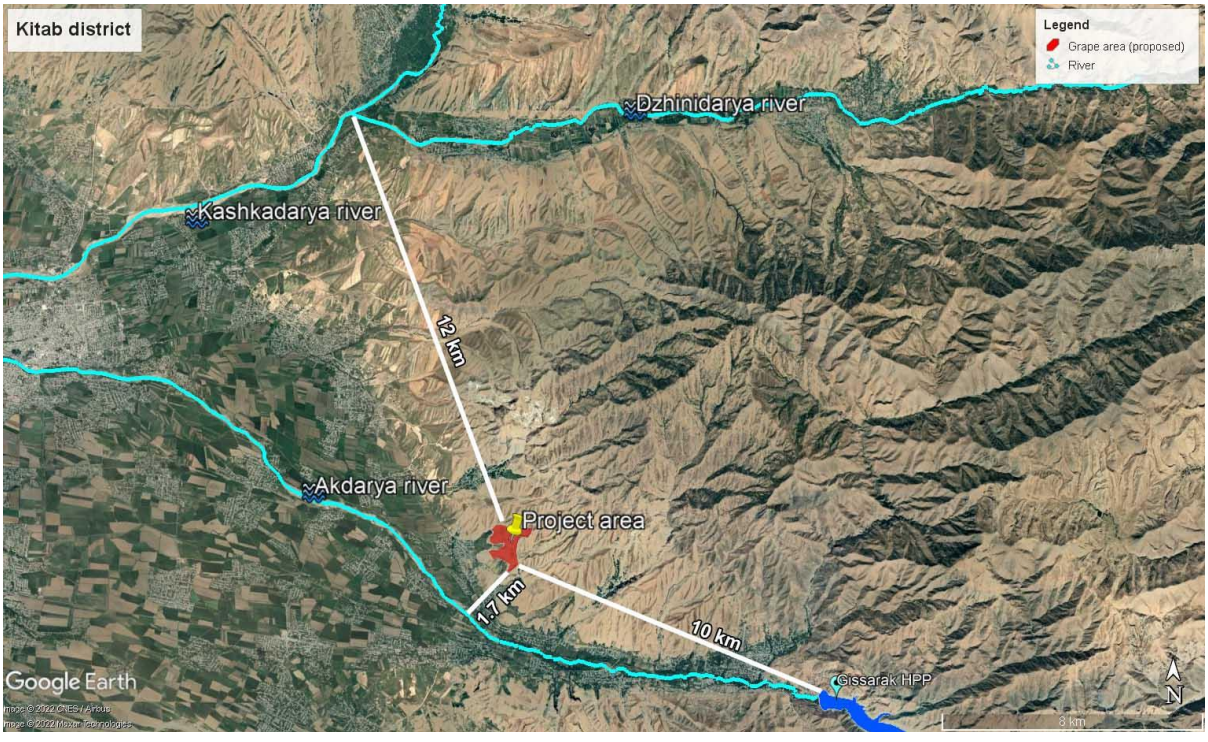
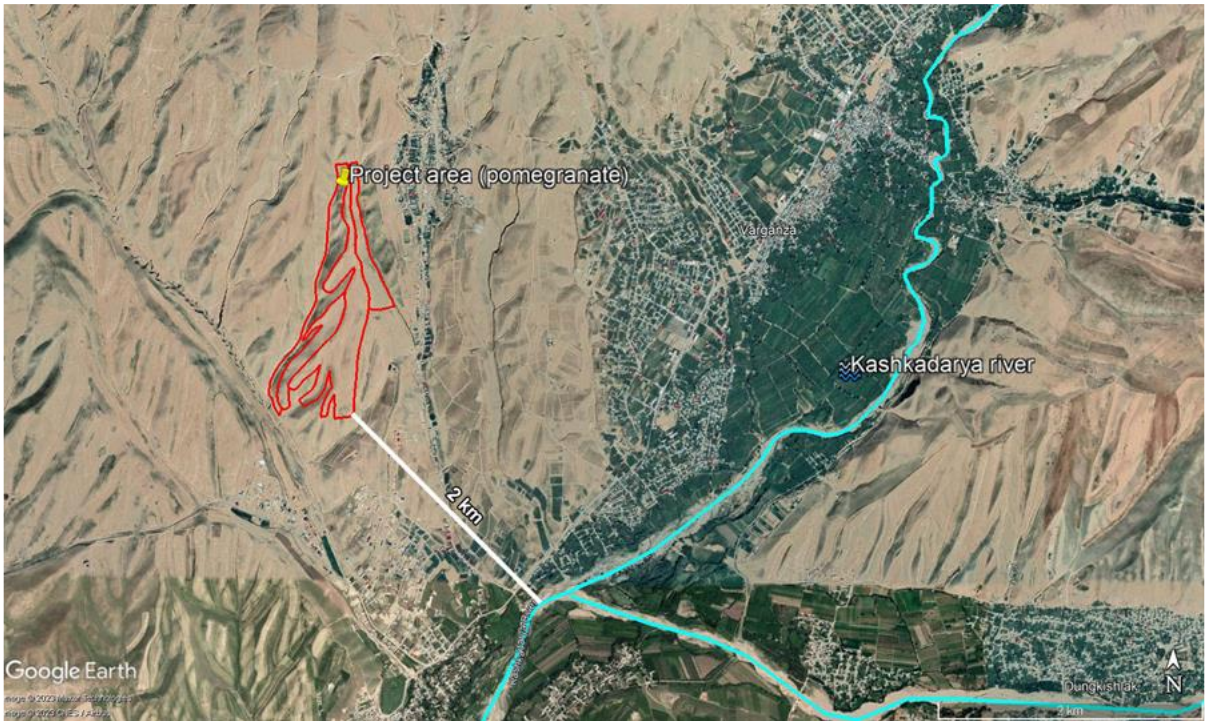


Figure 11: Main Waterways and Distance from Varganza Subproject



d. Soils

207. The soil cover of Kashkadarya province was formed in the climatic conditions of the desert, and is represented by desert-sandy, takyr-like, gray-brown soils, complexes of gray-brown, desert-sandy and takyr-like soils. Under irrigation and the effects of soil moisture with shallow-lying groundwater (less than 3 m), zonal soils transformed and acquired features of hydromorphic soils, partially losing their original properties. Currently, meadow-desert and desert-meadow (depending on the depth of groundwater) prevail on the irrigated part of the region.

208. In the Karshi steppe, light gray soils are more developed. In the west, there are also gray-brown, sandy, solonchak and meadow soils. Most of the Sundukli desert is occupied by sands. Meadow and solonchak soils are widespread in the ancient channels of Kashkadarya.

209. Light gray soils are developed in the vicinity of the flat part of the region in relatively elevated places. On adyrs and piedmont sloping plains, typical and dark gray soils are found (at an altitude of up to 1,200 m). The amount of humus in their composition is 1.5-2.5%. Mountain-forest brown and brown-brown soils are common in the mountains at an altitude of 1,200–2,500 m. Brown soils are more common in places with relatively dry climates. Under the trees, in particular under the maple, cherry plum, hawthorn, there are mountain forest brown soils containing 5–6% humus.

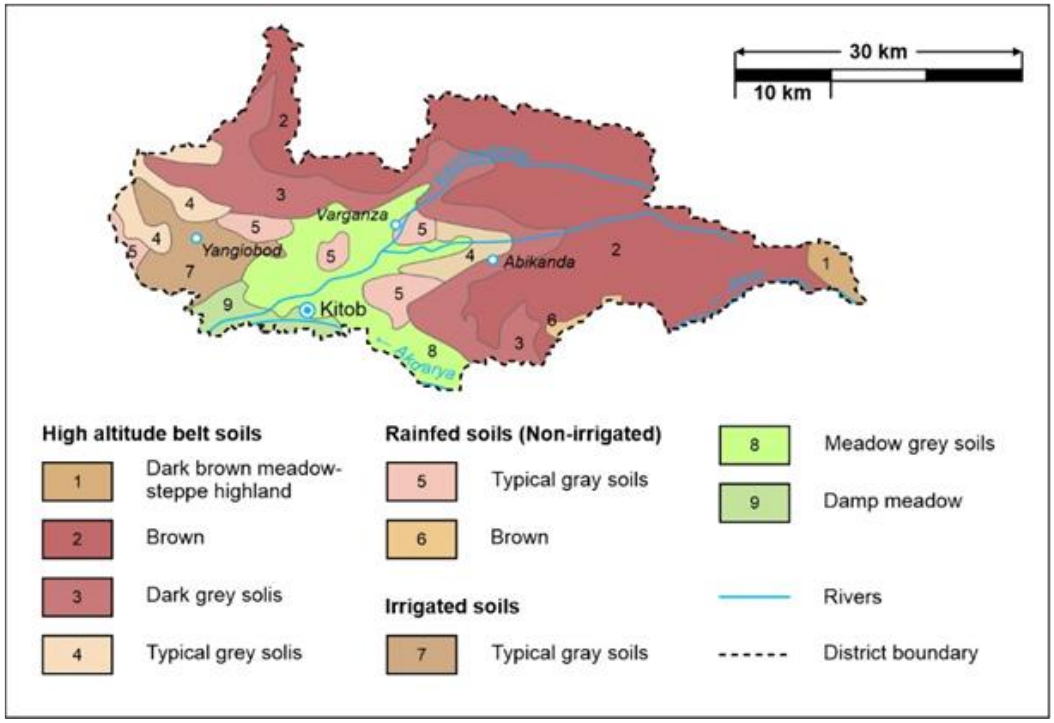
210. Under juniper and walnut groves, brown-brown forest soils have formed, with humus levels reaching 10–12%, because of deciduous nature of the trees that contribute to the accumulation of a large amount of organic matter in the soil.

211. In the mountains at an altitude of more than 2,500 m, where the climate often changes, summers are cool, winters are cold, humidity is high, trees stands are less dense and tall grasses grow. Therefore, brown mountain-meadow, peat-meadow and meadow soils are common at this height.

212. In places where irrigated agriculture is developed, cultivated oasis soils have been developed. Cultivated sierozems arose on irrigated sierozems and cultivated meadow soils appeared in river floodplains. With agricultural activity, fertilizers were applied to the soil, various agrotechnical measures were carried out, as a result of which a cultivated layer of soil has formed. Salt marshes appeared where agrotechnical norms and rules were not observed. In addition, as a result of excessive (in order to obtain high cotton yields) the use of mineral fertilizers and defoliants (poisonous chemicals used to shed leaves), chemical erosion is apparent.

213. Kashkadarya is divided into two zones according to natural and economic conditions and time of land development. The upper zone includes mainly the old, irrigated lands of Guzar, Kamashin, Kitob, Chirakchi, Shahrisyab and Yakkabag districts. The lower zone includes lands of new development in the territories of Karshi, Kasan, Kasbi, Mubarak, Nishan and Mirishkor.

Figure 13: Soil Map of Kitob District[30]



2. Biological Environment

a. Flora

214. Artificial tree planting, flower beds and lawns, as well as self-renewing weed groups from mesophytic and halophytic species are combined in the vegetation cover of Kashkadarya. Communities of hydrophytes - cattail, reed, and rare bushes of combed grass are found along the banks of the reservoirs.

[30] Atlas of Kaskadarya province.

215. Desert wormwood-saltwort and ephemeral vegetation are found in Kasan district. In the northern semi-desert zone, there are large groups of continuous thickets of saxaul. Also, on the prevailing semi-desert landscapes, communities of psoralea kostyankova, feather grass of Hohenaker grow, species of the genus Flomis, carrack, fine-stemmed hamada, Sogdian wormwood and in areas of gravel deserts, sprawling wormwood and white-earth wormwood are found. In the clay deserts, communities of keiruk, gamada, and donashur grow. The western part appears to be a sprawling wormwood formation. In saline deserts, in the northern part of the region, communities of bristle-haired tamarix, karabarak, annual saltworts, and sarsazan grow. The southern part of the district is used for crop production and irrigated agriculture. The most common wild medicinal plant is Yantak false.

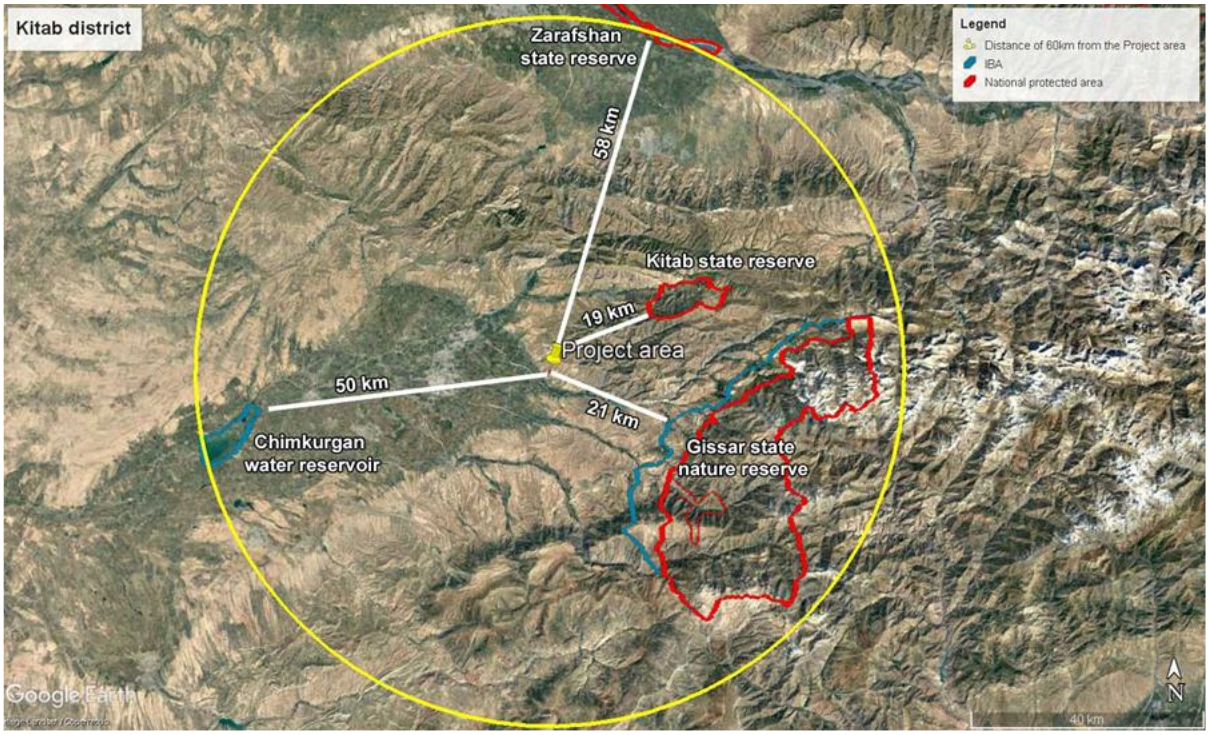
b. Fauna

216. The fauna of the region is mainly represented by the following species: Asiatic locust, ground toad, Ablepharus deserti Strauch, Eremias velox, watery snake, Pallas' coluber, Orsini's viper, hedgehog, ground squirrel, hamster, jackal, tolai hare, rat, and house mouse. Of the birds, the most typical are the yellow wagtail, magpie, black crow, hoopoe, rook, Bukhara tit, eagle owl, swallow, small dove, field sparrow, common starling.

c. Protected Areas and Habitats

217. There are four protected natural areas within a distance of 60 km from the subprojects of Kitob. The remoteness of the project area from the main natural protected areas is shown in Figure 14 below.

Figure 14: Protected Areas Close to Subproject Areas



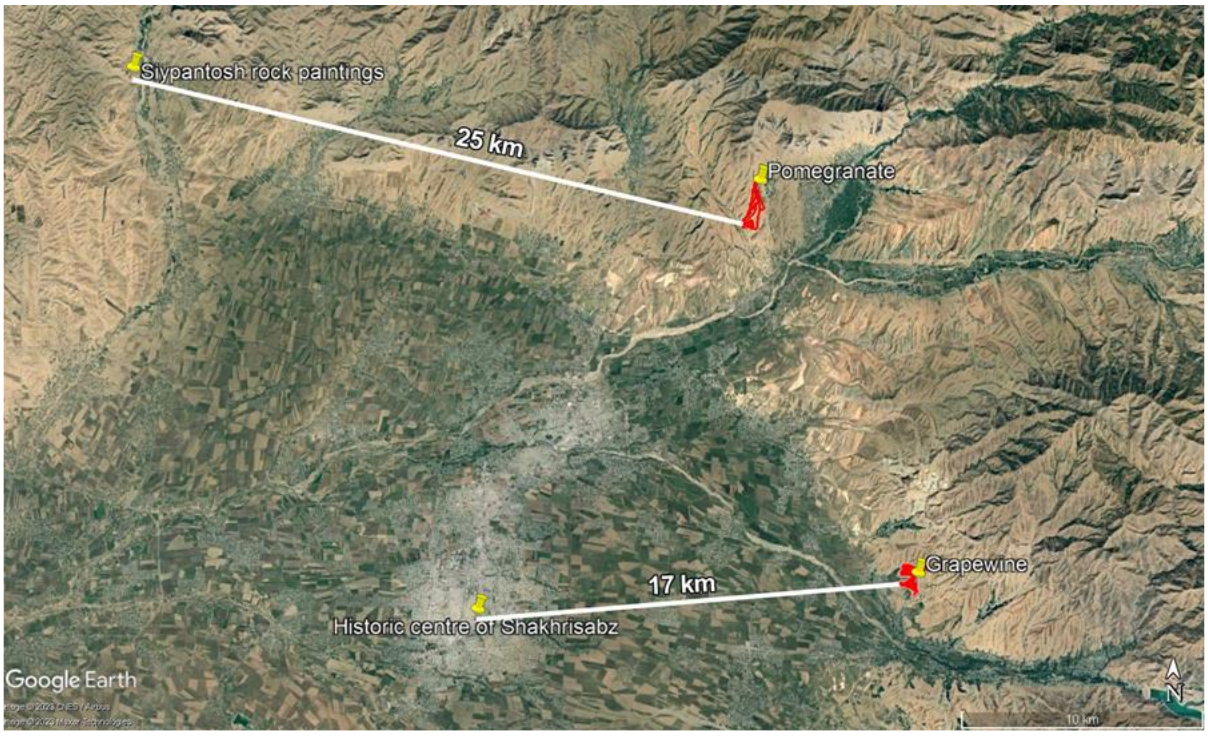
3. Cultural Heritage

218. There are cultural heritage sites in Kashkadarya region, the main ones being:

(i) Ak-Saray Palace,
(ii) Memorial Complex "Dorut Tilovat,"
(iii) Statue of Amir Timur,
(iv) Dorus Saodat Complex,
(v) Mausoleum of Dorus Saodat,
(vi) Tomb of Tamerlane,
(vii) Kok Gumbaz Mosque,
(viii) Mausoleum of Khazrati – Imam,
(ix) Maidanak Observatory,
(x) Langar-Ota Sanctuary,
(xi) Gissar Nature Reserve, and
(xii) Geological Reserves: Mubarek, Kitob.

219. There is also one UNESCO World Heritage Site in the region – the Historic Centre of Shakhrisyabz. Location Shahrisabz city and one site is on the UNESCO Tentative List (pending) being the Siypantosh Rock Paintings. Coordinates: N39 15 E66 40.

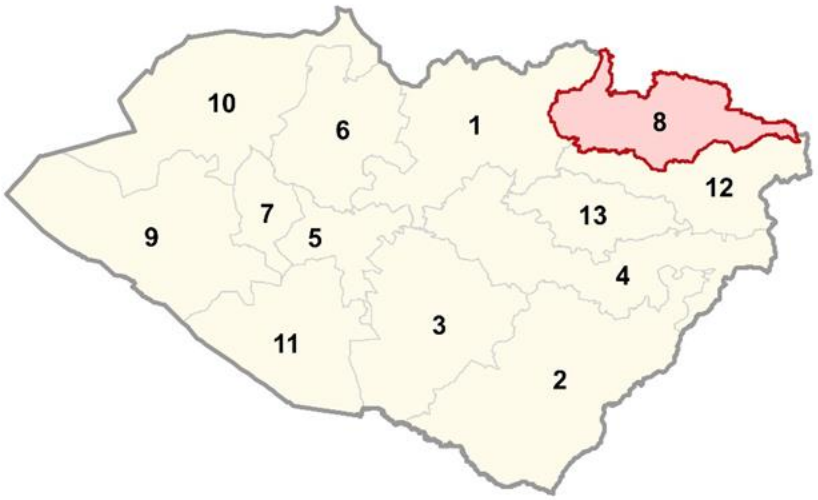
Figure 15: Main Cultural Heritage Sites Close to Subproject Areas



4. Socio-economic Conditions

220. The foundation date of Kashkadarya province was January 20, 1943. The administrative center is Karshi city and the province has 13 administrative districts comprising: Chirakchi, Dehkanabad, Guzar, Kamashi, Karshi, Koson, Kasby, Kitob, Myrishkor, Muborak, Nishon, Shakhrisabz, and Yakkabog. The administrative division of Kashkadarya is presented below.

Figure 16: Administrative Map of Kashkadarya Region



№	Districts	Admin. center
1	Chiroqchi	Chiroqchi
2	Dehqonobod	Karashina
3	G'uzor	G'uzor
4	Qamashi	Qamashi
5	Qarshi	Beshkent
6	Koson	Koson
7	Kasbi	Mug'lon
8	Kitob	Kitob
9	Mirishkor	Yangi Mirishkor
10	Muborak	Muborak
11	Nishon	Yangi Nishon
12	Shakhrisabz	Shahrisabz
13	Yakkabog'	Yakkabog'

221. The economy of the region has an agro-industrial orientation. The most important areas of agricultural production are the cultivation of cotton, grain, breeding of large and small cattle. The natural conditions of a part of the region are favorable for growing grapes, stone fruit trees. Sericulture is developing in the region. The main branch of animal husbandry is karakul breeding.

222. A significant part of the land is used for crops of grain and cotton. Also, the population is engaged in gardening and growing melons and gourds.

5. Climate Change

223. Uzbekistan signed the United Nations Framework Convention on Climate Change (UNFCCC) in 1993 and ratified the Kyoto Protocol in August 1999. Uzbekistan, as a party to the Convention, pursues the consistent policy aimed at decrease in greenhouse gases (GHG) emission in the key sectors of economy. The Government has adopted several documents associated with regulation of actions and implementation of measures in climate change. The tangible success has been achieved in implementation of the Kyoto Protocol mechanisms. 15 Clean Development Mechanism Projects have been registered in the Executive Council of UNFCCC and 14 million tons of CER (Certified Emission Reductions) were put into practice. Uzbekistan occupies the first place among the CIS and Eastern Europe countries by number of registered CDM projects.

224. According to the Government decision, the agency responsible for implementation of the UNFCCC is the Centre of Hydrometeorological Service at Cabinet of Ministries of the RUz (Uzhydromet). There is a National Secretariat of UNFCCC in the Uzhydromet as permanently

operating body that coordinates activities for fulfillment of the country's commitments. The Director General of Uzhydromet is the National Focal Point for implementation of the UNFCCC in Uzbekistan. The Climate Change Information Center operates also under Uzhydromet.

225. Trends in change of air temperatures for various regions of the country's territory may be evaluated starting from 1925. The highest warming rates are observed in the northern part of republic and in large cities (0.30-0.43°C over 10 years), and the least ones in mountain zone (0.10-0.14°C over 10 years). Moderate warming rates are observed in the regions where irrigation has been developed over the considered period. The average warming rates by Uzbekistan is 0.27°C over 10 years.

226. In all seasons of year considerable increase in air temperatures is observed, however warming rates in winter period in Uzbekistan have been slowed down. For period from 1950 to 2013, the average rates of air temperatures increase over each 10 years were as follows: 0.13°C in winter, 0.39°C in spring, 0.25°C in summer, and 0.31°C in autumn. The revealed linear trends in seasonal air temperatures change (apart from winter temperatures) were statistically significant. Over the recent 50 years, seasonal air temperatures have increased by 0.8°C in winter, 2.5°C in spring, 1.6°C in summer and 2.0°C in autumn.

227. Uzbekistan belongs to the category of countries most vulnerable to climate change. With a further increase in the concentration of greenhouse gases, it may lead to an increase in the risks of water and food shortages as a result of drought, an increase in the incidence of the population due to an increase in the duration and intensity of the hot period of the year, as well as to the recurrence of other dangerous phenomena - mudflows, floods, etc. In addition, warming will negatively affect the state of ecosystems, lead to an aggravation of the ecological situation in such regions as the Aral Sea, Karakalpakstan, Surkhandarya, Bukhara and Khorezm regions. According to experts, in 2030-2050. The air temperature in the region may increase by another 1.5-3°C. The largest increase in air temperature is expected in the Aral Sea region, which will be further exacerbated by local climate changes.[31]

[31] https://hydromet.uz/ru/node/609

Figure 17: Yearly Temperature Change, Karshi

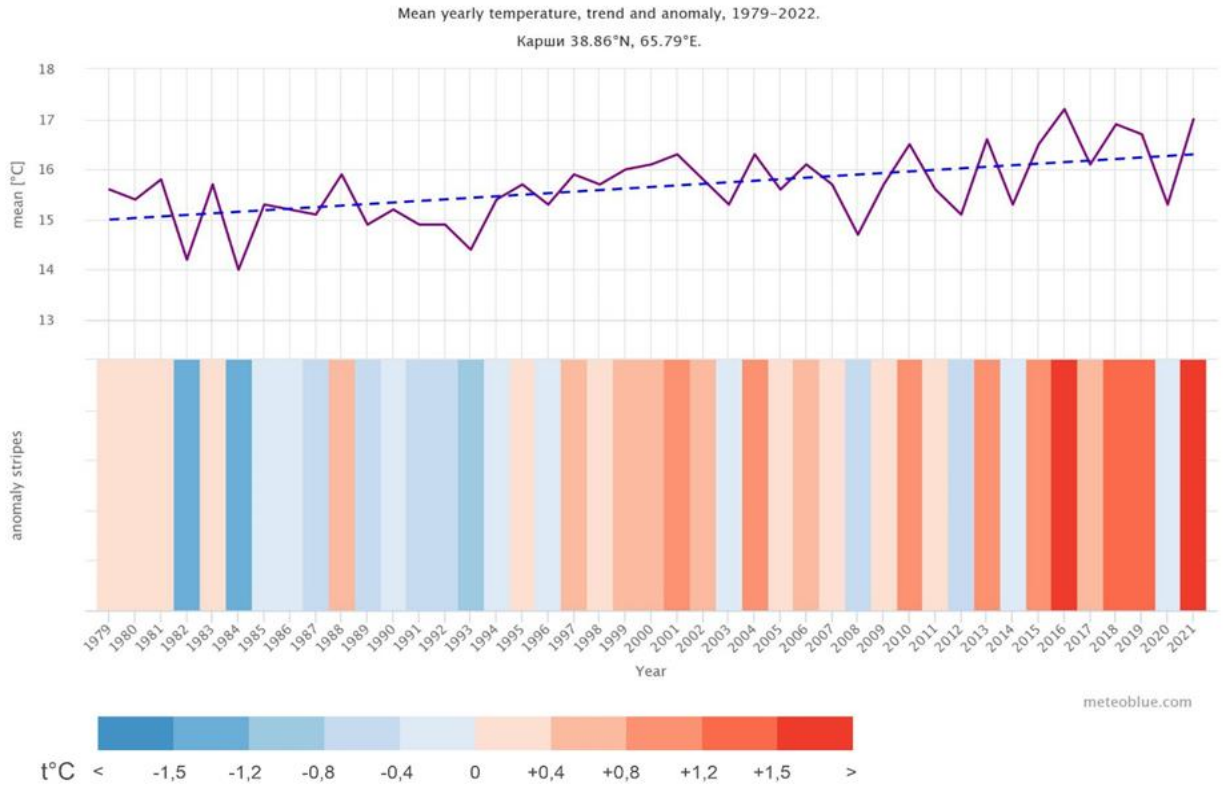
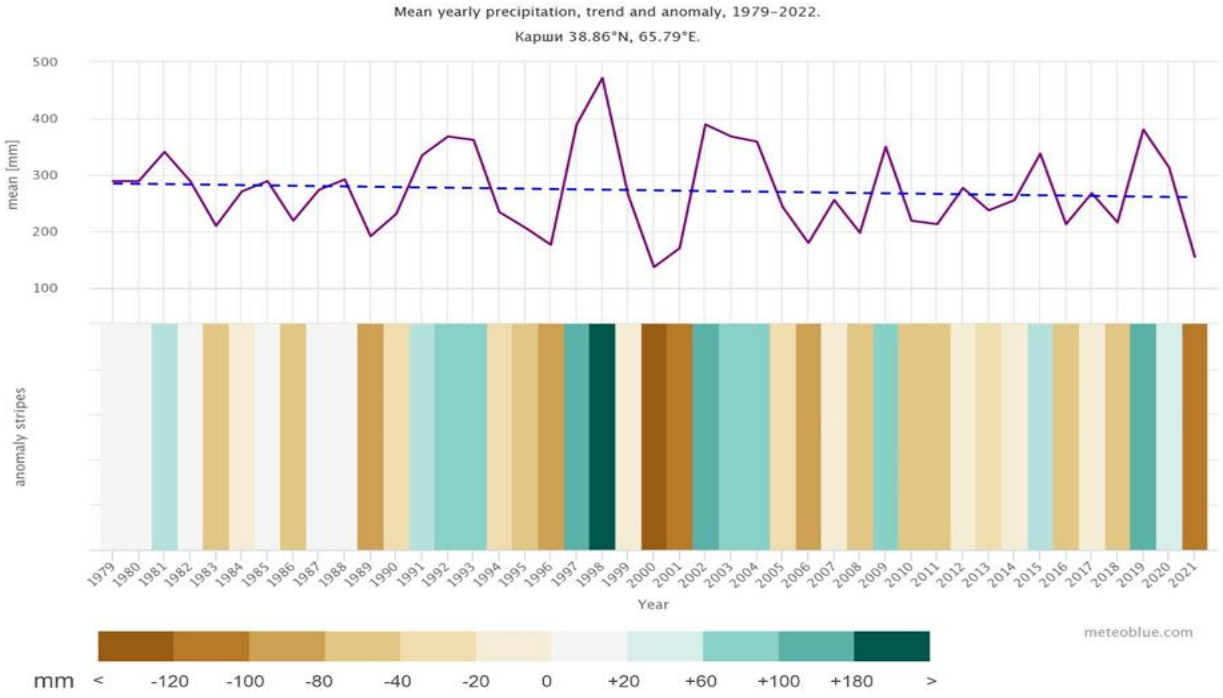


Figure 18: Yearly Precipitation Change, Karshi



VI. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

228. A description of the main project works is presented below:

(i) Detailed design for the vineyard and pomegranate plot layouts based on the topographic data provided by local district authorities (includes water source identification and buildings);

(ii) Land preparation for the vineyard and pomegranate (includes deep ploughing, ripping the planting lines, harrowing, and surface leveling for drainage);

(iii) Vineyard and pomegranate plots establishment (includes planting, basal fertilizer application, organic fertilizer application, and hydrogel assimilation);

(iv) Trellising for vineyard (includes end of line strainer posts and in-line posts to carry trellising wires);

(v) Installation of internal irrigation network for the vineyard and pomegranate plots: water source development, storage reservoir, pump station, electric connections including transformer, delivery pipes to site, site distribution pipes, and trickle irrigation system throughout the plot;

(vi) Construction of internal unpaved roads to facilitate plot management and extraction of harvested produce;

(vii) Construction of essential buildings needed to house machinery and equipment used on the site for both plots; and

(viii) Site maintenance of the developed area during the three-years after establishment (includes pruning, tying leaders, weed control - mechanical, pest and disease control and field maintenance etc.).

Pre-Construction Phase	Construction Phase	Maintenance/ Operation Phase
• Preparation of bidding documents • Preparation of detail design • Development of Site Environmental Management Plan and Topic-Specific Environmental Management Plans (TSEMPS) • Receipt of all necessary permits in accordance with national legislation and procedures • Purchase of machinery and equipment needed to operate	• Land preparation • Planting and soil quality improvement works • Installation of irrigation • Clearing and scrubbing • Site levelling works • Electrical works • Welding works • Drilling groundwater boreholes • Installation of irrigation system • Trellising (for vineyard)	• Site maintenance which includes • Irrigation, adding fertilizers in watering system • Crops harvesting, sorting, packing, loading in trucks, transportation • Operating irrigation system including fertilization • Pesticide application and management • Cargo and personnel transportation

A. Impact Assessment Methodology

229. Impact identification and assessment starts with scoping and continues through the remainder of the environmental assessment process. Interactions with the potential for significant effects are subjected to a detailed impact assessment. The principal environmental assessment's steps comprise the following:

(i) Impact prediction: to determine what could potentially happen to resources or receptors as a consequence of the Project and its associated activities.
(ii) Impact evaluation: to evaluate the significance of the predicted impacts by considering their magnitude and likelihood of occurrence, and the sensitivity, value and/or importance of the affected resource or receptor.
(iii) Mitigation and enhancement: to identify appropriate and justified measures to mitigate negative impacts and enhance positive impacts, and
(iv) Residual impact evaluation: to evaluate the significance of impacts assuming effective implementation of mitigation and enhancement measures.

1. Identification and Characterization of Impacts

230. An 'impact' is any change to a resource or receptor caused by the presence of a project component or by a project-related activity. Impacts can be negative or positive and are described in terms of their characteristics. Impact characteristics are defined in the subsections below.

a. Type of Impact

(i) **Direct**: applies to an impact which can be clearly and directly attributed to a particular environmental or social parameter;
(ii) **Indirect**: applies to impacts which may be associated with or subsequent to a particular impact on a certain environmental or social parameter; and
(iii) **Cumulative**: Multiple and successive environmental and social impacts from existing developments can reinforce each other, leading to more serious consequences on environment and people than each of the developments separately.

b. Duration of Impact

(i) **Temporary** - applies to impacts whose effects are limited to a period of less than 3 years, or only associated with Project pre-construction or construction phases.
(ii) **Short-term**: applies to impacts whose effects are limited to a five-year period.
(iii) Long-term: applies to impacts whose effects last longer than a period of five years but limited to within the project lifetime, and
(iv) **Permanent**: applies to impacts whose effects last longer than the life of project – i.e. irreversible.

c. Extent of Impact

(i) **On-site**: impacts that are limited to the Project site.
(ii) **Local**: impacts that are limited to the Project site and adjacent properties.

(iii) **Regional**: impacts that are experienced at a regional scale.
(iv) **National**: impacts that are experienced at a national scale, and
(v) **Trans-boundary/International**: impacts that are experienced outside Uzbekistan.

d. Frequency of Impact

231. The frequency of an impact the measure of the constancy or periodicity of an impact, described using numerical values or a qualitative description (daily, weekly, monthly).

e. Likelihood

232. Likelihood is a measure of the degree to which the unplanned event (e.g. incidents, spills) is expected to occur. The likelihood of an unplanned event occurring is determined qualitatively, or when data is available, semi-quantitatively. Definitions of likelihood as applied in the IEE are provided as follows:

(i) **Unlikely**: The event is unlikely but may occur at some time during normal operating conditions.
(ii) **Possible**: The event is likely to occur at some time during normal operating conditions, and
(iii) **Likely**: The event will occur during normal operating conditions (i.e. it is essentially inevitable).

2. Evaluation of Impacts

233. A consistent approach to the assessment of impacts will be followed to enable environmental and social impacts to be broadly compared across the IEE. A set of generic criteria are used to determine significance and are applied across the various environmental and social parameters.

234. As far as possible, environmental and social impacts will be quantified. Where it is not possible to quantify impacts, a qualitative assessment will be conducted using professional judgement, experience and available knowledge, and including the consideration of stakeholder views. Where there are limitations to the data, and/or uncertainties, these will be recorded in the relevant chapters, along with any assumptions made during the assessment.

235. To determine the significance of each impact, two overall factors are considered:

(i) Magnitude and nature of impacts, and
(ii) The importance and/or sensitivity of the environmental and social receiving parameter, as determined during the assessment of baseline conditions.

3. Magnitude of Impacts

236. After impacts characterization they are assigned a “magnitude”. Magnitude is typically a function of some combination (depending on the resource/receptor in question) of the following impact characteristics:

(i) extent

(ii) duration
(iii) scale, and
(iv) frequency.

237. For biophysical impacts, the semi-quantitative definitions for the spatial and temporal dimension of the magnitude of impacts used in this assessment are provided as follows:

(i) **High Magnitude Impact** affects an entire area, system (physical), aspect, population or species (biological) and at sufficient magnitude to cause a significant measurable numerical increase in measured concentrations or levels (to be compared with legislated or international limits and standards specific to the receptors) (physical) or a decline in abundance and/ or change in distribution beyond which natural recruitment (reproduction, immigration from unaffected areas) would not return that population or species, or any population or species dependent upon it, to its former level within several generations (physical and biological). A high magnitude impact may also adversely affect the integrity of a site, habitat or ecosystem.

(ii) **Moderate Magnitude Impact** affects a portion of an area, system, aspect (physical), population or species (biological) and at sufficient magnitude to cause a measurable numerical increase in measured concentrations or levels (to be compared with legislated or international limits and standards specific to the receptors) (physical) and may bring about a change in abundance and/or distribution over one or more plant/animal generations, but does not threaten the integrity of that population or any population dependent on it (physical and biological). A moderate magnitude impact may also affect the ecological functioning of a site, habitat or ecosystem but without adversely affecting its overall integrity. The area affected may be local or regional, and

(iii) **Low Magnitude Impact** affects a specific area, system, aspect (physical), group of localized individuals within a population (biological) and at sufficient magnitude to result in a small increase in measured concentrations or levels (to be compared with legislated or international limits and standards specific to the receptors) (physical) over a short time (one plant/animal generation or less but does not affect other trophic levels or the population itself), and localized area.

4. Sensitivity of Receiving Parameter

238. In addition to characterizing the magnitude of impact, the other principal step necessary to assign significance for a given impact is to define the sensitivity of the receptor. The universal sensitivity of receptor is low, medium and high.

239. For ecological impacts, sensitivity is assigned as low, medium or high based on the conservation importance of habitats and species. For socio-economic impacts, the degree of sensitivity of a receptor is defined as the level of resilience (or capacity to cope) with sudden social and economic changes. Criteria for deciding on the value or sensitivity of biological and socioeconomic receptors are presented as follows:

(i) **High**: For ecological receptors, specifically protected under Uzbek legislation and/or international conventions e.g. For social receptors, those affected will not be able to adapt to changes and continue to maintain pre-impact status.

(ii) **Medium**: For ecological receptors, not protected or listed but may be a species common globally but rare in Uzbekistan with little resilience to ecosystem changes, important to ecosystem functions, or one under threat or population decline. For social receptors, those able to adapt with some difficulty and maintain pre-impact status but only with a degree of support, and

(iii) **Low**: For ecological receptors, not protected or listed as common / abundant; or not critical to other ecosystem functions (e.g. key prey species to other species). For social receptors, those affected can adapt with relative ease and maintain pre-impact status.

5. Assessing the Significance of Impacts

240. To assess the significance of an impact, the sensitivity of the receiving environmental or social parameter is considered in association with the magnitude of the impact, according to the matrix shown in Table 16 below.

Table 16: Impact Significance Matrix

Magnitude of impact	Sensitivity of receiving receptor		
	Low	Medium	High
Low	Negligible	Minor	Moderate
Medium	Minor	Moderate	Major
High	Moderate	Major	Major

241. While the above matrix provides a framework for the determination of significance and enables comparison across environmental and social parameters, a degree of professional judgement must be used, and some parameter-specific factors considered in deciding of impact significance.

242. Below provides additional guidance to the degrees of significance in the IEE. Positive impacts provide resources or receptors, most often people, with positive benefits. Note that positive impacts are defined, but not rated for significance.

(i) **Major significance**: an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resource/receptors. An aim of impact assessment is to get to a position where the Project does not have any major residual impacts, certainly not ones that would endure into the long-term or extend over a large area.

(ii) **Moderate significance**: has an impact magnitude that is within applicable standards but falls somewhere in the range from a threshold below which the impact is minor, up to a level that might be just short of breaching a legal limit. Clearly, to design an activity so that its effects only just avoid breaking a law and/or cause a major impact is not best practice. The emphasis for moderate impacts is therefore on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable.

(iii) **Minor significance**: a resource/receptor will experience a noticeable effect, but the impact magnitude is sufficiently small and/or the resource/receptor is of low sensitivity/ vulnerability/ importance. In either case, the magnitude should be well within applicable standards, and

(iv) **Negligible significance**: a resource/receptor (including people) will essentially not be affected in any way by a particular activity, or the predicted effect is deemed to be 'imperceptible' or is indistinguishable from natural background variations.

6. Mitigation Potential and Residual Impacts

243. A key objective of an IEE is to identify and define socially, environmentally and technically acceptable and cost-effective measures to manage and mitigate potential impacts as well as actions to enhance positive Project benefits. Mitigation measures are developed to avoid, reduce, remedy or compensate for potential negative impacts, and to enhance potential environmental and social benefits.

244. The approach taken to defining mitigation measures is based on a typical hierarchy of decisions and measures, as described in Table 17. The priority is to first apply mitigation measures to the source of the impact (i.e., to avoid or reduce the magnitude of the impact from the associated Project activity), and then to address the resultant effect to the resource/receptor via abatement or compensatory measures or offsets (i.e. to reduce the significance of the effect once all reasonably practicable mitigations have been applied to reduce the impact magnitude).

245. Once mitigation measures are declared, the next step in the impact assessment process is to assign residual impact significance. This is essentially a repeat of the impact assessment steps discussed above.

Table 17: Mitigation Hierarchy

Avoid / reduce at source: avoiding or reducing at source through the design of the Project (e.g., avoiding by siting or re-routing activity away from sensitive areas or reducing by restricting the working area or changing the time of the activity).
Abate on Site: add something to the design to abate the impact (e.g., pollution control equipment).
Abate at Receptor: if an impact cannot be abated on-site then control measures can be implemented off-site (e.g., traffic measures).
Repair or Remedy: some impacts involve unavoidable damage to a resource (e.g., material storage areas) and these impacts require repair, restoration, and reinstatement measures.
Compensate in Kind; Compensate Through Other Means where other mitigation approaches are not possible or fully effective, then compensation for loss, damage and disturbance might be appropriate (e.g., financial compensation for degrading agricultural land and impacting crop yields).

246. Once mitigation measures are declared, the next step in the impact assessment process is to assign residual impact significance. This is essentially a repeat of the impact assessment steps discussed above, considering the assumed implementation of the additional declared mitigation measures.

a. Residual Impact Assessment

247. Once mitigation measures are declared, the next step in the impact assessment process is to assign residual impact significance. This is essentially a repeat of the impact assessment steps discussed above, considering the assumed implementation of the additional declared mitigation measures.

b. Cumulative Impacts

248. A cumulative impact is one that arises from a result of an impact from the Project interacting with an impact from another activity to create an additional impact. How the impacts and effects are assessed is strongly influenced by the status of the other activities (e.g. already in existence, approved or proposed) and how much data is available to characterize the magnitude of their impacts.

249. The approach to assessing cumulative impacts is to screen potential interactions with other projects based on:

(i) Projects that are already in existence and are operating;
(ii) Projects that are approved but not yet built or operating; and
(iii) Projects that are a realistic proposition but are not yet built.

B. Result of Impacts Assessment

250. The project's anticipated environmental impacts were reviewed at the three stages – pre-construction, construction and operation stages.

1. Pre-Construction Stage

a. Impacts

251. During the pre-construction stage the following aspects may impact on the effectiveness of implementation of environmental safeguards during the entire project cycle and may lead to non-compliance with requirements: (i) environmental requirements that are not included in bidding documents and contracts, (ii) non-compliance with requirements to obtain approvals and permissions per national legislation, and, (iii) non-compliance of goods, equipment and machinery procurement, in that it does not comply with the ADB Prohibited Investment Activities List set forth in Appendix 5 of ADB SPS and national standards on exhausted gases.

252. As the main part of the civil works will be implemented outside settlements, it is therefore unlikely that developed utility networks exist on the project plots. Nevertheless, to avoid any impact on utilities, obtaining agreement from the relevant agencies (gas supply, communication, etc.) prior to commissioning of civil works will be necessary and will be included as a requirement for awarded contractors.

253. A 110 kV line crosses the territory of the vineyard plot, and two pylons are located within the plot. Therefore, the design of the vineyard plots will be prepared in compliance with the requirements indicated in the national regulation on protection of electrical facilities.[32]

254. In accordance with national legislation, agricultural works and the growing of crops under transmission lines are allowed. However, before the commissioning of construction works, each contractor is required to obtain written permission for the agricultural works from the Kashkadarya provincial department of the National Electric Grid of Uzbekistan (NEGU).[33] The permission will

[32] Resolution of Cabinet Ministries # 1050 (2018).
[33] Resolution of Cabinet Ministries # 1050 (2018), para 17.

contain specific requirements which have to be followed during construction. Contractors will be responsible for the proper and timely implementation of requirements indicated in a permission.

255. A prohibited situation is when environmental requirements are not included in bidding documents and contracts may lead to the improper implementation of the EMP and low capacity and responsibility of contractors in the field of environmental performance.

256. In accordance with national environmental regulations, project development must include Project Evaluation Documents or a Feasibility Study. For this project, a Positive Conclusion of PEIS is required, followed after finalizing the project detail design with a Statement on Environmental Consequences (SEC). The Positive Conclusion on PEIS must be received prior to commissioning of the construction works, and an SEC prior to the operation phase.

257. The procurement of goods, equipment and machinery which does not comply with the ADB Prohibited Investment Activities List set forth at Appendix 5 of ADB SPS and national standards on exhausted gases will not be allowed.

258. Prior to the commissioning of civil works, contractors must develop an SSEMP including Topic Specific EMPs (TSEMPs) as defined in the following chapters and incorporating the following:

(i) Traffic Management Plan (TMP);
(ii) Wastes Management Plan;
(iii) Spoil Management Plan;
(iv) Construction Camp Management Plan (CCMP);
(v) Occupational Health and Safety Plan (OHSP) – including conduction of works under transmission lines; and
(vi) COVID-19 Health and Safety Management Plan and emergency response plan.

259. The OHSP for the vineyard site will include specific requirements for the implementation of construction works under and near transmission lines in accordance with national regulations and requirements indicated in written permission from the NEGU.

b. Mitigation Measures

260. The following measures will be taken to mitigate impacts identified at the pre-construction stage.

(i) Agroservice Operator with support of the ISC will ensure that detailed designs of the vineyard plots are prepared in compliance with requirements indicated in the national regulations on the protection of electrical facilities;[34]
(ii) Agroservis Operator, with ISC support, will ensure the inclusion of environmental provisions and the EMP in contractor bidding documents and contracts;
(iii) Agroservis Operator will ensure that bid evaluations during contractor selection consider the capacity of bidders to meet EMP requirements, propose adequate budgets for efficient EMP implementation, and have demonstrated good practice in environmental performance within other similar projects;

[34] Resolution of Cabinet Ministries # 1050 (2018).

(iv) Prior to preparation of the SSEMP the contractor must receive a written permit from the NEGU for the construction works;

(v) Contractors will develop SSEMPs including TSEMPs under the guidance of the ISC prior to commencing any physical works. The ISC will endorse the TSEMP before submission to the Agroservis Operator for approval;

(vi) Prior to civil works, contractors will obtain a non-objection from all utility agencies such as gas supply, water, electricity, telecommunications etc.;

(vii) Contractors will prepare SSEMPs and TSEMPs (as part of SSEMP), endorsed by the ISC and approved by the PIU for the following activities;

(viii) Traffic Management Plan (TMP);

(ix) Wastes Management Plan;

(x) Spoil Management Plan;

(xi) Construction Camp Management Plan (CCMP);

(xii) Occupational Health and Safety Plan (OHSP) – including conduction of works under transmission lines;

(xiii) COVID-19 Health and Safety Management Plan and emergency response plan;

(xiv) Contractors will ensure that the SSEMP includes requirements indicated in permits from NEGU (if any);

(xv) Agroservis Operator will ensure that goods procured for project implementation will comply with the ADB Prohibited Investment Activities List set forth at Appendix 5 of ADB SPS;

(xvi) Environmental specifications must be included in bidding packages for the procurement of machinery under the project. Particularly, all machinery must meet "Euro 3" environmental requirements as defined by national regulations;[35] and

(xvii) If there are any unanticipated impacts or changes in the project design, the IEE/EMP will be updated to account for any additional or new environmental impacts and relevant corrective actions.

2. Construction Stage

a. Physical Resources

Impact on Air Quality

261. During the construction stage, pollutant emissions (dust, SO_2, NO_x, and CO) will be generated due to earthworks, construction activities and the movement of vehicles. It is expected that dust pollution will occur more frequently and increase during windy weather and during the movements of trucks inside settlements.

262. Equipment and vehicles with improper technical characteristics or in poor conditions also may lead to pollution by exhaust gases. Improper waste management, particularly the burning of construction and domestic wastes may also lead to air pollution.

[35] Resolution of President of RUz "On measures for further development of production at the Samarkand automobile plant and renewal automobile park", dated from 14 December 2006.

Figure 19: Location of Closest Houses - Tupchok

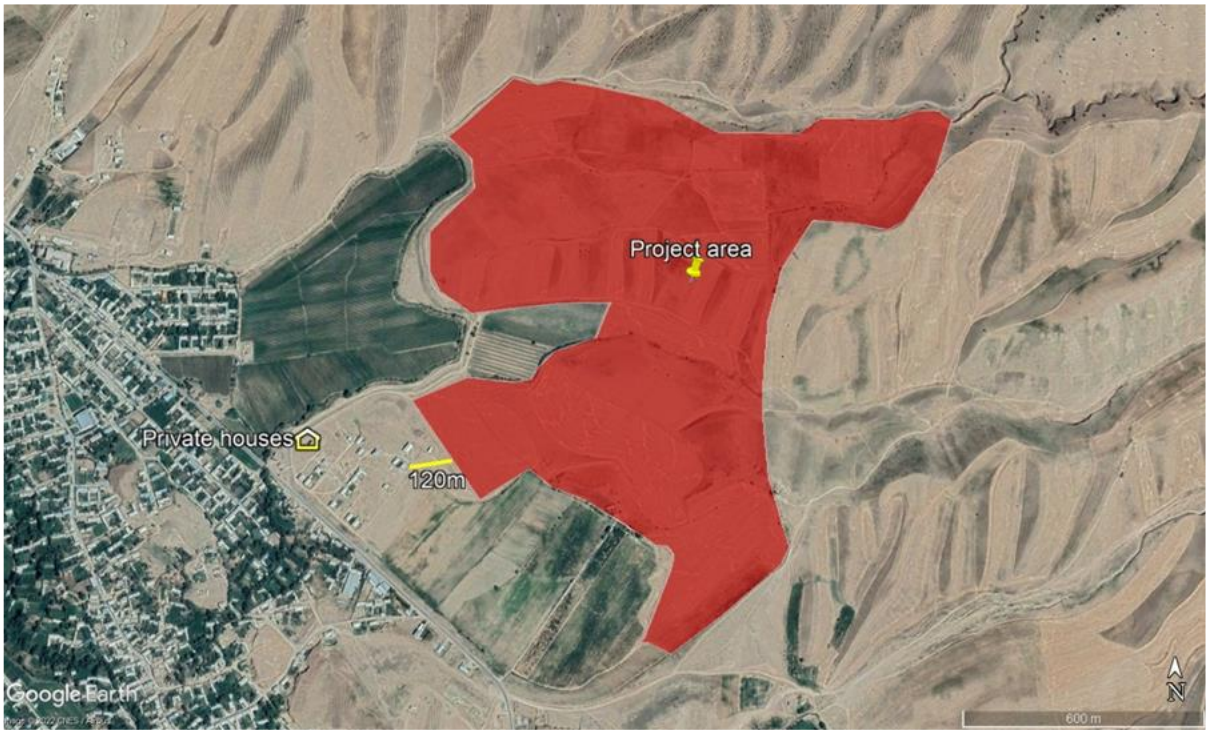
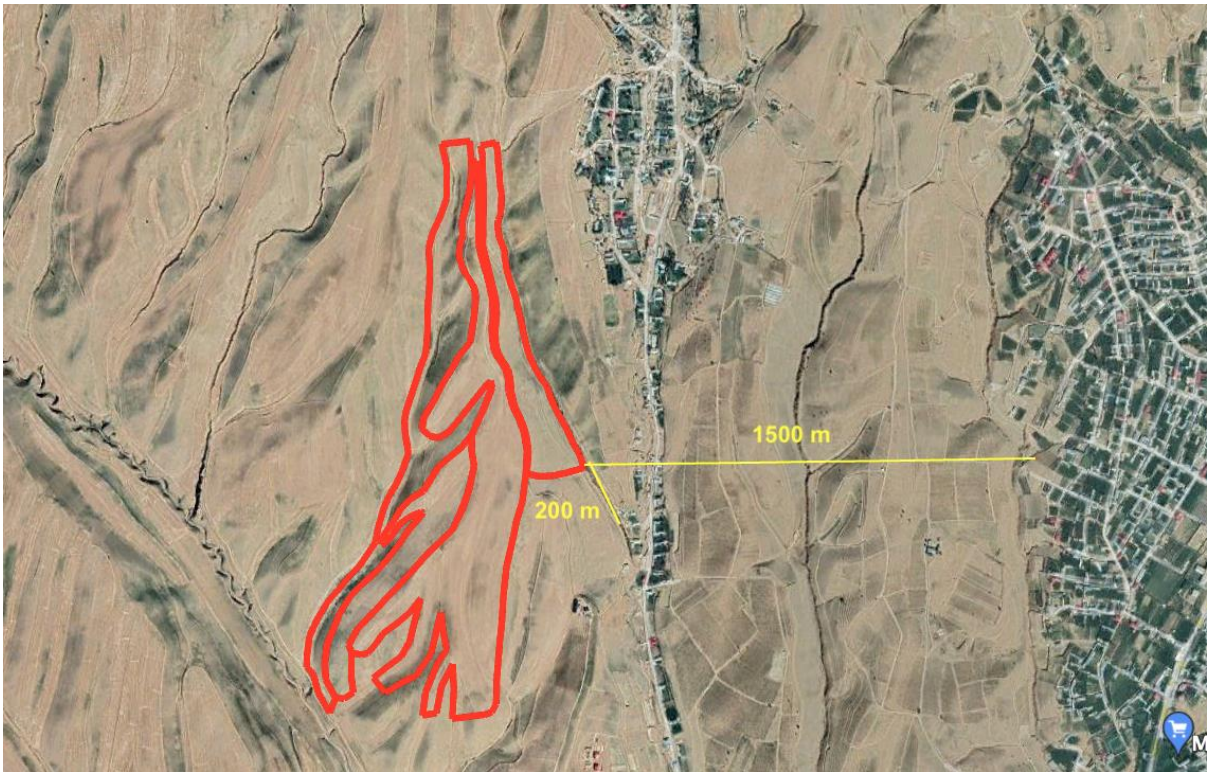


Figure 20: Location of Closest Houses - Varganza



263. Therefore, the impact is considered moderate and could be minimized via implementation of the mitigation measures indicated in the next sections.

Mitigation Measures

264. During the construction period, regular mitigation measures will be used in most cases:

(i) Watering construction sites and roads when trucks move during the dry season;
(ii) Covering transported bulk materials;
(iii) Compliance of all vehicles and equipment to technical requirements and with regular inspections as indicated in the national standards;[36]
(iv) Regular air quality monitoring in accordance with the EMP (Table 25). In the case of non-compliance with the standards or grievance from nearby receptors, additional mitigation measures must be provided, such as more frequent watering.

Earth works, land leveling, construction works and traffic movement					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Temporary (weeks)	Local	Daily	Likely	Low
Receptor					Sensitivity
Population of Varganza and Tupchok settlements living close to subproject area					Medium
Significance of Impact					
Minor					

Residual Impact

265. Following implementation of mitigation measures described above, the residual impact is considered to be **Negligible.**

Cumulative Impact

266. There are no other activities being conducted on the subproject sites. Therefore, the cumulative impact is considered: **Negligible**.

Impact on Noise Levels

267. During the construction works, the following activities could generate noise:

(i) Earth moving activities/land leveling;
(ii) Drilling groundwater boreholes;
(iii) Irrigation network installation;
(iv) Movement of vehicles used for material transport; and
(v) Construction of internal roads.

268. To assess anticipated noise levels from these works, calculations were performed based on existing information about the operation of various machinery and equipment. During earthworks on the plots and construction of administrative buildings, the following construction machinery will be used: auto cranes, bulldozers, excavators, drill rigs, and trucks. Noise generated by equipment at a distance of 15 m from these machineries' cabs is presented in the following table:

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

Table 18: Noise Levels from Various Machinery (at 10 m)[37]

Noise Source	Equivalent Noise Level, dBA
Excavator (excavation works)	73
Dozer (Bulldozer) (cleaning site)	75
Auto (mobile) crane	83
Truck	80
Drill Rig Truck	77

Source: WSDOT measured data in FHWA's Roadway Construction Noise Mode Database (2005).

269. As shown in Table 18, the highest noise level will derive from trucks. To evaluate the impact of noise on the population living in the closest settlements a noise propagation exercise was undertaken. Table 19 provides the results of the exercise during the main works. The surface factor (area between the construction site and living houses is mostly earth) will reduce noise at least by 2.5 dB. In accordance with the vineyard design, the administrative buildings will be built between the project plot and closest house. As the territory of the building will be fenced, it could also be considered as a screen which will reduce noise levels.

270. There are also several rows of trees between the pomegranate plot and the nearest houses in Varganza, can also be considered as a screen and reduce noise levels. It was assumed that a fence from breaks and trees will reduce noise levels by at least on 5 dB. Calculations of noise level propagation with and without the consideration of these barriers are presented in the following table.

Table 19: Noise Propagation with Distances

(maximum and with consideration reduction factors)

Distance	Noise level at the distance without any noise decreasing factors (maximum), dB	Noise level with consideration of surface factor (2,5 dB) and trees (for Varganza) and fence (for Tupchok) (5 dB)
10	83	75
120	65	56
200	58	50

271. According to the calculations, the permitted noise level (55dB) will be reached at the distance 125-130 m. The closest dwellings in Tupchok settlement (vineyard) are located at a distance more than 125 meters, and the distance between the project plots and houses in the Varganza settlement is more than 200 meters.

272. Therefore, the anticipated impact is considered as minor. The only mitigation measures will be:

Mitigation Measures

(i) Ensure that construction works are being implemented during the day time (from 7.00-19.00).

[37] Code of practice for noise and vibration control on construction and open sites.

Earth works, land leveling, construction works and traffic movements					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Temporary (weeks)	On-site	Weekly	Likely	Negligible
Receptor					Sensitivity
Residents of Varganza and Tupchok settlements					Low
Significance of Impact					
Negligible					

Residual Impact

273. The residual impact is considered to be **Negligible**.

Cumulative Impact

274. There are no other activities to be conducted on the subproject sites. Therefore, the cumulative impact is considered to be: **Negligible**.

275. The noise during construction works may have an adverse impact on workers working on the construction sites. To mitigate this impact, occupational health and safety requirements will be applied by all workers. More detailed information on occupational health and safety is provided in the Chapter on OHS.

276. Project workers will be exposed to noise from construction machinery as well as, potentially, hand-arm vibration from hand-held power tools, or whole-body vibrations from surfaces on which the worker stands or sits. Occupational Noise and Vibration will be managed through the development and implementation of Occupational Health and Safety Plan (OHSP), which will ensure compliance of the project with EHS Guidelines in relation to occupational health and safety noise and vibration. The plan will therefore include provision for the active enforcement of the use of ear protection for prolonged exposure to noise levels greater than 85 dB, as well as ACGIH[38] vibration limits, if appropriate.

Impact on Vibration Level

277. Vibration impacts during the construction stage could be caused by the same machinery. Vibration levels for different machinery were calculated in accordance with the methodology provided in the Transportation and Construction Vibration Guidance Manual (2013). Calculated values of vibration levels are presented in Table 20. The table does not provide data on mobile and assembled cranes since these vibration levels are not significant.

Table 20: Calculation of Vibration from Equipment

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

278. National standards for vibration levels in residential houses are provided in the Sanitarian Norms and Rules (SanN&R) № 0331-164 “Design of the living houses in climatic conditions of Uzbekistan”. For living houses the standards are 67 dB for nighttime and 72 dB for daytime with frequency in 37 and 61 Hz and for nighttime is 67 dB.

[38] ACGIH Guide to Occupational Exposure Values, 2005

Table 21: National Standards for Vibration

Period	Permanent Vibration dB
Day time	72
Night time	67

279. As shown in Table 20, vibrations from construction activities will not impact on people living in surrounding areas and structures since it is below standard (72 dB for daytime).

Earth works, land leveling, construction works and traffic movements					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Temporary (weeks)	On-site	Weekly	Likely	Negligible
Receptor					Sensitivity
Residents along rehabilitated pipeline					Low
Significance of Impact					
Negligible					

Significance of Impact
Negligible

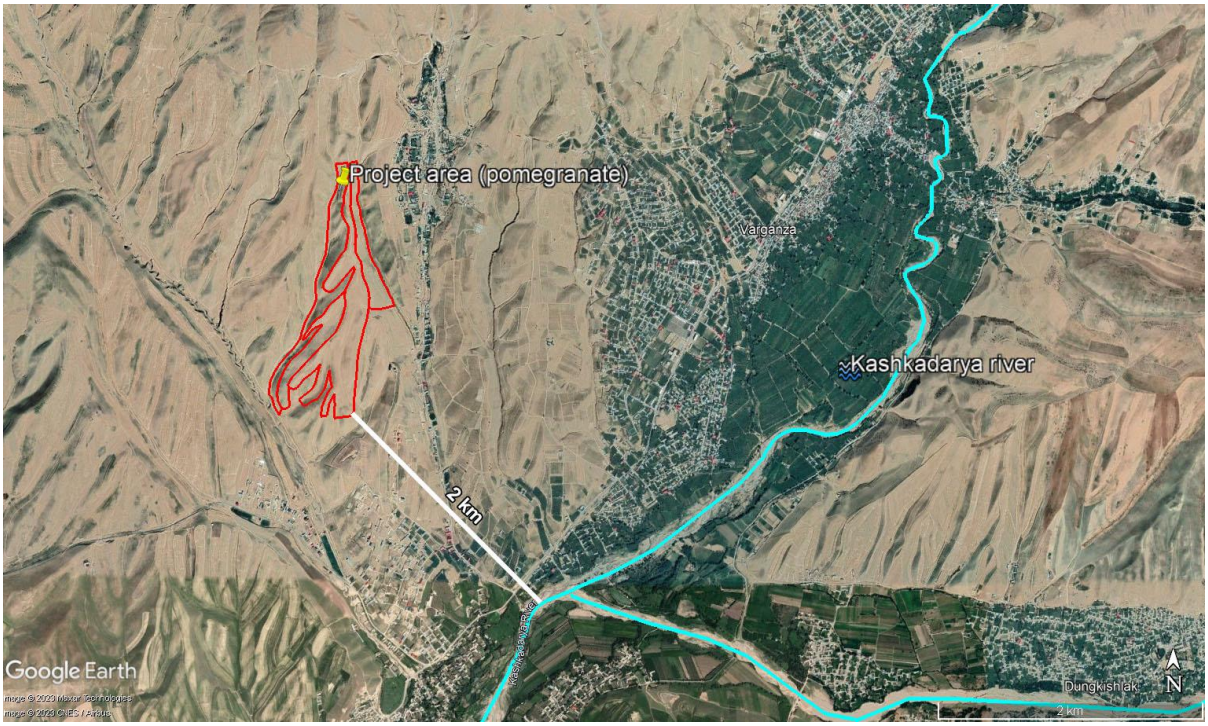
Residual Impact
280. The residual impact is considered to be **Negligible**.

Cumulative Impact
281. There are no other activities be conducted on the subproject sites. Therefore, the cumulative impact is considered **Negligible**.

Impact on Surface Water Resources
282. The closest surface water is the Akdarya river, located at a distance of 1.7 km from the project area. Due to its remoteness from the subproject areas, project activities will not have a significant impact on the river.

Figure 21: Distance Between Vineyard and Closest Water Course

Figure 22: Distance Between Pomegranate Site and Closest Water Course



283.. Therefore, the anticipated impact on water resources from project activities is considered **Negligible**.

Impact on Ground Water

284. The groundwater water table is located at a depth of more than 100 m within the subproject areas. The project will establish an estimated four boreholes in each location either within or close to the area to be farmed. It is unlikely that pollution of ground water will occur.

285. The improper storage of construction materials, the leakage of fuel and lubricates from construction machinery, and the washing of machinery and trucks at locations not equipped for these purposes could lead to soil pollution and as consequences, to the pollution of groundwater. Designated places for the washing of vehicles and their wheels must be equipped with internal wastewater collection networks and primary water treatment facilities to mitigate potential impacts on groundwater quality and the pollution of soil. These impacts are described further in Chapter V.B.2.a)(6).

286. Therefore, the anticipated impact on water resources from these project activities is considered as Negligible.

Impact on Soil

287. The main anticipated impacts on soil during construction activities will be related to soil pollution from machinery.

288. Gravel will be required for the construction of gravel roads. The unauthorized excavation of such construction materials and improper restoration works on used carriers could negatively impact on soil.

289. Starting in the construction phase, fertilization will be used on a regular base during the entire operation phase and in this regard, potential risks on soil pollution with chemicals may occur.

Mitigation Measures

290. To minimize impacts on soil quality, the following measures will be implemented:

(i) To minimize soil compaction, the movement of all vehicles will be allowed only through identified access roads;
(ii) Contractors will be required to use only authorized carriers with all necessary permissions per respective national legislation; and
(iii) Contractors will prepare Spoil Management Plans as part of the SSEMP and will ensure their properly implementation.

291. Soil pollution may occur due to the improper storage, handling and disposal of oil, fuel and hazardous materials. A description of impacts and required mitigation measures are provided in the next chapter.

Earth works, land leveling, construction works and traffic movements					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Temporary (weeks)	Local	Daily	Possible	Moderate
Receptor					Sensitivity
Soil within the project plots					Medium
Significance of Impact					
Moderate					

Significance of Impact
Moderate

Residual Impact
292. Following implementation of mitigation measures described above, the residual impact is considered to be **Negligible**.

Cumulative Impact
293. Similar activities which may impact on soil quality are not anticipated in the subproject areas, therefore the cumulative impact is considered to be **Negligible.**

Waste Management
294. During the construction of the essential buildings and water supply and drainage network, both municipal/general waste from the site offices, construction camps, and possibly hazardous wastes from the items of machinery on site will be generated.

Hazardous Construction Waste
295. During the construction of the essential buildings and water supply and drainage networks, both municipal/general waste from the site offices, construction camps, and possibly hazardous wastes from the items of machinery on site will be generated.

296. During the construction phase, the following hazardous wastes will be generated from vehicle operation and maintenance: engine, hydraulic and transmission oils along with oil filters and absorbents. In the case of the improper handling and disposal of such materials, pollution of soil may occur. Along with this, such materials are hazardous to human health. To mitigate these impacts, the following measures are recommended:

Mitigation Measures

(i) A Waste Management Plan will be developed by Contractors, endorsed by the ISC, and approved by the PIU for the construction plots. The plan will include information about the type and amount of wastes generated, and the procedure of their collection and disposal. The plan also will include information about responsible persons and training, and contain an action plan for emergencies;

(ii) A spill response plan will be developed and implemented;

(iii) The refueling of vehicles and replacement of oils will be conducted at specially designated and properly equipped locations. Emergency procedures will be provided for fuel and oil spill accidents; and

(iv) Used oils from vehicles and machinery will be stored for collection by designated oil recyclers.

Earth works, land leveling, construction works and traffic movements					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Temporary (months)	Local	Weekly	Possible	Moderate
Receptor					Sensitivity
Soil and ground water within the project sites					Medium
Significance of Impact					
Moderate					

Residual Impact

297. Following the implementation of mitigation measures described above, the residual impact is considered to be **Negligible**.

Cumulative Impact

298. Similar activities which may impact on soil quality are not anticipated at the subproject areas, therefore the cumulative impact is considered to be **Negligible**.

Non-hazardous Wastes

Municipal wastes

299. Municipal solid wastes will be generated at the construction and camp sites, and improper collection, storage, recycling, and disposal of these wastes may cause the spread of infectious diseases, and the emergence of insects and parasites in construction camp sites. This in turn may lead to conflicts with the local population.

Construction wastes

300. Construction wastes will be generated during the construction of essentials buildings, consisting of broken bricks, glasses, used wood, and other demolition materials. Besides these wastes, used welding rods, packing materials, and wood will be generated as well.

301. Other demolishing metal construction will be sold to the respective disposal company – Vtorchermet.

Mitigation Measures

302. The following measures will be implemented for the proper management of non-hazardous solid wastes:

(i) Implementing a practice of segregation of wastes for recyclable and non-recyclable waste fractions;

(ii) Contracting with waste disposal organizations for the timely collection, transportation and disposal of non-recyclable wastes;

(iii) Installing and maintaining proper segregated waste bins throughout the construction sites and workers camps;

(iv) Selling recyclable wastes to relevant organizations (paper, scraps, accumulators) and the timely removal and disposal of residual wastes; and

(v) The prohibition of waste burning.

Construction Camp Performance

Construction camp performance					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Temporary (months)	Local	Daily	Unlikely	Low
Receptor					Sensitivity
Ground water deposits, residents of the project area					Medium
Significance of Impact					
Minor					

Residual Impact

303. Following the implementation of the mitigation measures described above, the residual impact is considered to be:

Negligible

Cumulative Impact

304. Similar activities which may impact from the management of solid wastes is not anticipated in the project area, therefore the cumulative impact is considered to be **Negligible**.

Biological Resources

Impacts on Flora

305. All construction works will be implemented outside of the city and on agricultural lands. In accordance with discussions with representatives of the Kashkadarya branch of MNR, there are no species included in the national Red Book and IUCN Red List. Therefore, the anticipated impact on flora biodiversity during the construction period will be Negligible.

Impacts on Fauna

306. The typical fauna of the project sites is represented by the mountain foothill zone. Most parts of the selected plots have been used in agriculture already. The closest natural protected area to the project site is the Kitob State Reserve, located at a distance of 19 km from the subproject sites. Due to its remoteness, the impact on fauna will not be significant.

Figure 23: Distance from the Project Sites to Kitob State Reserve

307. Therefore, the anticipated impact on fauna biodiversity from project activities is considered to be **Negligible**.

Impacts on Land Use

308. Impacts on land use were assessed based on involuntary resettlement materials prepared for the project. The total affected land is 200.00 hectares in size, comprising both farmlands and hokimiyat's reserve land. The total area owned/used by land users is 167.6 ha, with the remaining 32.4 ha located in part of the hokimiyat's reserve land. There is a total of 11 affected land users (all AHs are farms). All the affected nine land users will experience permanent impacts in land acquisition. The reserve land (32.4 ha) was previously used as agriculture land, but due to its

poor condition and the lack of irrigation, the plots were abandoned and have not been used for several years.

309. Losses for each affected person will be fully compensated in accordance with the land acquisition and resettlement plan (LARP) prepared in compliance with ADB SPS and national legislation.

310. Since the acquired lands used as agricultural land and after project implementation it will be used for agricultural purposes, the impact on land use will be minor.

Construction of main pipeline, construction and reconstruction of water supply and sewage network					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Permanent	Local	One time	Likely	Low
Receptor					Sensitivity
Land users and trees owners					Medium
Significance of Impact					
Minor					

311. To mitigate these impacts, the following mitigations measures will be implemented:

(i) ASO will ensure that all compensations for land acquisition will be completed in accordance with the LARP before the commissioning of construction works; and

(ii) All construction works on the project plots will be implemented within the defined borders of the plots.

Residual Impact

312. Following implementation of mitigation measures described above, the residual impact is considered to be **Negligible**.

Cumulative Impact

313. Similar activities which may impact on land use are not anticipated in the subproject areas, therefore the cumulative impact is considered to be **Negligible**.

Socio-economic Resources

314. Personnel of differing qualifications will be needed for construction works, and members of the local population could be hired for some activities, therefore creating new jobs. Moreover, indirect services could also be needed possibly for housing, catering and other types of services. These economic benefits for the population will contribute to overall positive project impacts. Besides economic impact, civil works may however create some risks related to the safety of the population. These risks are described in the following text.

315. An increase in traffic intensity is anticipated, and besides it being a general nuisance for the local population, it may also increase road accident risks. A more detailed description on this impact and the proposed mitigation measures are provided in Chapter V – occupational health and safety.

Construction camp performance					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Temporary (months)	Local	Daily	Possible	Low
Receptor					Sensitivity
Local population					Low
Significance of Impact					
Minor					

Mitigation Measures

316. The following measures will be undertaken to minimize or compensate these impacts:

(i) Hire local population with suitable qualifications for works to the extent possible;
(ii) Inform the population in advance about planning works.

Residual Impact

317. Following implementation of the mitigation measures described above, the residual impact is considered to be **Negligible**.

Cumulative Impact

318. The cumulative impact is considered to be **Negligible**.

Occupational and Community Health and Safety Issues

319. Besides impacts on air, and soil quality, described in previous chapters, certain risks may take place related to occupational and community health and safety.

Community Health and Safety

320. Untimely and inefficient disposal of solid wastes and improper sanitary conditions generated by construction workers at construction sites may cause pollution of the surrounding environment and affect the health of local people.

321. During the construction phase, the traffic will have the potential impact on local community safety, workforce safety, and traffic flows in the project sites.

322. There could also be social problems due to the irresponsible behavior of the outside work force such as gambling, alcoholism, and disrespectful actions to the local people and their culture.

323. Cultural interference workers with local communities may cause HIV and sexually communicable diseases spreading in case of law awareness about these diseases among workers and community.

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

Mitigation Measures

325. The following measures will be undertaken to minimize these impacts:

(i) Contractors will inform the population about anticipated works in settlements in advance;
(ii) Contractors will be required to develop a TMP as part of the SSEMPs, with clear signage of routes of vehicle movements, the enforcement of speed restrictions

inside settlements, and transportation schedules to avoid peak traffic periods. Agreement of the TMP will be obtained from the local traffic police. The TMP will be disclosed to local communities prior to the commencement of construction works on respective sites;

(iii) Clear signs will be placed at construction sites in view of the public, warning people of any potential dangers such as moving vehicles, the location of hazardous materials and excavations etc. and raising awareness on safety issues;

(iv) All construction sites (especially inside settlements) must be properly lit and fenced;

(v) After the completion of construction works, all negatively affected roads will be rehabilitated at least up to pre-construction condition;

(vi) Carry out regular awareness campaigns among work staff, including specific hazards associated with the spread of HIV/AIDS;

(vii) Contractor will develop and implement Construction Camps Management Plan;

(viii) After completion of the main construction, contractors will provide full reinstatement of the construction and camp sites by restoring them to their primary condition;

(ix) All solid wastes will be removed and any temporary structures (such as buildings, shelters, and latrines) removed once they are not required;

(x) All hardened surfaces within the construction camp area will be ripped, and all imported materials removed; and

(xi) The ISC will conduct a post-construction audit during the defect liability period to ensure that construction sites and camps are properly cleaned and restored to pre-project conditions before the acceptance of works and hand-over to the ASO.

Construction camp performance					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Temporary (months)	Local	Daily	Likely	Minor
Receptor					Sensitivity
Local population					Medium
Significance of Impact					
Minor					

Residual Impact

326. Following implementation of the mitigation measures described above, the residual impact is considered to be **Negligible**.

Cumulative Impact

327. Similar activities which may impact on community health and safety are not anticipated in the project area, therefore the cumulative impact is considered to be **Negligible**.

Occupational Health and Safety

328. A Construction Camps Management Plan (CCMP) will be developed by contractors as part of the SSEMP, endorsed by the ISC, and approved by the PIU ISCAD prior to the commencement of works. The CCMP will direct waste collection and disposal procedures, and the establishment of camp facilities (such as a storage place for construction materials and equipment if any, laundry, toilets, and access roads) in a way which will minimize disturbances to the local population. The washing of equipment and vehicles will be prohibited in the territory of the construction camps, instead being performed at specially equipped locations outside of labor and construction camp sites. At the same time, the labor camps will provide for safe and adequate living conditions for workers, such as dining rooms, toilets, shower rooms etc. In addition, the contractors will instruct all the workers to act in a responsible manner.

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

330. Contractors will be required to develop and implement a project OHSP to establish measures to ensure project activities are carried out with minimal risk of injury or illness to workers for the duration of the project.

Mitigation Measures

331. The following measures will be undertaken:

(i) Contractors will comply with the requirements of the Labor Code of Uzbekistan (1998) and standards on work and health safety;
(ii) Contractors will develop an OHSP. The ISC will review and endorse, and the PIU ISCAD will approve the plans; and
(iii) Contractors will ensure the proper implementation of the above plans.

Construction camp performance					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Temporary (months)	Local	Daily	Likely	Moderate
Receptor					Sensitivity
Contractor workers					Medium
Significance of Impact					
Moderate					

Residual Impact

332. Following implementation of mitigation measures described above, the residual impact is considered to be **Negligible**.

Cumulative Impact

333. Similar activities which may impact on occupational health and safety of workers are not anticipated in the project area, therefore the cumulative impact is considered to be **Negligible**.

Cultural Heritage

334. The land and vegetation clearing, and other earthmoving activities during all works may affect the archaeological heritage of the subproject area. During IEE preparation, results of a desk study review and consultations conducted with local stakeholders, such as hokimiyats, mahallas, did not reveal any historical places within the project area. Moreover, as works will be implemented on already cultivated lands, the chance of finding cultural heritages is considered to be minimal. Therefore, the impact is considered as **Negligible**.

Cumulative Impact

335. Similar activities which may impact on the cultural heritage in the project area are not anticipated in the subproject areas, therefore the cumulative impact is considered to be **Negligible**.

3. Maintenance and Operation Stages

336. For both subproject plots, there is a non-productive period after planting of 3-4 years. Management contracts will be procured (either under a 'build operate and transfer' contract or as a separate management contract) during the establishment phase until the plots commence

commercial fruiting at which stage, the plots will be divided into individual blocks and long- term user rights be granted to interested small-scale farmers who might take up the smaller blocks. Therefore, the project's next period could be conditionally divided on two sub-stages: (i) maintenance of plots which be implemented by Management Contractor, (ii) and plots operation period when small scale farmers will take over individual blocks. The activity on maintenance of plots will be similar to the operation period. The main difference will be related to harvesting of crops during operation period. Specifically, during this period, it is anticipated that more workers will be attracted for harvesting and more traffic will be for transportation harvested fruits to the market or for processing. The below sections examine anticipated impacts during both sub-stages.

Site Maintenance

a. Impact on the air quality

337. Impact on air quality during the project maintenance and operation phases could be caused by maintenance works related to the spraying of grapes by chemicals and vehicles movement. Spraying will be implemented mechanically with usage of machinery which will be purchased under the project (Chapter 3, Table 14).

338. Spraying of chemical in windy weather can take chemicals beyond the territory of the vineyard plots and impact on the health of population living in the closest settlement. Moreover, improper handling and storage of chemicals by workers it can harm their health. This impact and necessary is reviewed in Chapter 3-e.

339. During operation period, increasing of vehicles movement will be related to transportation of harvested crops to the markets or processing facilities.

340. Burning of wastes on the territory of plots also will lead to air pollution.

Site maintenance					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Short -term	On-site	Daily	Unlikely	Low
Receptor					Sensitivity
Population living in the project area					Medium
Significance of Impact					
Minor					

341. To mitigate the anticipated impacts the following measures are recommended:

Mitigation Measures

342. The following measures will be undertaken:

(i) Prohibit for all type vehicles to remain at idle on more than 5 minutes;

(ii) If movement of trucks will be during the dry season, Maintenance Contractor will apply watering of roads located close to settlements; and

(iii) Strongly prohibit to burn any wastes on the project territory.

Residual Impact

343. Following implementation of mitigation measures described above, the residual impact is considered to be **Negligible**.

Cumulative Impact

344. Similar activities which may impact on air quality in the project area is not anticipated in the project area, therefore cumulative impact is considered to be **Negligible**.

b. Impact on the Noise Level

345. The operation will not generate noise and vibration which may adversely impact on people and integrity of the houses and buildings.

346. The project involves the purchase of machinery and equipment to maintain the site, which in turn will produce noise. However, the noise that will be produced will be short-term and will not exceed the standards, since the closest building is located on the distance of 120 m.

347. Nevertheless, it is important to make sure that machinery and equipment will not disturb local people during night time.

Site maintenance					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Short-term	On-site	Daily	Unlikely	Low
Receptor					Sensitivity
Population living in the project area					Medium
Significance of Impact					
Minor					

Mitigation Measures

348. The following measures will be undertaken:

(i) Prohibit use honks by vehicles on access roads and on the territory, especially during the night time;

(ii) Prohibit to use machinery during the night time.

Residual Impact

349. Following implementation of mitigation measures described above, the residual impact is considered to be **Negligible**.

Cumulative Impact

350. Similar activities which may impact on noise level in the project area are not anticipated in the subproject areas, therefore cumulative impact is considered to be as **Negligible.**

c. Impact on Water Resources

351. The main impacts on water resources during maintenance phase will be ground water use for irrigation and pollution. For irrigation of the project plots and drip irrigation will be used. It will increase water use efficiency and, as consequences will decrease water use. For these purposes four ground water wells will be constructed and maintenance on each project plot. Each water pump will be equipped with water meter.

352. Pumped ground water from the same wells could be used for drinking and washing purposes. The water will be tested on compliance with national standards for drinking water

quality.[39] If water quality does not meet standards, water will be delivered to the site from the certified providers.

353. Overuse of available ground water deposits may lead to depletion of water resources. To ensure availability of water resources, need to receive confirmation of Conclusion on extraction water from Ministry of Natural Resources (MNR) after taking an approval from the Committee on Geology and Mineral Resources.

354. Therefore, anticipated impact on ground water resources is evaluated as negligible.

Site maintenance and operation					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Long-term	Local	Yearly	Unlikely	Low
Receptor					Sensitivity
Groundwater deposits					Medium
Significance of Impact					
Minor					

Mitigation Measures

355. To avoid the negative impact on ground water deposits due to water withdraw, the following mitigation measures will be applied:

(i) Maintenance Contractor will Develop Statement on Environmental Consequences (SEC) and receive no objection from MNR;

(ii) Maintenance Contractor will conclude an agreement with local companies (relevant city Suvtaminot LLCs) on disposal of waste water;

(iii) Maintenance Contractor will receive permission in accordance with Resolution of Cabinet Ministries of RUz # 255 dated from 31 March 2018;

(iv) During irrigation period Maintenance Contractor shall ensure that withdrawing amount of water follows established limits (that will be indicated in Conclusion from the MNR) for each borehole; and

(v) Prohibit discharge of untreated water into soils.

Residual Impact

356. Following implementation of mitigation measures described above, the residual impact is considered to be **Negligible**.

Cumulative Impact

357. Similar activities which may impact on the water resources in the project area is not anticipated in the project area, therefore cumulative impact is considered to be as **Negligible**.

d. Waste Management

Non-hazardous Waste

358. Organic residual from post harvesting process, communal wastes, packing materials, plastic bottles and bags, organic wastes will be generated during the maintenance and operation phase. Improper storage and disposal of household waste can lead to the emergence and spread

[39] National Standard of Uzbekistan "Drinking Water Quality Standard OzDSt 950:2011"

of infectious diseases among workers and surrounded population of surrounded settlements. Plastic bags can be carried by the wind over long distances and pollute nearby communities.

359. It is anticipated that organic wastes will be re-used as fertilizers after composting on the same plots. During maintenance phase GAP practice will be introduced to the farmers and it is anticipated that small size farmers who will take over sub-plots will implement this practice during their performance. It is anticipated that all non-recyclable wastes will be generated in very small amount, since most of anticipates wastes could be re-used.

Site maintenance and operation					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Long-term	Local	Seasonal/biannual	Possible	Low
Receptor					Sensitivity
Workers on the plots, population of the neighboring settlements					Medium
Significance of Impact					
Minor					

Mitigation Measures

360. To avoid the negative impact on ground water deposits due to water withdraw, the following mitigation measures will be applied:

(i) Conclude agreements with local companies for the removal and disposal of waste;
(ii) Separate all wastes on recyclable and non-recyclable;
(iii) Re-use or sell recyclable wastes to the relevant agencies, non-recyclable -dispose on the closest landfill;
(iv) Separate organic wastes and composting them in accordance with GAP as fertilizer for soil;
(v) Install sufficient number of bins for collecting waste. Clean all waste bins daily and store garbage in a specially designated area in accordance with GAP and open spaces for subsequent removal for disposal on the municipal landfills; and
(vi) Burning oil will be strictly prohibited.

Residual Impact

361. Following implementation of mitigation measures described above, the residual impact is considered to be **Negligible**.

Cumulative Impact

362. Similar activities which may impact on the water resources in the project area is not anticipated in the subproject areas, therefore cumulative impact is considered to be **Negligible**.

Hazardous Waste

363. Hazardous wastes will be generated during repairing works of machinery, equipment and when batteries and lightning bulbs are replaced. Improper handling and disposal of such lamps may lead to poisoning of operating personnel, other persons who will be in contact and pollution of the environment.

364. Also, the inorganic fertilizers and agro-chemicals for improving soil quality and crop protection will be used during maintenance and operation period. Potential impacts of hazardous

materials (fertilizers, agro-chemicals, oil for machinery) is discussed in the following Chapter V-3. Improper handling and disposal of used containers will lead to soil pollution and harm to health of workers. The application of fertilizer and agro-chemicals will be implemented through drip irrigation which significantly minimize the risk of soil pollution. However, improper disposal of used container may lead to adverse impacts.

Mitigation Measures

(i) Prohibit to release used oil or any chemicals on the ground water. All vehicle and machinery maintenance works will have to be implemented in the specially designed workshops;

(ii) Maintenance Contractor with support of ISC will develop Pest Management Plan and will ensure it is proper implementation;

(iii) Maintenance Contractor will dispose used oil in accordance with national regulation;

(iv) Conclude agreements with local companies for the removal and disposal of waste.

(v) Sell recyclable wastes to the relevant agencies, non-recyclable will be disposed to the city landfill;

(vi) Install sufficient number of bins for collecting waste. Clean all waste bins daily and store garbage in a specially designated area in the park and open spaces for subsequent removal for disposal on the municipal landfills;

(vii) Burning oil will be strictly prohibited; and

(viii) Conclude agreements on disposal used batteries and lamps with relevant agencies specializing on this.

Site maintenance					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Permanent	Local	Monthly	Likely	Low
Receptor					Sensitivity
Workers on the plots, population of the neighboring settlements					Medium
Significance of Impact					
Moderate					

Residual Impact

365. Following implementation of mitigation measures described above, the residual impact is considered to be Negligible.

Cumulative Impact

366. Similar activities which may impact on hazardous wastes management in the project area is not anticipated in the project area, therefore cumulative impact is considered to be **Negligible**.

e. Community Health and Safety

367. Potential negative health risks during maintenance and operation phases of plots will be associated with increasing of traffic during the harvesting period. This period will be around 1 month for pomegranate and up to 3 months for vineyard. Therefore, traffic safety measures have to be taken for this period of time.

368. Another risk will be related to spread of the chemicals beyond territory of the plots and impact on population during the wind weather. Spreading of chemicals will be short term – during

one-two weeks every year. Nevertheless, measures to protect against negative impacts on community health will be required.

369. Improper handling and disposal of fertilizers may also lead to risk for community health.

370. Beside this, Occupational Health and Safety Plan need to be developed by ASO in assistance with ISC. The OHSP includes Fire Safety, Action plan for emergency situation. These documents will be developed in accordance with national requirements.

Site Maintenance					
Type	Duration	Extent	Frequency	Likelihood	Magnitude
Direct	Temporary	Local	1-3 months	Possible	Moderate
Receptor					Sensitivity
Population of Katta Tupchok and Varganza settlements					Medium
Significance of Impact					
Moderate					

Mitigation Measures

371. The administration of all facilities will;

(i) Maintenance Contractor will Develop Traffic Management Plan;

(ii) Use of pest control only chemicals officially approved for use in Uzbekistan;[40]

(iii) Ensure handling, storage and disposal of chemicals for pest control and fertilizers in fully compliance with GAP requirements;

(iv) Develop an Occupational Health and Safety Plan, which includes Fire Safety, Action Plan for emergency situation; and

(v) Ensure proper implementation plans during operation.

Residual Impact

372. Following implementation of mitigation measures described above, the residual impact is considered to be **Negligible**.

Cumulative Impact

373. Similar activities which may impact on community and occupation health and safety are not anticipated in the project area, therefore the cumulative impact is considered to be **Negligible**.

f. Occupational Health and Safety

374. During plots maintenance and operation phases the main risks related Occupation Health and Safety for plots' workers will be related to the waste management, machinery maintenance and handling pests and pesticides.

375. The plots will be set up in accordance with GAP requirements which cover all potential impacts for OHS during maintenance and operation phases. Therefore, it will be essential implementation of GAP by all workers.

Mitigation Measures

(i) Conduct continuous training on GAP for all workers; and

[40] The latest version of "List of pesticides and agrochemicals permitted for use in agriculture of the Republic of Uzbekistan" was approved in 2017 and available on www:lex.uz .

(ii) Ensure fully compliance with GAP requirements.

4. Transboundary Impact

376. In accordance with IFC Guidance Note,[41] transboundary impacts are impacts that extend to multiple counties, beyond the host country of the project, but are not global in nature.

377. In the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991), the notion of "transboundary impact" is defined as any impact, not exclusively of a global nature, within an area under the jurisdiction of a Party caused by a proposed activity the physical origin of which is situated wholly or in part within the area under the jurisdiction of another Party.

378. Within current IEE, it was accepted that transboundary impact is an impact that affects receptors, beyond the boundaries of the country in which the project is located and produces transboundary effects, including global effects.

379. Project plots in Kitob district is located 30 km to the west from Tajikistan - the closest neighboring country. Considering scale of project works and anticipated environmental impacts, it could be concluded that the project will not have transboundary impact during both phases – construction and maintenance.

Climate Change

380. During construction phase the impact of project activities on climate change will be limited by exhausted gases from working machinery and application of manure and fertilizers for improving soil fertility.

381. To minimize the project impact on Climate Change from working machinery, all purchasing equipment will meet requirements for national standards for “Euro-3”.

382. Since application of chemicals and fertilizers will be optimized through introducing drip irrigation, amount of used chemicals will be minimal.

383. Form other hand, the project will be adopted to the risks related to Climate Change – such as water scarcity and increasing of temperature during the hot season. Application of drip irrigation will allow to get the same amount of harvest with much less amount of water.

384. Selection of types of crops for cultivation on the project plots was done with consideration of local weather conditions and available natural resources.

385. Thus, during the project maintenance stage some negative impacts and risks may take place. However, all of them could be mitigated by implementation of proposed measures described in EMP and required by national legislation. Detail information about impacts, recommended mitigation measures, responsible people for EMP implementation, and estimates for these activities are presented in Chapter IX.

[41] International Finance Corporation’s Guidance Notes: Performance Standards on Environmental and Social Sustainability, 2012.

VII. ANALYSIS OF ALTERNATIVES

386. Within the framework of this project, the following alternatives were considered:

(i) Project plots' location;
(ii) Type of cultivated crops; and
(iii) The situation "without the project."

387. At the project preparation stage, the selection criteria for the project plots' location were defined, with consideration of social and environmental requirements identified among the economic requirements. Thus, the selected site had to be within easy reach for small-size farmers, as they would be the main beneficiaries of the project during the operational phase.

388. There should be access to water resources (surface or underground) within the territory of the selected plots, so that there would be no need to construct canals or build pipelines to deliver water. The selected plots also should not be located on the territory of protected areas, or within the boundaries of sanitary protection zones.

389. As a result of the screening, pilot plots were initially selected due to them being located near settlements and being previously used for agricultural purposes. Due to the lack of sufficient water resources for irrigation in the conventional way however, and the lack cultivation skills for these certain types of crops, these areas were subsequently abandoned.

390. The crops selected for cultivation have to be readily adaptable to local climatic conditions, and be in commercial demand for export sales. Therefore, pomegranate and grapes were selected for growing on the project plots. These crops are well adapted to local climatic conditions and will have a high added value when GAP will apply for their growing.

391. In a "no project" situation, large areas of land would continue to be unused due to a lack of water, and the opportunity to grow highly valuable crops would be lost. Accordingly, farms would lose income that they would receive as a result of the project.

VIII. INFORMATION DISCLOSURE, CONSULTATION, AND PARTICIPATION

A. Consultation

392. One of the main goals of the IEE is to facilitate the participation of all stakeholders and local communities at all stages of the project cycle: from the pre-construction phase and construction activities to its operation. In this regard, consultations were held in the project provinces in November 2022 to capture the stakeholders' opinions about the project and agree on the project activities. In total, 59 persons (male 51, 86.4% and female 8, 13.6%) have participated in these meetings.

393. Prior to the public consultations, several meetings were conducted with internal and external stakeholders, such as representatives of the district hokimiyats, mahallas and farmers. The information on the planning works was also provided during conduct of focus group discussion and socio-economic surveys.

394. To deliver information about the Project components, its environmental impacts, and the grievance redress mechanism (GRM), the TRTA consultants prepared leaflets in the Russian and

Uzbek languages with brief information on these topics (Appendix 1. Leaflet distributed during the Public Consultation). The leaflets also provided information on the type of mitigation measures, and contacts for clarifications and grievance submission, if any. The information in the leaflet was printed (100 copies) and distributed in hokimiyats located in project mahalla in Kitob district in Kashkadarya province. In total, 100 leaflets were distributed among the citizens of the project area.

395. The main objectives of the public consultations were the following:

(i) to disseminate information to the people about the project regarding its activities and scope of work;
(ii) to seek local peoples' views on minimizing probable adverse impacts on the environment and on livelihoods;
(iii) to make people aware of the process of the GRM;
(iv) to assess the local people's willingness to get involved with the project, and enumerate the measures to be taken during the implementation of the project; and
(v) to make people aware of the relevant policy principles of national laws and ADB's Safeguard Policy Statement (2009) related to environment protection.

396. Public Consultations were held on 15 November 2022 in Kitob district of Kashkadarya province by TRTA.

397. The main issues raised during the meetings with public are presented in Table 22. Further information of the public consultation is in (Appendix 2. Record of public consultations (List of the participants and photos from meetings).

Table 22: Questions and Answers Raised During the Public Consultation

Issues Raised	Response
Kashkadarya province, Kitob district, 15 November 2022	
Who is funding agency for the project?	The project will be funded through an ADB loan.
When will the project start?	According to plan, the project will start in 2023
What needs to be done to get this loan?	The project is under development, as the project scheme will be developed in detail, additional consultations will be held on this matter.
Is it necessary to leave some kind of collateral for this?	
To whom we need to address our concerns and suggestions?	You have been provided by the project brochure, you can check the GRM information and contact details there.
Is there any chance to change the project area?	This is a draft design which is not finalized yet, however the location of the project areas was provided by local hokimiyat.
The participants would like to know how to lodge a grievance in case of a complaint.	AHs can file grievances verbally by phone to the mahalla office, district hokimiyat, and the PIU. The AHs can also make written complaints to the address which is mentioned in the brochure.
Are there any new job positions available for the persons from our village?	It depends on selected contractors, if they need new positions for workers, they could engage workers from the closest villages. As soon as more information is ready, the Executing Agency and local hokimiyat will inform the local population officially.

B. Information Disclosure

398. As part of information disclosure, the summary of the final versions of the IEE, EMP, and GRM will be translated into the Uzbek language, the full report will be translated into the Russian language, and all these documents will be published on the ISCAD's PIU website. In addition, the printed version of the final IEE report in the Russian language as mentioned above, and the parts in Uzbek, will be sent to the Kitob branch of the Ministry on Natural Resources, and the mahalla committee in the closest community (Varganza for pomegranate plot and Katta Tupchok – for grape plot) for further use during the construction and operation phases. For all interested parties, the IEE (in English and Russian, and summary in Uzbek) will be available at the offices of the PIU ISCAD and their websites. (Table 23).

Table 23: Method of Information Disclosure

Information	Language	Disclosure Method
Project Leaflet	Russian and Uzbek	- 100 copies will be distributed to the community: - Uploaded to the ISCAD's PIU website: - Leaflets delivered to the Kitob district hokimiyat.
IEE	English (full version)	- Disclosed on ADB website: https://www.adb.org/
	Russian (full version)	- Available on the ISCAD's PIU website: - Sent to the Kitob branch of the MNR: - Available at the offices of the PIU and Field Coordinator.
	Uzbek (summary)	
SAEMR	English	- Published on ADB website: https://www.adb.org/.
	Russian	- Available on the ISCAD's PIU website.

IEE = initial environmental examination, SAEMR = semi-annual environmental monitoring report.

C. Further Communication with Stakeholders

399. Future consultations for project stakeholders will follow as outlined below.

(i) During implementation, in case of any changes in the design/alignment/location, or if unanticipated environmental impacts become apparent, the IEE will be updated accordingly. The PIU-NES, in assistance with the District Coordination Officer, will hold at least one public consultation meeting in the project mahallas at the early stages to solicit perceived impacts, issues, concerns, and recommendations from affected communities. The way public consultations are to be conducted should be agreed with the local hokimiyat in order to meet national requirements and WHO technical guidance in dealing with COVID-19.

(ii) Prior to construction, the PIU ISCAD, with support of the District Coordination Office, will conduct an intensive information, education and communication (IEC) campaign to ensure a sufficient level of awareness/information among the affected communities regarding the upcoming construction, its anticipated impacts, the GRM, contact details of District Coordination Office and PIU ISCAD, and status of compliance with the Government's environmental safeguard requirements.

IX. GRIEVANCE REDRESS MECHANISM

400. The grievance redress mechanism (GRM) provides for the grievance address of any actions and decisions that violate the rights and legitimate interests of citizens affected by the Project. It also stipulates the procedure for dealing with grievances, from individuals and legal entities, within the project implementation framework.

401. In accordance with the ADB SPS, the GRM will be established immediately after the Project becomes effective. The main goals of the GRM are to ensure the free submission and timely redress of grievances and concerns submitted by project affected persons, as well as to resolve grievances at the Project level. In addition to the GRM being an ADB requirement, the GRM is also regulated by the national legislation of the RUz by the law "On appeals of individuals and legal entities" (No. 445, 2017).

402. The GRM will be established at the project level, considering the local legislation on the resolution of grievances, and ensuring that affected persons are provided with timely resolution of issues arising because of the project.

403. Individuals and legal entities in the Project areas will be fully informed of their rights and procedures to address grievances, whether verbally or in writing, and whether during public consultations and through the local media.

404. The GRM at the Project level will not impede access to judicial or administrative remedies. Affected persons can approach a court at any time, independent of the Project-level grievance redress process.

405. The project proposes three levels of the GRM:

(i) Level-1 – District Coordination Officers (in Kitob and Bakhmal districts), together with the project beneficiary (mahalla) or Contractor;
(ii) Level-2 – PIU ISCAD in Tashkent; and
(iii) Level-3 – Court of Law (Economic Court).

Table 24: Contacts of the Grievances Redress Responsible Agencies

Location	Position	Contacts
Bakhmal district	District Coordination Officers	Mustakillik St. 42, City: Usmat, Jizzakh region, 131000, Uzbekistan
Kitob district	Kitob District Coordination Office Hokimiyat of Kitob	Katta Yul St. 32, Ali Qushchi Makhalla, Kitob District, Kashkadarya Region
Tashkent	ISCAD's PIU	Tashkent, Navoi str. 1

A. Level 1: District Coordination Officers (in Kitob and Bakhmal districts) together with the Project Beneficiary (Mahalla) or Contractor

406. At this level, an applicant will submit a grievance directly to the District Coordination Officer, who, after the registration of received grievance (application, proposal, grievance), will notify the applicant of the receipt of the grievance and, if requested, will submit registration data according to the records of the registration card (including the registration number, date of

registration, person who received the grievance, etc.). All grievances received will be registered in a logbook which will be available at each point of entry to the project plots.

407. District Coordination Officers will inform applicants concerning the procedures and terms of the grievance redress, study the nature and specifics of the grievance and, within its powers, will take measures for its redress. In parallel, District Coordination Officers will inform the ISCAD's PIU and relevant beneficiaries of the Project (cities hokimiyats, farmers) of the received grievance.

408. If necessary, a District Coordination Officer will send a grievance to the relevant party to resolve the issue in accordance with established procedures. Depending on its nature, the grievance can be forwarded for redress to state authorities, local authorities, contractors, mahalla community council, hokimiyat, as well as to specially authorized state bodies (such as the Kitob branch of the Ministry of Natural Resources, the State Architecture and Construction Inspectorate, the State Committee on Land Resources, Geodesy, Cartography, and State Cadastre).

409. Also, an affected person may approach a contractor. A Grievance Redress Register must be maintained by the contractor and shared with the ISCAD's PIU and District Coordination Officers for all such grievances. The contractor shall register the grievance and make efforts to resolve the grievance at that level in a consultative manner.

410. At this level, the grievance will be redressed within 15 days from the date of receipt with the adoption of a relevant decision.

411. Grievance redress will comply with the requirements of the legislation of the RUz requirements.

412. Based on the results of a grievance redress, District Coordination Officers will inform the complainant and ISCAD's PIU concerning the redress results and the measures taken. At this level, District Coordination Officers will be a focal point for dealing with any grievance, and will ensure close interaction with local and state authorities, and public administration bodies, for timely and high-quality grievance redress.

B. Level 2: ISCAD's PIU

413. In case the grievance cannot be redressed at the first stage due to its specifics, or if the applicant is not satisfied with the decision made, he/she can submit the grievance directly to the ISCAD's PIU who address the grievance at this level.

414. After the registration of received grievance (application, proposal, grievance), the ISCAD's PIU will notify the applicant of the receipt of the grievance and, if requested, will submit registration data according to the records of the registration card (including the registration number, date of registration, person who received the grievance, etc.).

415. If the issue raised in a grievance is not directly related to the Project, the ISCAD's PIU will familiarize the applicant with the goals and objectives of the Project, the measures provided for within the framework of Project implementation, and provide an appropriate explanation of the reasons why this grievance cannot be redressed by the ISCAD's PIU, after which the further instance will be recommended to the applicant where he/she should apply for the decision making.

416. When receiving grievances, the ISCAD's PIU will take the following actions:

(i) If necessary, it will establish a grievance handling team, which will include District Coordination Officers, ISC, representatives of contractors, local state authorities, and public administration bodies (hokimiyats);

(ii) If necessary, it will arrange the reception of the applicant and consultation on issues of interest within the framework of the Project, collection of information regarding the grievance, as well as monitoring for their complete, timely and high-quality redress;

(iii) The team will also ensure interaction with an independent appraiser (in case of grievances related to the assessment) to obtain an appropriate evaluation decision (report); and

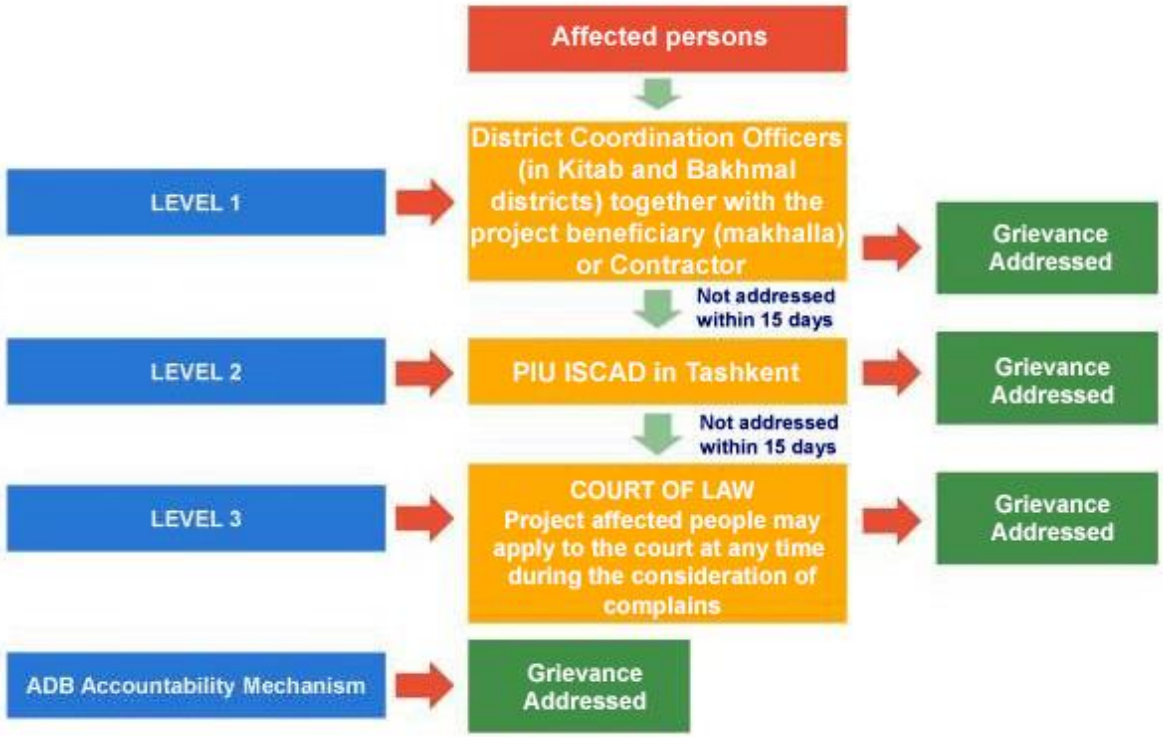
(iv) The grievance will be redressed within 15 days from the date of receipt, and in the case when additional study is required, up to one month.

C. Level 3: Court of Law (Economic Court)

417. If the grievance raised was not solved, or the applicant does not agree or is dissatisfied with the decision made, he/she may apply to a higher authority in the order of subordination or directly to the court for deciding in accordance with national legislation.

418. The procedures and stage of the GRM are outlined in Figure 25.

Figure 25: Procedure and Stages of the GRM



D. Compliant Handling System of the Republic of Uzbekistan

419. The National law on the appeals of individuals and legal entities obliges the state authorities to deal with requests and provides a clear framework to handle cases. This law has recently replaced previous laws on the requests of citizens, and gives the right for individuals and legal entities to file requests. The requests can be in the form of applications, proposals and complaints and submitted in three ways: oral, written, and digital format. In addition to the GRM for the project, affected persons can also submit their grievances through the virtual reception of the President of the Republic of Uzbekistan that contributes to the unquestioning implementation of the constitutional rights of citizens to appeal to the President of the Republic of Uzbekistan. Through this information system, any persons can send their applications, suggestions or complaints to the President of the Republic of Uzbekistan.

420. An online portal[42] provides contact details of the persons of various agencies and state committees, and the days and times at which they are available to resolve grievances, with an option of also sending a grievance through email. The portal has provisions for checking the status of the grievance, and for further appeals if the appellant has been harassed for raising the grievance.

421. The Law of the Republic of Uzbekistan on the Appeals of Individuals and Legal Entities was introduced on 29 October 2014, and this law replaced an earlier law on Appeal of Citizens that was introduced on 13 December 2012. This law guarantees the right to appeal, and prescribes the requirements of an appeal, its form and structure. Further, the timeline for addressing the appeal, the procedure for personal hearing, the need for maintaining records of appeals, and the procedures for second appeal are prescribed.

E. ADB's Accountability Mechanism

422. In addition to the project level GRM required by ADB's SPS, the ADB also has an Accountability Mechanism (AM) Policy (May 2012).[43] However, while the project level GRM is the responsibility of the EA, the Accountability Mechanism is the responsibility of ADB. The accountability mechanism provides opportunities for people (two or more complainants) that are adversely affected by ADB-financed projects to express their grievances, seek solutions, and report alleged violations of ADB's operational policies and procedures, including safeguards policy. ADB's accountability mechanism comprises (i) a Problem-Solving function led by ADB's special project facilitator to assist people adversely affected by ADB-assisted projects in finding solutions to their concerns, and (ii) Compliance Review function focuses on ADB's accountability on whether it has or has not complied with its operational policies and procedures that affect or may affect local people. This function is led by an independent Compliance Review Panel.

423. ADB's accountability mechanism is a 'last-resort' mechanism. The affected people are first expected to exhaust grievance handling mechanisms described in this IEE and the ADB operations department concerned (ADB Uzbekistan Resident Mission) before lodging a complaint with ADB's Accountability Mechanism.

[42] https://pm.gov.uz/ru#/map_app_root
[43] https://www.adb.org/who-we-are/accountability-mechanism/main

X. ENVIRONMENTAL MANAGEMENT PLAN

424. The EMP compiles the comprehensive information gathering a summary of impacts identified during impact assessment, the actions required to mitigate those impacts in accordance with the laws of Uzbekistan and the ADB SPS and the monitoring activities that are to be undertaken as part of the project to confirm that they have been effective in reaching their objectives.

425. Proposed mitigation and management measures targeted to avoid, reduce, mitigate or compensate for identified significant adverse impacts. The EMP consists of the following key components:

(i) Environmental mitigation measures;
(ii) Environmental monitoring; and
(iii) Implementation arrangements.

426. The principal purpose of an EMP is to provide a guide for ISCAD's PIU and Contractors in the formulation of appropriate management systems, plans and procedures to ensure compliance with national and ADB safeguards requirements. The requirements set out in this section and subsequent EMP should be included within contractual documentation with the relevant parties, as appropriate, to ensure there is clarity and commitment regarding contractor obligations related to environmental, health and safety management of the project.

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

A. Environmental Mitigation Measures

428. Mitigation measures required to address the impacts identified by this IEE have been consolidated in the following EMP (Table 25). The table provides information on anticipated significant impacts during the pre-construction, construction and operation phases with proposing mitigation measures, defining responsible party(s) for their implementation. ISCAD's PIU-NES) and Contractor's Environment, Health and Safety Officers (CEHSO) will be responsible people for EMP implementation.

429. Contractor(s) will be required to prepare SSEMP outlining how they intend to implement the EMP, describing the precise locations of the required mitigation /monitoring, the persons responsible for the mitigation / monitoring, the schedule and reporting methodology.

Impact	Mitigation measure	Responsibility	Cost
Pre-construction stage			
Lack of proper environmental requirements in the bidding documents	1. Agroservis Operator with support of Implementation Support Consultant (ISC) will ensure that detail design of the plots for vineyards is prepared in fully compliance with requirements indicated in the national regulation on protection of electrical facilities[44]; 2. Agroservis Operator with support of ISC will ensure inclusion of environmental provision along with EMP in the bidding documents and in contracts for Contractors;	Agroservis Operator (ASO) with support of Implementation Support Consultant ISC	Cost is included in ASO and ISC budgets
Improper assessment of bidders' environmental capacity	3. Agroservis Operator will ensure that bids' evaluation for Contractor selection will be done with consideration of capacity of bidders to meet EMP requirements, proposing adequate budget efficient for EMP implementation, existence of good practice in environmental performance within other similar projects;	Agroservis Operator with support of ISC	Cost is included in ASO and ISC budgets
Improper development of SSEMP	4. Prior preparation of Site-Specific Environmental Management Plan (SSEMP) Contractor will receive a written permit from NEGU on conduction of construction works. 5. Awarded Contractor will develop SSEMPs including TSEMPs under the guidance of the ISC prior to commencing any physical works. ISC will endorse the TSEMP before submission to Agroservis Operator for approval; 6. Contractors will prepare SSEMPs and TSEMPs (as part of SSEMP), endorsed by ISC and approved by PIU for the following activities: • Traffic Management Plan (TMP); • Wastes Management Plan; • Spoil Management Plan; • Construction Camp Management Plan (CCMP); • Occupational Health and Safety Plan (OHSP) – including conduction of works under transmission lines; • COVID-19 Health and Safety Management Plan and emergency response plan.	Agroservis Operator with support of ISC	Cost is included in ASO and ISC budgets

[44] Resolution of Cabinet Ministries # 1050 (2018)

Impact	Mitigation measure	Responsibility	Cost
	7. Contractor will ensure that SSEMP will include requirements indicated in permits from NEGU (if any);		
Non-compliance with national and international requirements during bidding for procurement of machinery and mechanisms	8. Agroservis Operator will ensure that goods procured for project implementation will be done in compliance with ADB Prohibited Investment Activities List set forth at Appendix 5 of ADB SPS; 9. Environmental specifications will be included in bidding packages for procurement of machinery under the project. Particularly, toxic level of machinery will meet "Euro 3" environmental requirements as defined by national regulations;[45]	PIU Procurement specialist and Agroservis Operator with support of ISC	Cost is included in ASO and ISC budgets
Non-compliances with national procedure of works. Accidents due to damage of underground utilities	10. Prior to civil works, the Contractor will get non-objection from all utility agencies such as gas supply, water, electricity, telecommunications, NEGU (for vineyard plot) and etc.;	Contractors with support of ISCAD's PIU	Cost is included in Contractors and ISCAD's PIU budgets
Generation of different potential environmental impacts due to changes in design, layout	11. If there are any unanticipated impacts or changes in the project design, the IEE/EMP will be updated to account for any additional or new environmental impacts and relevant corrective actions;	ISCAD's PIU-NES assisted by ISC	Cost is included in Contractors and ISCAD's PIU and ISC budgets
Construction stage			
Air pollution	12. Apply watering of construction sites and roads when trucks move during dry season; 13. Cover transported bulk materials; 14. All vehicles and equipment will comply with technical requirements and will pass regular inspection as indicated in the national standards[46]; 15. Conduct regular monitoring of air quality in accordance with EMP (Ошибка! Источник ссылки не найден.). In case of non-compliances with standards or grievance from the population, apply additional mitigation measures, such as more frequent watering.	Contractors implement ISCAD's PIU and ISC monitor implementation	Cost is included in Contractors, ISC and ISCAD's PIU budgets
Noise and vibration	16. Ensure that construction works are being implemented during the day time (from 7.00-19.00).	Contractors implement measures	

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

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

Impact	Mitigation measure	Responsibility	Cost
		ISCAD's PIU and ISC monitor implementation	
Soil contamination	17. To minimize soil compaction, movement of all vehicles will be allowed only through identified access roads; 18. Contractors will be required to use only authorized carriers with getting all necessary permissions per respective national legislation; 19. Contractor will prepare Spoil Management Plan as part of SSEMP and will ensure tis properly implementation; 20. Contractor will prepare Pest Management Plan as part of SSEMP and will ensure tis properly implementation.	Contractors implement PIU and ISC monitor implementation	Cost is included in Contractors, ISC and ISCAD's PIU budgets
Waste management	Hazardous wastes 21. A Waste Management Plan will be developed by Contractors, endorsed by the ISC, and approved by the PIU for the construction plots. The plan will include information about the type and amount of wastes generated, and the procedure of their collection and disposal. The plan also will include information about responsible persons and training, and contain an action plan for emergencies; 22. A spill response plan will be developed and implemented; 23. The refueling of vehicles and replacement of oils will be conducted at specially designated and properly equipped locations. Emergency procedures will be provided for fuel and oil spill accidents; 24. Used oils from vehicles and machinery will be stored for collection by designated oil recyclers. Non-hazardous wastes 25. Implementing a practice of segregation of wastes for recyclable and non-recyclable waste fractions; 26. Contracting with waste disposal organizations for the timely collection, transportation and disposal of non-recyclable wastes; 27. Installing and maintaining proper segregated waste bins throughout the construction sites and workers camps;	Contractors implement PIU and ISC monitor implementation	Cost is included in Contractors, ISC and ISCAD's PIU budgets

Impact	Mitigation measure	Responsibility	Cost
	28. Selling recyclable wastes to relevant organizations (paper, scraps, accumulators) and the timely removal and disposal of residual wastes. 29. The prohibition of waste burning.		
Impacts on land use	30. ASO will ensure that all compensations for land acquisition will be completed in accordance with the LARP before the commissioning of construction works; 31. All construction works on the project plots will be implemented within the defined borders of the plots.	Contractors implement PIU and ISC monitor implementation	Cost is included in Contractors, ISC and ISCAD's PIU budgets
Socio-economic environment	32. Hire local population with suitable qualifications for works to the extent possible; 33. Inform the population in advance about planning works.	Contractors implement PIU and ISC monitor implementation	Cost is included in Contractors, ISC and ISCAD's PIU budgets
Occupational and Community Health and Safety	**For community** 34. Contractors will inform the population about anticipated works in settlements in advance; 35. Contractors will be required to develop a TMP as part of the SSEMPs, with clear signage of routes of vehicle movements, the enforcement of speed restrictions inside settlements, and transportation schedules to avoid peak traffic periods. Agreement of the TMP will be obtained from the local traffic police. The TMP will be disclosed to local communities prior to the commencement of construction works on respective sites; 36. Clear signs will be placed at construction sites in view of the public, warning people of any potential dangers such as moving vehicles, the location of hazardous materials and excavations etc. and raising awareness on safety issues. 37. All construction sites (especially inside settlements) must be properly lit and fenced; 38. After the completion of construction works, all negatively affected roads will be rehabilitated at least up to pre-construction condition;	Contractors implement PIU and ISC monitor implementation	Cost is included in Contractors, ISC and ISCAD's PIU budgets

Impact	Mitigation measure	Responsibility	Cost
	39. Carry out regular awareness campaigns among work staff, including specific hazards associated with the spread of HIV/AIDS. 40. Contractor will develop and implement Construction Camps Management Plan; 41. After completion of the main construction, contractors will provide full reinstatement of the construction and camp sites by restoring them to their primary condition; 42. All solid wastes will be removed and any temporary structures (such as buildings, shelters, and latrines) removed once they are not required; 43. All hardened surfaces within the construction camp area will be ripped, and all imported materials removed; and 44. The ISC will conduct a post-construction audit during the defect liability period to ensure that construction sites and camps are properly cleaned and restored to pre-project conditions before the acceptance of works and hand-over to the ASO. **Occupation Health and Safety** 45. Contractors will comply with the requirements of the Labor Code of Uzbekistan (1998) and standards on work and health safety;47 46. Contractors will develop an OHSP. The ISC will review and endorse, and the PIU ISCAD will approve the plans; 47. Contractors will ensure the proper implementation of the above plans;		
Operation phase			
Impact on air quality	48. Prohibit for all type vehicles to remain at idle on more than 5 minutes; 49. If movement of trucks will be during the dry season, Contractor will apply watering of roads located close to settlements; 50. Strongly prohibit to burn any wastes on the project territory.	Maintenance Contractor Environmental Health and Safety Specialist	
Impact on noise level	51. Prohibit use honks by vehicles on access roads and on the territory, especially during the night time; 52. Prohibit to use machinery during the night time.		

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

Impact	Mitigation measure	Responsibility	Cost
Impact on water resources	53. Maintenance Contractor will Develop Statement on Environmental Consequences (SEC) and receive no objection from MNR; 54. Maintenance Contractor will conclude an agreement with local companies (relevant city Suvtaminot LLCs) on disposal of wastewater; 55. Maintenance Contractor will receive permission in accordance with Resolution of Cabinet Ministries of RUz # 255 dated from 31 March 2018; 56. During irrigation period Maintenance Contractor ensure that withdrawing amount of water follows established limits (that will be indicated in Conclusion from the MNR) for each borehole; 57. Prohibit discharge of untreated water into soils;	Maintenance Contractor, Environmental Health and Safety Specialist	
Waste management	**Hazardous wastes** 58. Conclude agreements with local companies for the removal and disposal of waste; 59. Separate all wastes on recyclable and non-recyclable; 60. Re-use or sell recyclable wastes to the relevant agencies, non-recyclable -dispose on the closest landfill; 61. Separate organic wastes and composting them in accordance with GAP as fertilizer for soil; 62. Install sufficient number of bins for collecting waste. Clean all waste bins daily and store garbage in a specially designated area in accordance with GAP and open spaces for subsequent removal for disposal on the municipal landfills; 63. Burning oil will be strictly prohibited. Non-Hazardous wastes 64. Prohibit to release used oil or any chemicals on the ground water. All vehicle and machinery maintenance works will have to be implemented in the specially designed workshops; 65. Maintenance Contractor with support of ISC will develop Pest Management Plan and will ensure it is proper implementation;	Maintenance Contractor, Environmental Health and Safety Specialist	

Impact	Mitigation measure	Responsibility	Cost
	66. Maintenance Contractor will dispose used oil in accordance with national regulation[48]; 67. Conclude agreements with local companies for the removal and disposal of waste. 68. Sell recyclable wastes to the relevant agencies, non-recyclable will be disposed to the city landfill. 69. Install sufficient number of bins for collecting waste. Clean all waste bins daily and store garbage in a specially designated area in the park and open spaces for subsequent removal for disposal on the municipal landfills; 70. Burning oil will be strictly prohibited; 71. Conclude agreements on disposal used batteries and lamps with relevant agencies specializing on this.		
Community Health and Safety	72. Maintenance Contractor will Develop Traffic Management Plan; 73. Use of pest control only chemicals officially approved for use in Uzbekistan[49]; 74. Ensure handling, storage and disposal of chemicals for pest control and fertilizers in fully compliance with GAP requirements; 75. Develop an Occupational Health and Safety Plan, which includes Fire Safety, Action Plan for emergency situation; 76. Ensure proper implementation plans during operation;	Maintenance Contractor, Environmental Health and Safety Specialist	
Occupational Health and Safety	77. Conduct continuous training on GAP for all workers; 78. Ensure fully compliance with GAP requirements;		

DED = detailed engineering design, EMP = Environmental Management Plan, OHSE = (Contractor's) Occupational Health and Safety Engineer, PIU = Project Implementation Unit, PIU-NES = PIU's National Environmental Specialist, PIU-SSS = PIU-Social Safeguard Specialist, ISC = Implementation support consultants, ISC-NES = ISC's national environmental specialist, ISC-NSS = ISC's national social safeguards specialist, SPS = ADB's Safeguard Policy Statement (2009), SSEMP = Site Specific Environmental Management Plan.

[48] Resolution of Cabinet Ministries of RUz # 258 "On collection, storage and further disposal of used technical oil" dated from 4 September 2012.

[49] The latest version of "List of pesticides and agrochemicals permitted for use in agriculture of the Republic of Uzbekistan" was approved in 2017 and available on www:lex.uz

B. Environmental Monitoring

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

(i) Instrumental Monitoring for environmental quality such as air quality (in case of complaints from population) and soil quality on annual base. Costs for this equipment and services are included in ISC budget. Schedules, parameters, locations are presented in Table 26.

(ii) Observational Monitoring – Throughout the Projects Construction phase, Contractor's Environmental, Health and Safety Specialist (EHS) and ISC will continually monitor the Contractors actions. This will be achieved through weekly inspections of the Contractors environmental performance by ISC-NES throughout the construction period. ISC will have the right to suspend works or payments if the Contractor is in violation of any of his obligations under the EMP and SSEMPs.

431. Developed within current IEE, an EMP provides details on required measurements, the locations of measurements points, frequency and responsibilities associated with each monitoring task (Table 26).

432. Besides instrumental environmental monitoring indicated in Table 26, monitoring of EMP's implementation will be carried out. For efficient implementation of this activity, several levels of supervision activities will be undertaken: (i) daily inspection by Contractor's EHS, (ii) monthly inspection by ISC-NES, and (iii) periodic audit (quarterly) by ISCAD's PIU-NES.

433. Results of environmental performance including monitoring activity will be properly documented and reported. Each Contractor will perform a book logbook with information about conducted training on Environmental, Health and Safety for workers and another book for registration accidents during the civil works. Original records on results of required instrumental environmental monitoring (air and water quality) will also be kept in the separate file for records.

434. Prior to commencement of the civil works, Contractors with assistance of ISC will develop a format for site inspection to optimize a process of environmental supervision. The format could be in form of checklist with list of mitigation measures to be implemented at the construction sites, their performance status and some explanations as required.

Table 26: Environmental Monitoring Plan

Mitigation measures	Parameter to be monitored	Location	Frequency	Responsibility	Standards	Cost
Construction Stage						
A. Air quality	NO_x, SO_2, CO	In front of the closest houses in Varganza and Katta Tupchok settlements	In case of grievance from population	ISC will hire certified laboratory to conduct analysis	Hygienic norms. List of Maximum Allowable Concentrations (MACs) of pollutants in ambient air of communities in the RUz including Annex 1. SanR&N RUz No.0179-04 (**Ошибка! Источник ссылки не найден.**)	Costs of hiring external laboratory is included in ISC budget
B. Waste management	Observation of compliance of waste management in accordance with EMP and Waste management plans	Construction sites	1. D&C Contractor - daily 2. ISC - once per week	Contractor's EHS – implement ISC-NES – monitor implementation	Compliance with EMP and Waste Management Plan	1. Costs included in the Contractor's and ISC' budgets.
C. Drinking water quality	As indicated in State standard O'zDSt 950:2000 Drinking water	1. Ground water from wells located in the Project plots	1. D&C Contractor – once before commissioning of construction works	Contractor's EHS – implement ISC NES – monitor implementation	State standard O'zDSt 950:2000 Drinking water	2. Costs of water quality analysis will be included in ISC budget.
Maintenance and Operation Stage						
D. Soil quality	Location defined by ISC	Project plots	Once per year – in spring	ISC	State standard O'zDSt 950:2000 Drinking water	Costs are included in the ISC budget

Mitigation measures	Parameter to be monitored	Location	Frequency	Responsibility	Standards	Cost
E. Waste management	Observation of compliance of waste management in accordance with EMP and Waste management plans	Construction sites	1. D&C Contractor - daily 2. ISC - once per week	Contractor's Environmental Engineers Supervision Consultant's National Environmental Specialist	Compliance with EMP and Waste Management Plan	Costs included in the Contractor's and ISC' budgets.

C. Reporting

435. The proposed reporting system is for whole Horticulture Intensification and Productivity Enhancement Project. The semi-annual environmental monitoring report (SAEMR) will cover two subprojects (i) a plot for development at scale for table grapes, and (ii) a plot to be developed at scale for pomegranates.

436. During pre-construction, after loan effectiveness, the PIU-NES will prepare the SAEMRs for submission to ADB. The report will provide relevant information on implementation of mitigation measures/actions indicated in EMP for pre-construction phase.

437. During construction, contractor(s)' environmental and hygiene specialist will be responsible for the preparation of weekly environmental checklists and environmental section of the contractor's monthly progress reports. The template of checklist and format of monthly progress report will be endorsed by ISC and approved by PIU ISCAD prior to the construction commencement. The reports should comprehensively address all relevant aspects of environmental requirements and all environmental audits undertaken during the period covered by the report. The monthly reports will be reviewed and endorsed by the contractor's project manager and then submitted to the ISC and PIU ISCAD for review.

438. ISC will prepare Quarterly Progress Reports to PIU which includes the information on the implementation and compliance with the EMP/SSEMP, including information on oil spills, accidents, grievance received, if any, and appropriate actions taken.

439. Based on the contractor's monthly environmental reports, observation from the site visit and the ISC's Quarterly Progress Reports, the ISC will support PIU ISCAD in preparing SAEMRs (in January and July every year). ISCAD's PIU will keep records, summarize and analyze the received grievances, include information about this in the semi-annual environmental monitoring reports (SAEMRs) and social safeguards monitoring reports, that will be submitted to ADB.

440. Within three months after completion of all construction works, a report on the project's environmental compliance performance (including lessons learned that may help MOA and PIU ISCAD in their environmental monitoring of future projects) will also be prepared. This report will be part of the input to the overall Project Completion Report.

441. The SAEMRs will be disclosed on ADB website. The relevant information of the reports will be translated into both Uzbek and Russian languages and disclosed to the affected people by posting on ISCAD - PIU website. In addition to the above-mentioned reports, in case of any accident related to occupational and community health and safety, ISCAD - PIU is expected to (i) report to ADB within 72 hours, and (ii) prepare and submit an incident report with action plan within seven days of the occurrence. ISC will support the ISCAD's PIU in preparing such reports.

D. Implementation Arrangements

1. Institutional Arrangements

a. Ministry of Agriculture

442. Project implementation will be for four and a half years (October 2023–March 2028). The MOA is the executing agency and responsible for overall project coordination with government agencies, high-level decision making to ensure timely implementation, and liaising with ADB and

other development partners. MOA will provide detailed PIU staffing arrangement for Tashkent and other regions, and associated costs.

443. The main responsibility of MOA for this project will include:

(i) Oversee and monitor project implementation including,
(ii) Adequacy of overall project funding,
(iii) Project progress reports,
(iv) Project financial management, and
(v) Primary point of contact on project matters for ADB.

b. ISCAD's Project Implementation Unit

444. ISCAD's PIU will be the implementing agency and responsible for (i) day-to-day project management and administration; (ii) overseeing detailed designs, procurement, bid evaluation report preparation, and construction supervision; (iii) acting as the employer in all contracts; (iv) overseeing project financial management, accounting and auditing; (v) implementing institutional strengthening and capacity development; (vi) managing safeguards compliance; (vii) ensuring loan covenant compliance; (viii) maintaining a project performance monitoring system and preparing progress reports, and (ix) reporting to ADB and other government agencies.

445. The ISCAD's PIU will be responsible for monitoring of implementation of EMP to comply with ADB's safeguards requirements and environmental national regulations. The ISCAD's PIU will hire one full time (36 person-months) National Environmental Specialist (PIU-NES) exclusively for this project, who will be assisted by the ISC-NES in overseeing the implementation of the EMP.

446. The main responsibility of ISCAD's PIU relevant to environmental aspects will include:

(i) Oversee day-to-day project execution, supervision and management,
(ii) Collect necessary inputs to prepare quarterly and annual project progress reports environmental and social monitoring reports, and the project completion report,
(iii) Conduct financial, environmental, and social due diligence for proposed subprojects as necessary in consultation with relevant government agencies and ADB,
(iv) Administer the project grievance redress mechanisms, and
(v) Supervise consultants' work and provide timely guidance.

c. Agroservis Operator

447. The Agroservis Operator (ASO) under MOA's Agency for Orchards and Greenhouse Development will assist ISCAD in procurement and subloans administration.[50] The PRF implementation experience will prepare the ASO to administer the ensuing investment project

[50] ASO was established in April 2021 as a state unitary enterprise under MOA's Agency for Orchards and Greenhouse Development. Its key mandate is to assist ISCAD in the implementation of the World Bank's Agriculture Modernization Project ($130 million), especially in administrating loans to small-scale farmers. For the proposed PRF, ASO will not be directly involved in daily operations of the vineyards and orchards, which will be managed by private professional horticulture farm operators (para. 16.i).

with the establishment of a project implementation unit, and sufficient capacity building in advance of the full investment project.

448. Responsible for day-to-day project implementation including and their duties relevant to environmental aspects will include:

(i) Develop detailed design and technical specifications, bidding documents for procuring the investment items identified,
(ii) Forward detailed design and technical specifications, bidding documents to ISCAD to procure goods and works,
(iii) Appoint field managers to maintain developed plots until bearing age is achieved (Kitob district only),
(iv) Lease newly developed areas to interested parties with an associated debt servicing agreement to repay the development funds used in developing the area and including a contribution to associated on-farm infrastructure developed, and
(v) Collect beneficiary sub-loan repayments to service the ADB loan through the Ministry of Finance in accordance with the loan agreement.

d. District Coordination Offices

449. District Coordination Offices will be in charge for the following:

(i) Coordinate project activities in the district,
(ii) Assist in the identification of beneficiary farmers and enterprises,
(iii) Assist in identifying investments to be financed by the project,
(iv) Support contractors as they construct project funded investments,
(v) Monitor compliance with social and environmental safeguards,
(vi) Provide a channel of access for grievance redress under the project, and
(vii) Provide routine reports on implementation progress and overall impact.

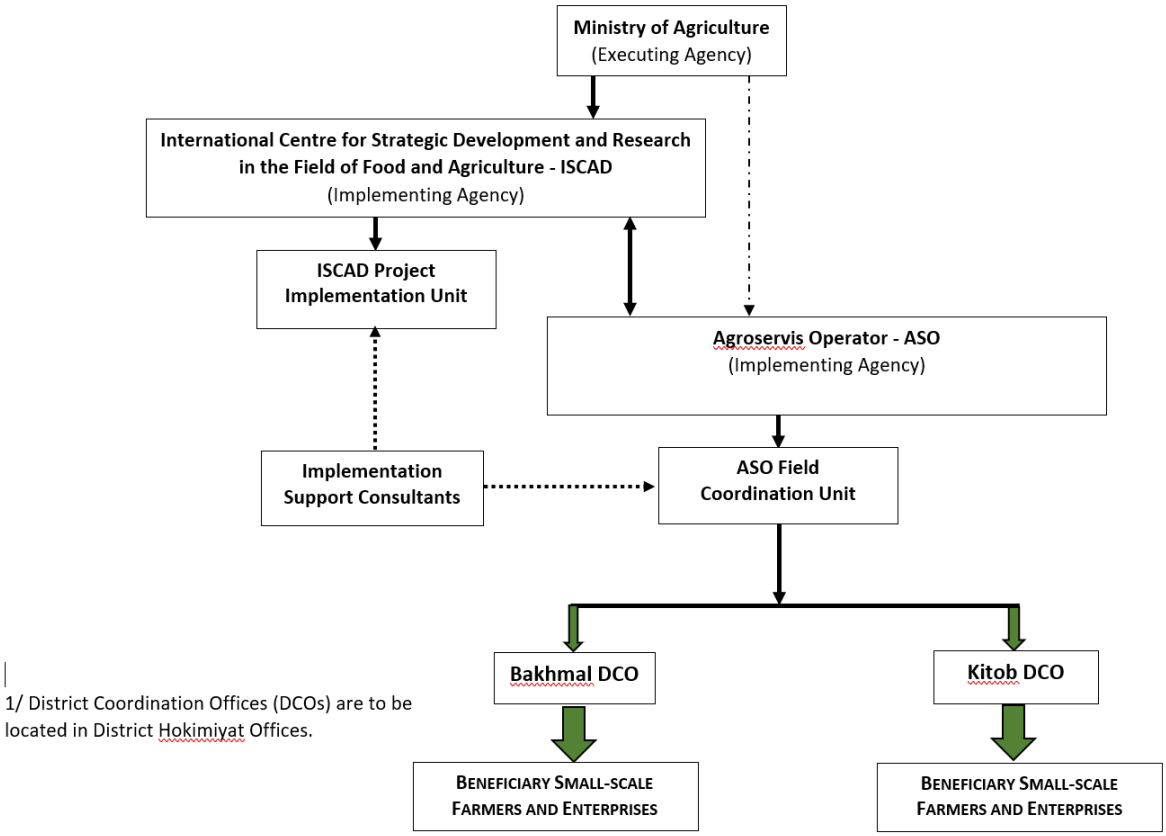
450. District Coordination Offices will hire environmental specialist on full time job (36 person month).

Table 27: Indicative Implementation Arrangements

Aspects	Arrangements
Indicative implementation period	October 2023–March 2028
Indicative completion date	30 September 2028 (loan closing date: 31 March 2028)
Management	
(i) Executing agency	Ministry of Agriculture
(ii) Key implementing agency	(i) International Center for Strategic Development and Research in the Field of Food and Agriculture (ii) Agroservis Operator

451. Project organization structure and key staff: the reporting lines essential internal structures of key organizations involved in implementation is shown in Figure 26.

Figure 25: Project Organizational Structure



e. Implementation Support Consultant

452. Implementation Support Consultant (ISC). The ISC will assist ISCAD and ASO in implementing the activities of the project to achieve its outputs: (i) Kitob and Bakhmal districts on-farm intensification and expansion activities, (ii) value-chain initiatives in both districts, and (iii) project management.

453. The ISC will work closely with ISCAD's PIU and ASO based in Tashkent and with its FCUs in Bakhmal district (Jizzakh province) and Kitob district (Kashkadarya province).

454. Two types of implementation support will be provided. The first is the more traditional support for implementation progress monitoring, addressing social and environmental safeguards, procurement, financial management and monitoring the release and utilization of loan funds etc. This will be directed at ISCAD's PIU. The second is more technical in nature, involving engineers, agronomists etc. to support the ASO implement the pilot project. Key aspects of the consultant's work related to environmental aspects will be:

(i) Support overall implementation of the pilot project;
(ii) Ensure that social and environmental safeguard requirements are incorporated into all project activities as required by ADB and government; and
(iii) Support the establishment of a grievance redress mechanism developed for the project.

455. ISC will hire National Environmental Specialist (NES) – 6 person-months. The duty of environmental specialist will include:

(i) Ensure the detail design is prepared in line with the IEE/EMP requirements (consideration of High-voltage transmission line requirements.);
(ii) Assist ISCAD's PIU in updating this IEE if there are any unanticipated impacts or changes in the project design;
(iii) Assist ISCAD's PIU to establish a system to monitor environmental safeguards of the project;
(iv) Ensure that the relevant environmental mitigation measures specified in the EMP cleared by ADB is incorporated into bidding documents prior to issuance of the invitation for bidding;
(v) Provide on-the-job training programs to PIU and Contractors staff involved in project implementation for strengthening their capacity in managing and monitoring environmental safeguards;
(vi) Support ISCAD's PIU in preparation of semi-annual environmental monitoring reports; and
(vii) Ensure that the GRM established for the project is in place and is working effectively. Ensure proper documentation and support in speedy redressal of grievances.

f. Contractors

456. It is anticipated that three contractors will be hired to implement this project:

(i) Design and Construction Contractor – duration of the contract will 12 months;
(ii) Maintenance Contractor – duration 36 months

457. Design and Construction Contractor (DCC) will be responsible for EMP/SSEMP implementation during construction phase. Prior to commencing any physical works, SSEMPs including TSEMPs will be developed by the Contractor under the guidance of the ISC and be endorsed by ISC before submission to ISCAD's PIU for approval. The SSEMP is the document that the Contractors will prepare outlining how it intends to implement the EMP and ensure that all mitigation and monitoring measures are completed according to the implementation arrangements specified in this EMP. SSEMPs will be needed for major environmental issues and most critical sites relating to sensitive receptors.

458. During the Construction phase, each contractor must retain the expertise of environmental engineer and OHSE to prepare and update the SSEMP and to oversee and report on the SSEMP implementation throughout the contract period. DCC will appoint an environmental, health and safety specialist (6 person-months) who will be responsible for implementation of SEMP during construction period.

459. Maintenance Contractor will be in charge for implementation of EMP during maintenance period – 3 years after construction. Environmental, H&S specialists will be in charge of implementation of SEMP during maintenance period (18 persons-months).

Figure 26: Structure of Project Implementation Unit

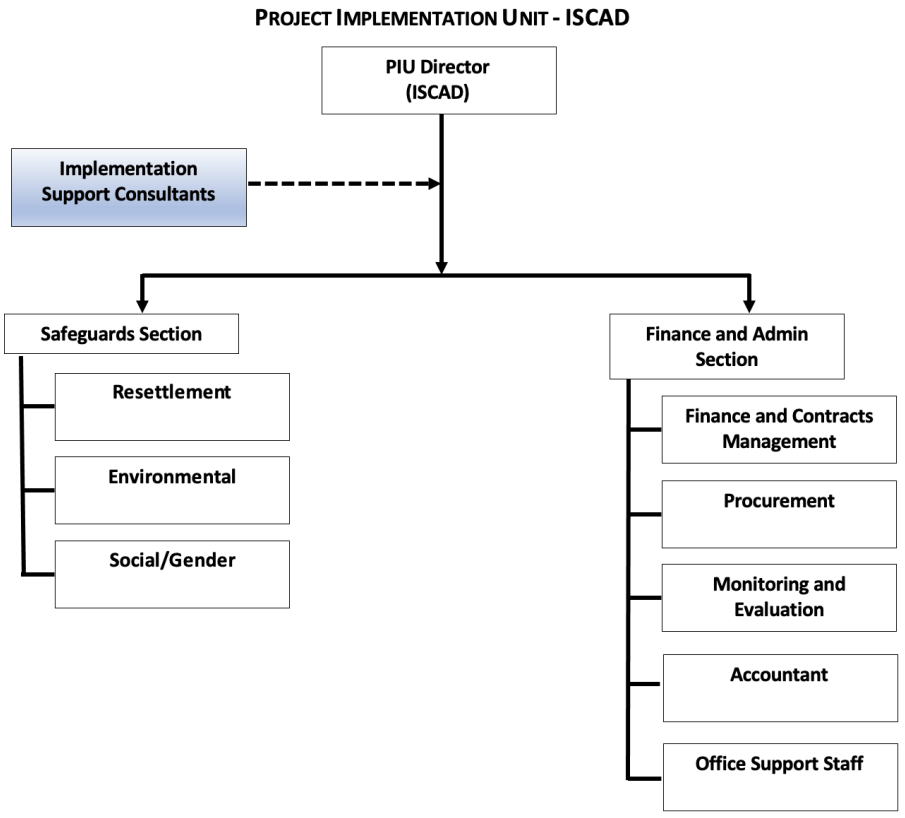
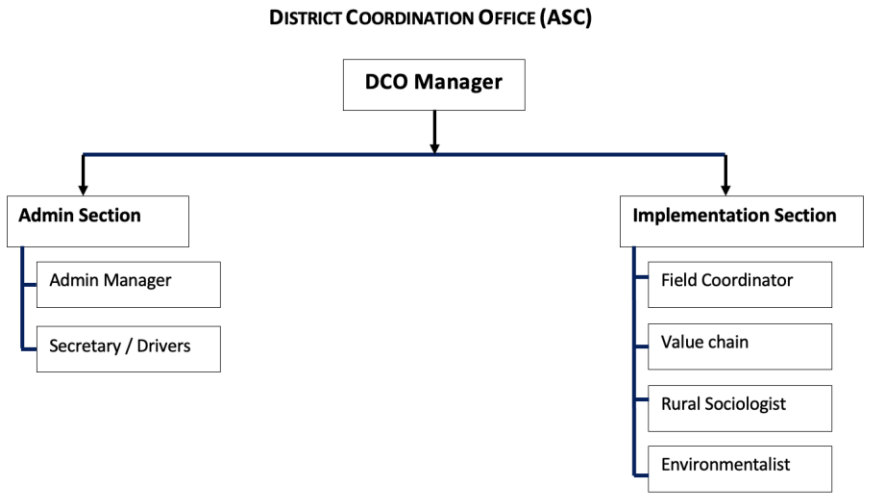


Figure 27: Structure of District Coordination Office



g. Other Agencies

460. Kashkadarya branch of MNR will be also involved in the process of project implementation and further operation. MNR will review the Preliminary Environmental Impact Statement (PEIS) and will issue Environmental Appraisals. Based on the results of conducted national PEIS, a list of mitigation measures and monitoring activities will be indicated in an Environmental Appraisal. The requirements are mandatory for implementation during construction phase by the project owner. Inspectors from Kashkadarya branch of MNR will monitor implementation of the requirements indicated in the Environmental Appraisal.

2. Capacity Building Activities

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

(i) ISCAD's PIU capacity on EMP implementation during construction and maintenance stages - to enhance PIU's capacity on the EMP implementation ISC-IES will provide respective training for PIU-NES and further assistance in monitoring SSEMP implementation and guidelines for Contractors' Environmental Officer (CEO) as required.

(ii) Agroservis Operator, District Coordination Office and Contractors' capacity on overall environmental performance during the project maintenance and operation stages – ISC jointly with PIU-NES will develop and conduct training program on general compliance with national environmental requirements such as timely receiving necessary permission, conduction monitoring of environmental performance and submission reports to respective national agencies and etc. Contractors will be educated on SSEMP and TEMP development and its proper implementation.

(iii) Implementation of GAP in small-size farmers and Agroservis Operator performance in the project area – ISC will develop training program and conduct trainings for small size farmers whom small sub-plots will be transferred. The training will among others will cover the following topics: occupational health, health, safety and welfare of employees, health and safety requirements with risks assessment, dangerous situations and first aid, personal protective equipment, waste management, environment protection, GRM.

462. The tentative plan of required training is presented in Table 28.

Table 28: Tentative Program of Training for ISCAD's PIU, ASO and Contractors

	Name of Training	Time	Recipients	Organizer
1	Overall EMP implementation, Environmental Monitoring Reports preparation. Development of SSEMP and TEMP	Prior commencement of the construction works on the project plots	PIU-ISCAD NES, DCO ES, CEOs	ISC
2	SSEMP and TEMP implementation	Prior commencement of the civil works	Contractors' workers	CEOs with support of ISC
3	Topic specific training under GAP	Before starting respective works	PIU-ISCAD NES, Agroservis	ISC

	Name of Training	Time	Recipients	Organizer
		during maintenance and operation phases	Operators' environmental specialists, Small-size farmers and their workers	

EMP = Environmental Management Plan, ISCAD's PIU-= Project Implementation Unit under ISCAD, DCO= District Coordination Office, CEO = Contractor's Environmental Officer, ISC = Implementation Support Consultant, SSEMP = Site Specific Environmental Management Plan, TEMP - Topic-Specific Environmental Management Plan.

3. Cost Estimation for EMP Implementation

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

(i) Conduction instrumental environmental monitoring of air quality by ISC in case of complaints from population; and

(ii) Conduction soil quality analysis to define amount and type of fertilizers to apply for improving soil quality.

464. Cost estimation for EMP by the main items are presented in Table 29.

Table 29. Cost Estimate for Design and Construction Contractor and Maintenance Contractor Environmental Management

Description	Unit	Quantity	Rate	Amount
DCC EHS	month	6	$500.0	$3,000
MC EHS	month	12	$500.0	$6,000
			Sub-Total	$9,000.0
			Contingencies (10%)	$900.0
			Total:	**$9,900.0**

Table 30. Cost Estimate for the ISC's Environmental Monitoring

Description	Unit	Quantity	Rate	Amount
Soil quality	2 plots, 4 points once per year during 5 years	**40** (2 plots x 5 years x 4 locations)	$50	$2,000.0
Air Quality (SO_2, NO_2, CO, PM_{10})[51]	2 sites, 2 points once per complaints from population	**20** (2 times/year x 5 years x 2 locations)	$50	$1,000.0
Water quality	4 wells in two plots	**8**	$70	$ 560.0
			Sub-Total	**$3,560.0**
			Contingencies (10%)	$356.0
			Total	**$3,916.0**

51 Analysis will be conducted by external laboratory.

Table 31. Cost Estimate for ISC Environmental Management

Description	Unit	Quantity	Rate	Amount
Environmental Specialist (ISC - ES)	month	6	$4,000	$24,000.0
Environmental Monitoring (**Ошибка! Источник ссылки не найден.**)	See **Ошибка! Источник ссылки не найден.**		$3,300	$3,300.0
			Sub-Total	**$27,300.0**
			Contingencies (10%)	**$2,730.0**
			Total	**$30,030.0**

Table 32. Cost Estimate for ISCAD's PIU, Agroservis Operator, DCO's Environmental Management

Description	Unit	Quantity	Rate	Amount
ISCAD-PIU National Environmental Specialist (ISCAD-PCU NES)*	month	36	$1,000	$36,000
DCO National Environmental Specialist (NES) **	month	36	$800	$28,800
			Sub-Total	**$64,800.0**
			Contingencies (10%)	**$6,480.0**
			Total	**$71,280.0**

* ISCAD's PIU NES's responsibilities will cover two project provinces: Bakhmal (Jizzakh) and Kitob (Kashkadarya)
** DCO NES will be in charge only for Kitob district

XI. CONCLUSIONS AND RECOMMENDATIONS

465. The IEE has confirmed that the project will have environmental impacts limited within the project area, therefore, the project is Category B under ADB SPS.

466. The project will be implemented mainly in areas that were previously used for agriculture, but due to the lack of available water resources and good practices in the cultivation of highly profitable crops, were abandoned and not used.

467. During project implementation, the main environmental impacts will be during the construction phase in the form of dust and waste generation. A slight increase in the movement of vehicles on the site and adjacent territories is expected. It will be necessary to pay attention to health and safety issues when operating machines on construction sites and provide appropriate living conditions for workers.

468. The impact of the project during the operation phase will also be associated with the operation of machinery during field works and the transportation of harvested crops to processing plants and markets. During the operation phase, it will be necessary to strictly follow the rules for handling chemicals and fertilizers, in accordance with GAP.

469. The application of mitigation measures developed as part of this assessment will minimize the negative impact of the project on the environment.

470. In general, the project will have a significant positive socio-economic effect, as it will provide jobs for the local population both at the construction and operation stages.

471. Scaling up this project on the example of project sites in other districts and regions of the country will increase the income of small farms and households. The project will serve as a good example of the practical use of water-saving technologies and best agricultural practices, which will ensure the sustainable and environmentally friendly development of the country's rural regions.

XII. APPENDICES

APPENDIX 1. LEAFLET DISTRIBUTED DURING THE PUBLIC CONSULTATION

Russian version – Uzbek Version follows

Пилотный проект по интенсификации садоводства и повышению продуктивности

Цель проекта

Интенсификация и расширение садоводческих инициатив и оценка механизмов их реализации в пилотных районах

Ориентировочные Результаты

Интенсификация и расширение инициатив в области садоводства и оценка механизмов их реализации в пилотных районах

Цепочки создания стоимости товаров консолидированы и укреплены для создания добавленной стоимости

Запланированные этапы

2019 PCF-Исследования 2022 TRTA-Проект 2025 2026 Полная реализация 2031

Положение о Политике по Защитным Мерам (SPS, Июнь 2009)

Основные виды воздействия на окружающую среду

Этапы проекта

Этапы подготовки строительства

На этапе строительства

Во время реализации проекта

КОНТАКТНАЯ ИНФОРМАЦИЯ ДЛЯ СПРАВОК

Информация ГРП: Международный центр стратегического развития и исследований в сфере продовольствия и сельского хозяйства при Министерстве сельского хозяйства
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Факс: +99871 241-52-01

Пилотный проект по интенсификации садоводства и повышению продуктивности

Объекты, на которые были изучены воздействия:

Воздействия на атмосферу

- Пыль
- Шум

Мероприятия по снижению воздействия на атмосферу - пыль

- Ограничение скорости при движении транспорта
- Использование полива для борьбы с пылью

Мероприятия по снижению воздействия на атмосферу - шум

- Ограничение времени работы тяжелой техники с 8 утра до 7 вечера

Организация строительного лагеря

- Строительство рабочего лагеря

Строительный лагерь. Мероприятия

- Соответствующие сбор и утилизация сточных вод
- Нефтепродукты от машин ГСМ
- Мусор из-за неправильной утилищации

Воздействия на почву

- Эрозия почвы и заиливание
- Загрязненные сельскохозяйственные стоки и грунтовые воды
- Загрязнение почвы (гербициды и пестициды)

Мероприятия по снижению воздействия на почву

- Разработка плана борьбы с вредителями

Воздействие на социально-экономическую среду

- Увеличение потока транспорта
- Неубранные отходы портят вид улицы

Мероприятия

- До начала проведения работ, оповестить МФИ
- Строительный мусор должен быть убран в течении 3 дней

Для смягчения негативных воздействий в рамках Проекта будут разработаны *План по управлению окружающей средой (ПУОС) и План управления и мониторинга охраны труда и техники безопасности (ПУМОТТБ).*

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Пилотный проект по интенсификации садоводства и повышению продуктивности

ЛОЙИҲАНИ АМАЛГА ОШИРИШ ДАВОМИДА ИЖТИМОИЙ ҲИМОЯ ТАДБИРЛАРИ

Ер ажратиш ва кўчириш лойиҳасининг мақсади:

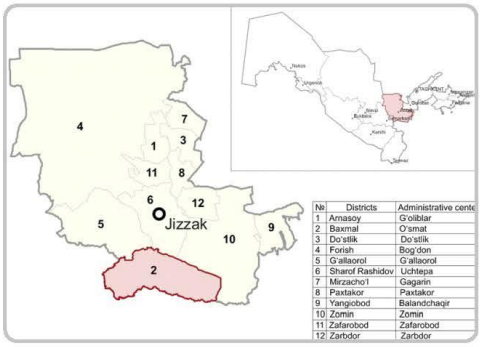
Ўзбекистон Республикаси қонун ҳужжатлари ва Халқаро молиявий институтларнинг сиёсий-ижтимоий ҳимоя талабларига мувофиқ ер ажратиш ва кўчириш ишларининг тартиб ва механизмларини ишлаб чиқиш.

Лойиҳа доирасида вақтинча ва доимий таъсир қилинувчи ердан фойдаланувчилар сонини аниқлаш ва лойиха чизмалари асосида таъсир остига тушуши мумкин бўлган ердан фойдаланувчилар сонини қисқартириш.

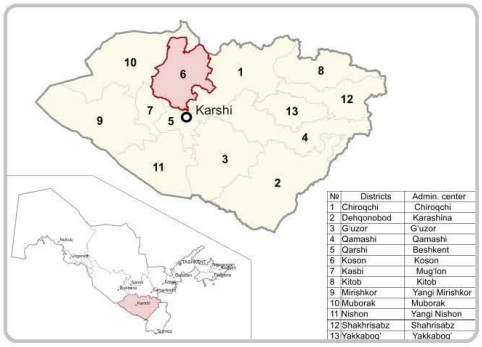
ЕР АЖРАТИШ ВА КЎЧИРИШ ТАЪСИРИ ТУРЛАРИ:

1 **Доимий таъсир**
Белгиланган таъсир зоналари мисолида тахминан 1.5 км бўлган ташқи электр таъминоти узатиш линияси ташқи таянч миноралари (башня), тахминан 3 гектар майдонли бир дона таянч подстанциясининг ва 353 гектар майдонга эга қуёш панеллари қурилиши.

2 **Вақтинча таъсир**
Ташқи электр таъминоти узатиш линияси қурилиши жараёнида давлат захира ерларига етказиладиган таъсир ҳисобланади ва бу ерлар қурилиш ишлари якунлангандан сўнг, давлат захира ерлари балансига яна қайта топширилади.



№	Districts	Administrative cente
1	Arnasoy	G'oliblar
2	Baxmal	O'smat
3	Do'stlik	Do'stlik
4	Forish	Bog'don
5	G'allaorol	G'allaorol
6	Sharof Rashidov	Uchtepa
7	Mirzacho'l	Gagarin
8	Paxtakor	Paxtakor
9	Yangiobod	Balandchaqir
10	Zomin	Zomin
11	Zafarobod	Zafarobod
12	Zarbdor	Zarbdor



№	Districts	Admin. center
1	Chiroqchi	Chiroqchi
2	Dehqonobod	Karashina
3	G'uzor	G'uzor
4	Qamashi	Qamashi
5	Qarshi	Beshkent
6	Koson	Koson
7	Kasbi	Mug'lon
8	Kitob	Kitob
9	Mirishkor	Yangi Mirishkor
10	Muborak	Muborak
11	Nishon	Yangi Nishon
12	Shakhrisabz	Shahrisabz
13	Yakkabog'	Yakkabog'

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Пилотный проект по интенсификации садоводства и повышению продуктивности

КОНСУЛЬТАЦИИ И УЧАСТИЕ

- Встреча с районными властями, реализующими проект.
- Встречи с общественностью по подпроектам.
- Индивидуальные встречи с землепользователями/фермерами.
- Введение в право и компенсационный подход.
- Введение в механизмы рассмотрения жалоб.
- Преимущества и воздействие подпроектов.

ПРАВА

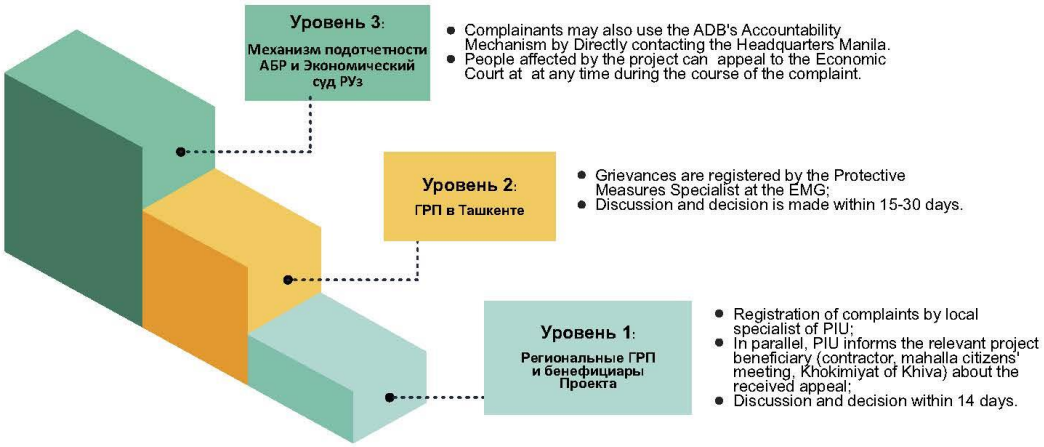
- Пострадавшие правообладатели землепользования.
- Необходимо проверить неблагоприятное воздействие частных активов или доходной деятельности.
- Выявление затронутых домохозяйств и неблагоприятных воздействий на землепользование.
- Компенсационные выплаты будут:
  - Соблюдайте национальные законы и правила.
  - Учитывать требования Азиатского банка развития (АБР).
  - Основываться на согласованных и текущих рыночных затратах на замену.
  - Выплата компенсации до создания садоводческих улучшений.
  - Включите инвентаризацию потерь и социально-экономические исследования.

Права, объясненные и согласованные с затрагиваемыми владельцами, задокументированные и подписанные затронутыми лицами, агентствами по реализации проекта и местными свидетелями.

ЗАПРОС НА РАЗЪЯСНЕНИЕ И ЖАЛОБЫ

- Лица, с которыми были установлены контакты и консультации, осведомлены о предлагаемых подпроектах.
- Индивидуальные, групповые и общественные встречи по социальным гарантиям являются частью распространения информации, включая введение механизмов рассмотрения жалоб (МРЖ).
- МРЖ будет администрироваться и управляться ГРП со своими ОКР.

РАСКРЫТИЕ ИНФОРМАЦИИ И МЕХАНИЗМ РАССМОТРЕНИЯ ЖАЛОБ



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Факс: +99871 241-52-01

Uzbek version

Боғдорчиликни интенсивлаштириш ва хосилдорликни ошириш бўйича тажриба лойихаси

Умумий мақсад

Пилот туманларда боғдорчилик бўйича фаоллаштирилган ва кенгайтирилган ташаббуслар ва этказиб бериш механизмлари баҳолаш

Индикатив натижалар

Боғдорчиликни интенсивлаштириш мавжуд кичик объектлар ва қўшни ер майдонларида синовдан ўтказилди

Ҳом ашё маҳсулотлари қўшилган қиймат занжирлари қиймати ошиши учун бирлаштирилди ва мустаҳкамланди

Режалаштирилган босқичлар

2019 PCF-тадқиқоти 2022 TRTA - пилот 2025 2026 Тўлиқ амалга ошириш 2031

Ҳимоя сиёсати баённомаси (СПС, 2009 йил июнь)

Атроф-муҳитга таъсирнинг асосий турлари

Лойиха босқичларининг қисмлари

Қурилишдан олдинги босқич → Қурилиш босқичи → Лойихани амалга ошириш даври

МУРОЖААТ УЧУН МАЪЛУМОТЛАР

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Таъсирлар ўрганилган объектлар

Атмосферага таъсири

- Чанг
- Шовқин

Атмосферага таъсирини камайтириш бўйича чора-тадбирлар - чанг

- Автотранспорт ҳаракати учун тезлик чекловлари
- Суғориш билан чангни назорат қилиш

Атмосферага таъсирини камайтириш бўйича чора-тадбирлар - шовқин

- Оғир техниканинг иш соатлари соат 08:00 дан 19:00 гача чегараланади

Қурилиш лагерини ташкил этиш

- Қурилиш ишлари лагери

Қурилиш лагери. Фаолиятлар

- Чиқинди сувларни тегишли тарзда йиғиш ва йўқ қилиш
- Ёқилғи-мойлаш машиналарининг нефть маҳсулотлари
- Нотўғри утилизация қилиш натижасида пайдо бўлган ахлат

Тупроққа таъсири

- Тупроқнинг эрозияланиши ва лойқаланиши
- Ифлосланган қишлоқ хўжалиги ва ер ости сувлари
- Тупроқнинг ифлосланиши (гербицидлар ва пестицидлар)

Тупроққа таъсирни камайтириш бўйича чора-тадбирлар

- Зараркунандаларга қарши кураш режасини ишлаб чиқиш

Ижтимоий - иқтисодий таъсирлар

- Автотранспорт оқимининг кўпайиши
- Йиғилмаган чиқиндилар кўча кўринишини бузади

Тадбирлар

- Иш бошланишидан олдин мфи га хабар беринг
- Қурилиш чиқиндилари 3 кун ичида олиб ташланиши керак

Лойиҳанинг салбий таъсирларини юмшатиш учун *Атроф Муҳитни Бошқариш Режаси (АМБР) ҳамда Меҳнат муҳофазаси ва хавфсизлик техникасини бошқариш ва мониторинги режаси(ММХТБМР)* ишлаб чиқилади.

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ЛОЙИҲАНИ АМАЛГА ОШИРИШ ДАВОМИДА ИЖТИМОИЙ ҲИМОЯ ТАДБИРЛАРИ

Ер ажратиш ва кўчириш лойиҳасининг вазифалари:

Мумкин бўлмаган жойларга кўчиришнинг олдини олиш ҳамда лойиҳа ва чизмаларини ўрганган ҳолда кўчириш ишларини камайтириш;
Янги жойга кўчирилган хонадонларнинг турмуш даражасини лойиҳадан олдинги даражага нисбатан реал тарзда ошириш ёки олдинги даражасини таъминлаш;
Янги жойга кўчирилган ижтимоий ёрдамга мухтож (оила бошлиғи кам таъминланган, оила бошлиғи боқувчисини йўқотган, оила бошлиғи ногиронлар) гуруҳларнинг турмуш даражасини оширишга ёрдам бериш.

Ер ажратиш ва кўчириш лойиҳаси қуйидагиларни ўз ичига олади:

- **Жисмоний таъсир**

  (яшаш, турар жой ва бошпанасини йўқотиш);

- **Иқтисодий таъсир**

  Ер ажратилиши ва кўчирилиши ҳамда олдинги еридан фойдаланишда кўйилган чекловлар натижасида даромад ва тижоратини йўқотиш.

Ер ажратиш ва кўчириш лойиҳасининг мақсади:

Лойиҳа доирасида вақтинча ва доимий таъсир қилинувчи ердан фойдаланувчилар сонини аниқлаш.
Осиё Тараққиёт Банкининг 2009 йилдаги сиёсий-ижтимоий ҳимоя талаблари ва Ўзбекистон Республикаси қонун ҳужжатлари талабларига мувофиқ ер ажратиш ва кўчириш ишларининг тартиб ва механизмларини ишлаб чиқиш.

Таъсир ва йўқотишлар учун зарарлар кимларга тўланади	Зарар қопланадиган таъсир ва йўқотишлар
• Доимий ва вақтинчалик таъсир остидаги фермер хўжаликлар; • Экин ва дарахтзорларини йўқотган жисмоний ва юридик шахслар; • Турар ва нотурар жойларини йўқотган жисмоний ва юридик шахслар; • Доимий ва вақтинчалик тижоратини йўқотган бизнес ва ишчи ходимлар.	• Қишлоқ ва ноқишлоқ хўжалиги ерлари; • Турар ва нотурар жойлар; • Экин ва дарахтлар; • Бизнес ва ишчи ходимларга доимий ва вақтинчалик таъсир; • Ижтимоий ёрдамга муҳтож (оила бошлиғи кам таъминланган, оила бошлиғи боқувчисини йўқотган, оила бошлиғи ногиронлар) гурухлар учун қўшимча ёрдамлар.

Лойиҳа доирасида ижтимоий иқтисодий сўровнома ўтказилгандан сўнг, қурилган бино-иншоатлар ёки кўрилган бошқа зарарлар лойиҳа доирасида қопланмайди.

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КОНСУЛТАЦИЯ ВА ИШТИРОК

Лойиҳани амалга ошираётган туман ҳокимлиги билан учрашув.

Кичик лойиҳа бўйича жамоатчилик учрашувлари.

Ердан фойдаланувчилар/фермерлар билан индивидуал учрашувлар.

Компенсация ёндашуви билан таништириш.

Шикоятларни кўриб чиқиш механизмларига кириш.

Сублойиҳаларнинг афзалликлари ва таъсири.

ҲУҚУҚЛАР

Зарар кўрган ердан фойдаланувчи ҳуқуқ эгалари.
Хусусийларнинг салбий таъсирини текшириш зарурати мавжуд

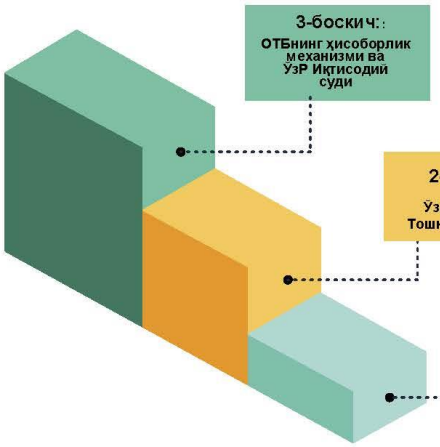
- Активлар ёки даромадлар билан боғлиқ фаолият.
- Зарар кўрган уй хўжаликлари ва салбий томонларини аниқлаш
- Ердан фойдаланишга таъсири.
- Компенсация ҳуқуқлари қуйидагилардан иборат:
- Миллий қонунлар ва қоидаларга риоя қилиш
- Осиё тараққиёт банки (ОТБ) талабларини кўриб чиқиш
- Келишилган ва жорий бозорни алмаштириш харажатлари асосида.
- Боғдорчиликни яхшилашдан олдин компенсация тўлаш
- Йўқотишларни инвентаризация қилиш ва ижтимоий-иқтисодий тадқиқотларни ўз ичига олади.

Ҳуқуқлар тушунтирилган ва зарар кўрган эгалари билан келишилган, ҳужжатлаштирилган ва зарар кўрган шахслар, лойиҳани амалга оширувчи агентликлар ва маҳаллий гувоҳлар томонидан имзоланган.

ТУШУНТИРИШ ва ШИКОЯТЛАР СЎРОВИ

- Алоқа қилинган ва маслаҳат олган шахслар таклиф этилаётган кичик лойиҳалардан хабардор.
- Ижтимоий кафолатлар бўйича индивидуал, гуруҳли ва оммавий йиғилишлар ахборотни тарқатишнинг бир қисмидир, шу жумладан шикоятларни кўриб чиқиш механизмларини (ШКЧМ) жорий этиш.
- ШКЧМ ЛАОГ томонидан юритилади ва бошқарилади

МАЪЛУМОТЛАРНИ ОШКОР ҚИЛИШ ВА ШИКОЯТЛАРНИ КЎРИБ ЧИҚИШ МЕХАНИЗМИ



3-боскич:
ОТБнинг ҳисоборлик механизми ва ЎзР Иқтисодий суди

- Шикоят берувчилар, шунингдек, Манила шаҳридаги Штаб-квартирага тўғридан тўғри мурожаат қилиш йўли билан ОТБнинг ҳисобдорлик механизмидан фойдаланиши ҳам мумкин.
- Лойиҳа билан боғлиқ шахслар шикоят кўриб чиқишнинг исталган босқичида Иқтисодий судга мурожаат қилиши мумкин.

2-боскич:
ЎзР ИТСВнинг Тошкентдаги ЛАОГ

- Шикотлар ЎзР ИТСВ ЛАОГнинг ҳимоя чоралари бўйича мутахассис томонидан рўйхатга олинади;
- Муҳокама ва қарор қабул қилиш 20 кун давомида амалга оширилади.

1-боскич:
Ҳудудий ЛАОГ ва лойиҳа бенефициарлари

- Шикоятлар ҲЛАОГ маҳаллий мутахассиси томонидан рўйхатгаолинади;
- ҲЛАОГ лойиҳанинг тегишли бенефициари (пудрат ташкилоти, маҳалла фуқаролар йиғини, Жиззах шаҳар ҳокимлиги)ни келиб тушган мурожаат ҳақида хабардор қилади;
- Муҳокама ва қарор қабул қилиш 14 кун давомида амалга оширилади.

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XIII. Appendix 2. Record of public consultations (List of the participants and photos from meetings

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БОҒДОРЧИЛИКНИ ИНТЕНСИВЛАШТИРИШ ВА ҲОСИЛДОРЛИКНИ ОШИРИШ БЎЙИЧА ТАЖРИБА ЛОЙИҲАСИ

ИШТИРОКЧИЛАР РЎЙХАТИ/
LIST OF PARTICIPANTS

Жой/Place Kitob Hokimiyat | Сана/Data 15.11.2022.

№	Ф.И.Ш/ Name, Surname	Иш лавозими/ Position held	Телефон/ Telephone	Имзо/ Signature
1.	Рахманов Сохиб Сониевич	Китоб туман ҳокимлиги	(99) 3378560	
2.	Расулов Жасур Курбонназарович	Китоб туман маҳалла бўлими	99-665-10-13	
3.	Насимов Умидор	Боғдорчилик ва иссиқхона мевачилиги бўлими	973891674	
4.	Мирзаев Аббос	"Самадов Диёрбек" ф/х раҳбари	97-799-77-47	
5.	Мирзаев Равшан	Китоб туман ҳокимлиги		
6.	Мардонова Дилноза	Китоб туман Ёшлар кўмаки	97-507-90-95	
7.	Рахимова Камола	маҳалла бўлими Китоб тумани ҳокимлиги	91-[illegible]25-22-65	
8.	Ғайирова Зилола	Китоб тумани Оила ва хотин-қизлар бўлими	97-671-83-13	
9.	Раимов Низомиддин	Китоб тумани ф/х раҳбари	97 618-65-46	
10.	Шукуров Гайрат	Китоб туман ф/х раҳбари	97-319-88-74	
11.	Умаров Расул	Ҳоким ёрдамчилари марказ мутахассиси	97-631-61-50	

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12.	Тошев Қилич.	Китоб ТИБ сув бўлими	97-317-30-69	
13.	Турсунов Мажит	Турсунов Жавоҳир Мажидович ф/х раиси	91 474 99 57	
14.	Нажмиддинов Ҳаётилло	Ғалла пластери агрономи	90 608 53 04	
15.	Номозов Жура.	Мавлон Аббос ферм-раиси	97-587-00-58	
16.	Умонов Баходир Шамшиевич	Китоб тумани фер/х раҳбари	97-386-57-53	
17.	Азизова Сайёра Дийор...	Китоб тумани Нуронийлар Азизова Зарифа Дойробековна	93-939 55-88.	
18.	Очилов Анвар Шавкатович	Китоб тумани ҳокимлик АКТ мутахассиси	97 386 02 88.	
19.	Тагаев Najmiddin	partiya raisi	99 771 80 06	
20.	Узоков Гулом	котибият	91 322 21 89	
21.	Зайниддинов Акрам	Қишлоқ хўжалиги бўлими	90-919-39-24	
22.	Кенжаева Гулнора	O'zLiDeP партияси	97-631-71-71	
23.	Ҳакимов Аброр	Инвестиция бўлими	97 750 06 95	
24.	деҳқон хўжалиги	бошлиғи	90 898 28 30	
25.	Шукуров Сапарали.	Эко Партия.	99-558-22-81.	
26.	Лутфиллаев Нажмиддин	Ўзбек. адолат ...	99-954-06-16.