

# Initial Environmental Examination

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## UZB: Central Asia Regional Economic Cooperation (CAREC) Corridor 2 (Pap-Namangan-Andijan) Railway Electrification Project

Prepared by the Uzbekistan Temir Yullari for the Asian Development Bank (ADB)

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10.02.17 № ГПИ-Э/Г - 264

Head of the ADB Uzbekistan  
Representative Mission, Mr.  
Takeo Kanishi

Herewith we would like to extend our appreciation to You and to Your colleagues for the assistance provided within the preparation of the Project “Electrification of railway line Pap-Namangan-Andijan”.

Pleas, find enclosed the following reports for review and publication on the web-site of ADB:

1. Initial environmental examination;
2. Land acquisition and resettlement plan;
3. Social due diligence report for the bypass line 6.7 km Uichi-Uchkurgan.

In our turn we would like to inform You that these reports will be also published on the web-site of the JSC Uzbekiston Temir Yullari.

Head of PIU-E

Djuraev A.M.



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## **CURRENCY EQUIVALENTS**

(as of 3 February 2017 )

Currency unit – Uzbekistan sum (UZS)

UZS1.00 = \$0.000304854

\$1.00 = UZS3,280.25

## **LIST OF ABBREVIATIONS**

ADB	– Asian Development Bank
AM	- Accountability Mechanism
BAC	- Big Andijan Canal
BFC	- Big Ferghana Canal
CMR	- Cabinet of Ministers
CPS	– Country's Partnership Strategy
CSC	- Construction Supervision Consultant
CSDP	- Contact System Duty Points
CTC	- Centralized Traffic Control
DPCN	- Duty Point of Contact Network
EA	– Executing Agency
EHS	- Environmental, Health and Safety Guidelines
EIA	– Environmental Impact Assessment
EMP	– Environmental Management Plan
EMR	– Environmental Monitoring Report
EO	- Environmental Officer
ES	- Environmental Specialist
GRM	– Grievance Redress Mechanism
HH	– Household
HV	- High voltage
ICB	– International Contract Bidding
IEC	- Information, Education and Communication Campaign
IEE	– Initial Environmental Examination
IEEE	- Institute of Electrical and Electronics Engineers
IFC	- International Financial Corporation
KRD	- Kokand Railway Department
LARP	– Land Acquisition and Resettlement Plan
MAC	- Maximum Allowance Concentrations
MAWR	- Ministry of Agriculture and Water Resources
MH	- Ministry of Health
NCB	– National Contract Bidding
O&M	– Operation and Maintenance
PCB	- Polychlorinated Biphenyl
PIU	– Project Implementation Unit

PMC	– Project Management Consultant
PNPC	- Provincial Nature Protection Committee
PPE	- Personal Protective Equipment
PPTA	– Project Preparatory Technical Assistance
PRR	- Primary Regulation Range
PTL	- Power Transmission Line
RCA	- Rural Citizen Assemblies
RD	- Ruling Document
REA	– Rapid Environmental Assessment (ADB checklist)
RoW	- Right of Way
RUz	- Republic of Uzbekistan
SCADA	– Supervisory Control and Data Acquisition
SEC	- Statement on Environmental Consequences
SEE	- State Environmental Expertise
SES	– Sanitary and Epidemiological Services
SNPC	– State Nature Protection Committee
SPS	- Safeguard Policy Statement
SSEMP	- Site Specific Environmental Management Plan
STD	- Sexually Communicable Diseases
TA	– Technical Assistance
TSS	- Traction Substation
UNESCO	- United Nations Educational, Scientific and Cultural Organization
UTY	- Uzbekistan Temir Yullari

## GLOSSARY

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

## NOTE

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

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## EXECUTIVE SUMMARY

1. The proposed project “Electrification of the railway line Pap – Namangan – Andijan” will electrify the missing 145.2 km of non-electrified track linking major cities in the populous Fergana Valley with Tashkent. This will facilitate direct and efficient operation of both freight and passenger train services and thereby promote economic and social development of the Fergana Valley.
2. The project will be aligned with the following impacts: (i) stimulated economic growth in the Fergana Valley, and (ii) increased regional trade along CAREC Corridor 2. The outcome will be the level of passenger and freight service on the Pap-Namangan-Andijan railway line improved.
3. The Project is expected to be implemented within a period of three years starting from May 2017 and estimated completion date is June 2020.
4. The project components consist of: (i) Installation of catenary system for the existing track, 6.7 km bypass and within Andijan Depot; (ii) Construction of 2 traction substations and section posts; (iii) Installation of signaling, telecommunications and SCADA; (iv) Construction of External power supply, and (v) Maintenance machinery/equipment purchase.
5. These activities are included in the project scope. Besides this, a small section of the project electrification will be over tracks that are being constructed by the government to bypass the existing tracks travelling through neighboring Kyrgyz Republic. The construction of this bypass is outside the project scope and is being conducted by the government and UTY regardless of ADB finance for the electrification project. The government and UTY confirmed that the bypass construction was initiated without anticipation of ADB financing the project. The bypass is therefore considered an associated facility which is not funded as part of the project but essential for or dependent on the project. There is also an existing facility outside of the project scope, comprising the building and maintenance activities at the Andijan Depot.
6. Two Environmental Management Plans were developed within this IEE since two different procurement packages for civil works will be used for this project: (i) for electrification railway and (ii) for construction external power supply. As per procurement plan, two separate contractors will be contracted – one under the UTY and second under the JSC “Uzbekenergo”. Two different EMPs will be included in bidding documents for contractors.
7. In accordance with ADB SPS (2009) the Project belongs to category B, as a project with site-specific impacts, few of which are irreversible, and where in most cases mitigation measures can be designed. The Project requires an initial environmental examination (IEE), which will be based on data from the feasibility study, preliminary design, site visits and interviews with technical experts, as well as primary and secondary data including thus the feedback received during the public disclosure process.
8. As per national environmental legislation, the project belongs to Category 1 respect to their environmental impact (high). National classification defines category of the project based on importance of the railway – reviewed railway belongs to national wise. Before construction under such projects, Environmental Impact Assessment and get an Environmental Appraisal from the State Nature Protection Committee of Uzbekistan at the national level needs to be received by Executive Agency (EA). The Environmental Appraisal was obtained in November 4, 2016. The Appraisal endorses the Environmental Assessment and provides several conditions which are needed to be implemented by the EA during the construction phase which. These requirements are included in EMP of this IEE.
9. UTY will be the EA. It has a sound track record with execution of similar projects, as well as operations and maintenance of electrified and non-electrified lines. The project implementation unit (PIU) established by UTY, with experience of ADB procedures and

policies, will be responsible for implementation of the Project. The technical departments of UTY will also assist the PIU during project implementation. UTY will work in association with JSC “Uzbekenergo”, the state-owned power utility company, especially on the installation of external power supply.

10. The project will be implemented in the area with high population density and agricultural lands. There are no protected areas within the project area. Presence of rare or species of flora or fauna were not identified as well. Small historical place – Kultepa hill is located in Naryn district next to the territory of planning Khakkulabad traction substation around (180-200 m away).

11. Anticipated the project’s environmental impacts were reviewed at the three stages – pre-construction, construction and operation stages. At the preconstruction stage receiving all necessary permissions from government agencies, updating LARP per detail project design and IEE (in case of changes in scope of work, project design and etc.) need to be done.

12. During construction period the main impacts will be related to waste generation. Air pollution will have permanent character and could be mitigated. Increasing of noise level is expecting mainly at the stage a construction of traction substations and installation works of transmission lines. However, in accordance with primary assessment, level on noise will not exceed level allowed for construction sites and residential area. Additional actions to recommended in IEE mitigation measures could be implemented in case of exceeding norms for pollutant (dust) based on results of environmental monitoring or complaints from population.

13. Labor camps may locate within residential area, territory of existing railway station or on the construction sites. To conduct specific works related to electrification of railway, special mobile wagons adopted for living during 5-6 days could be used as well. Set of measures was developed to mitigate anticipated negative impact from the labor camps.

14. Besides impacts on air, water and soil quality number of risks may take place related to community health and safety and for workers. Safe working conditions, compliance with sanitarian, fire protection and other norms related to construction need to be provided to prevent accidents, electric shock during construction stage. The Contractors will be required to develop an Occupation Safety and Health Plan, which will cover such topic as usage of PPE, usage fire protection equipment, training program based on all relevant national regulations (KMKs, SanPiNs) and IFC EHS General Guideline (2007), IFC EHS Electric Transmission and Distribution (2007), IFC EHS Railway (2007).

15. All national relevant regulations related to conduction construction works in and IFC EHS General Guideline (2007) and IFC EHS Electric Transmission and Distribution (2007) have to be complied to minimize the project impact on community health and safety. PIU has to work in close collaboration with community on planning and implementing project works.

16. To assess an impact of noise level during electrified railway operation, background noise level (L<sub>Amax</sub>) and vibration level in the project area were measured. Measurements of in more than 20 points in 6 settlements located along the railway track in Namangan and Andijan provinces were conducted. Results of survey showed exceeding (maximum was 85 dB) of permitted noise level and compliance with vibration requirements.

17. Similar measurements of L<sub>Amax</sub> were conducted at the already electrified part of Andijan – Margilan – Pap railway between stations Margilan and Kokand. Noise level from electrified train moved at a speeds 110, 80 and 60 km/h. Noise level generated by trains moving in operating part of recently electrified railway Andijan-Kokand was measured as well. Similar trains will run through Pap-Namangan-Andijan direction. The noise levels were measured for various speeds – 60, 80 and 115 km/h at the 7.5 m distance. In addition, noise level was measured on various distances (12 and 25 m) for trains move with speed 80 km/h.

18. The measurements of  $L_{max}$  were conducted in the open area at the distances 7,5 m, 12 m and 25 meters during the day time between 12.00 pm and 2.00 pm. The results were compared with national standards for  $L_{max}$  and international WHO's standards.

19. Comparison of received results showed, that the maximum noise level ( $L_{max}$ ) from electrified train at the distance 7.5 m (the closest distance) and with speed 60 km/h does not exceed existing noise level in the project area. Increasing speed up to 80 km/h and higher leads to increasing noise level more than on 3 dB.

41. To reflect the increase in train frequency in future at projection to maximum number of 10 trains/day, conversion from  $L_{max}$  to  $L_{ecq}$  was conducted. As showed calculation expecting equivalent noise level  $L_{ecq1}$  (64.8 dB) after project implementation will not exceed existing  $L_{ecq2}$  (62.0 dB) more than on 3 dB ( $\Delta=2.3$ ). However, to meet standards on maximum noise level  $L_{max}$  (70dB) installation of acoustic barrier is required.

42. There are 23 structures (according to LARP) within existing alignment which will be partly demolished in order to provide 5 meters RoW for railway electrification. The project will construct noise barrier for this property instead walls. This measure will ensure noise level from electrified railway within background level (83-85 dB).

20. Installation of acoustic barrier within ROW will ensure compliance with noise standards for the following conditions: (i) train movement is allowed only between 6 am and 12 am (ii) number of trains will not increase 10 trains per day, and (iii) trains speed will not exceed 60 km/h. If one of these parameters increase, UTY has to implement additional measures such as installation of special windows in houses. For day time noise level has not exceed 3 dB comparing with existing situation (83-85 dB) and for night time noise level standards is 45 dB.

21. Construction of 27,5 kV, 110 kV, and 220kV will not negatively impact if buffer zone in 5 m, 10 and 15 meters to both side from wire of towers will be provided. For 110 and 220 kV High Voltage line this will be established and need to be followed. As for existing railway track 5 meters buffer zone will provide safe zone from impact of electromagnetic field. Comparison of national and international standards (IFC EHS) for noise, vibration level and electromagnetic field showed fully compliance.

22. 5 meetings for public consultations were conducted in the project area. Prior to the public consultations several meetings were conducted with internal and external stakeholders, such as representatives of the province and district Khokimiyats, UTY (PIU's environmental and social specialist), design institutes and others. Announcements about public consultations were published in the local newspapers in both languages – Uzbek and Russian. During the public consultations the main findings of environmental assessment, LARP principles were presented. Among questions discussed more frequently were safety issues, noise pollution and GRM.

23. Taking in consideration different types of civil works due to specificity of project components and bidding two separate packages, two separate environmental management plans were prepared for the project: (i) for construction 27,5 kV catenary, traction substations and installation of signaling system, and (ii) for construction external power supply network.

24. The PIU at UTY will be responsible for implementation of EMP to comply with ADB's safeguards requirements and environmental national regulations. For this, PIU has hired a qualified full-time safeguard staff who will be assisted by the Civil Construction and Environmental of the Construction Supervision Consultant (CSC) in overseeing the implementation of EMP. The cost for implementing EMP will be included in the construction contracts, and the cost for environmental supervision will be included in the consulting service of the CSC, the cost for environmental instrumental monitoring will be included in PIU budget. PIU is responsible for overall environmental compliance with SPS 2009.

25. Costs required for implementing the EMP will cover the following activities (i) Conduction instrumental environmental monitoring of air, water and noise level by Contractors; (ii) Conduction environmental monitoring measures and getting necessary permissions; and (iii) Awareness program.

## 1. INTRODUCTION

26. The Government of Uzbekistan has requested ADB assistance for the electrification of the railway line Pap – Namangan - Andijan. The proposed project will electrify the missing 145.2 km of non-electrified track linking major cities in the populous Fergana Valley with Tashkent. This will facilitate direct and efficient operation of both freight and passenger train services and thereby promote economic and social development of the Fergana Valley.

27. The government requested ADB's financial assistance in a letter of 21 May 2016 as a replacement for the Samarkand-Bukhara Railway Electrification project.

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

- Decree of the President of the Republic of Uzbekistan dated April 14, 2016 # P-4636 "On measures on implementation in 2016 of the investment projects with participation of international financial institutions and foreign governmental financial organizations";
- Instruction of the President of Uzbekistan No. P-4647 dated 18 May 2016 "About measures on further extension of financial cooperation with Asian Development Bank and other international financial institutions", and related Action Plan, which includes "Electrification of the railway line Pap – Namangan - Andijan".

29. The project will be aligned with the following impacts: (i) stimulated economic growth in the Fergana Valley, and (ii) increased regional trade along CAREC Corridor 2. The outcome will be the level of passenger and freight service on the Pap-Namangan-Andijan railway line improved.

30. The Project is expected to be implemented within a period of three years starting from May 2017. Preparation and planning activities was carried out during 2016. The estimated completion date is June 2020 and the financial closing date is December 2020.

31. The project will have two outputs:

- (i) **Output 1: Railway infrastructure along the Pap-Namangan-Andijan line upgraded.** This includes electrification of 145.2 km of the single-track main railway line to 27.5 kilovolts alternating current (including the electrification of the locomotive depot in Andijan and a spur line to Uchkurgan), construction of 2 traction substations and dispatcher points, purchase of maintenance equipment and machinery, modernization of signaling and communications facilities, and construction of external power supply facilities which will transmit electricity from the main grid to the traction substations.

The project will build upon another initiative being taken by UTY and the government to realign six kilometers of the railway line to bypass a section of the line that currently traverses the territory of the Kyrgyz Republic. The construction of this six-kilometer bypass will not be considered part of the ADB-financed project, but rather as an associated facility. UTY and the government confirmed that the development of this six-kilometer bypass was not done in anticipation of ADB's financing of the project.

- (ii) **Output 2: Safety of railway operations improved.** With the project, it is expected that train frequencies and speeds will increase. In addition, the presence of the power lines may pose additional risks of electrocution. To offset any potential negative impacts, the project will support UTY in (i) conducting an assessment of the existing and anticipated safety situation to the general public including children, (ii) supporting the development of practical countermeasures, and (iii) training of staff to plan future railway developments in the safest manner.

ADB's financing will contribute to the purchase of equipment and material, which require sourcing from the international market. Through ADB's engagement, UTY will further improve its capacity in international procurement practices. ADB will actively support UTY in improving railway safety, through output 2.

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

32. The ADB Safeguards Policy Statement (SPS) 2009 sets out policy principles and outlines the delivery for ADB's safeguards policy in relation to environmental safeguards. The 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' clients comply with these requirements during project preparation and implementation.

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

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

35. In compliance with Appendix 2 of the Cabinet Ministers' Decree of the RUz No. 491, (December 2001), project belongs to Category 1 respect to their environmental impact (high impact risk). Prior to construction such projects require to conduct an Environmental Impact Assessment and get an Environmental Appraisal from the State Nature Protection Committee (SNPC) of Uzbekistan at the national level. It should be noted that the national Environmental Assessment covered all project's components and associated facilities.

36. The Environmental Appraisal for the project was obtained in November 4, 2016. The Appraisal endorses the Environmental Assessment and provides several conditions needed to be implemented by the Implementation Agency during the construction phase and before the project commencement. The Appraisal is presented in Attachment 1.

37. The Environmental Appraisal lists the following issues which have to be reflected during the next stage of national Environmental Assessment:

- development of norms of all kind of environment impacts of designing works;
- development of plan – schedule of conducting step by step technical and biological re-cultivation of disturbed lands, approved by provincial committee on nature protection;
- cutting trees in the buffer line railway track, which should be approved by provincial committees for nature protection in a fixed legislative order with indicating compensation amounts (in accordance with Resolution of Cabinet of Ministries of the Republic of Uzbekistan No. 290 dated 20.10.2014);
- way of treatment of generated waste waters (from rehabilitated stations);
- development actions for birds' protection.

38. The Table 1 presents permissions from national agencies needed to be received prior commencement of civil works and prior the project operation:

**Table 1: List of necessary approvals and permissions**

#	Name of the document	Time of receiving permission	Responsible entity
1	Permission/license for using existing borrow pits or opening new ones	Prior commencement of the construction works	Contractor
2	Permission on cutting trees	Prior commencement of the construction works	Contractor
3	Statement on Environmental Consequences for each stations	Prior commencement of electrified railway	UTY

## **2.1. National Institutional Framework for Environmental Assessment**

39. The State Nature Protection Committee (SNPC) of the Republic of Uzbekistan ('Goskompriroda') is the primary environmental regulator. The Goskompriroda reports directly to the Parliament and is responsible at national, regional (oblast) and local (district) levels for the development and enforcement of the national environmental and conservation policy, overseeing environmental compliance, the integrated environmental management across various sectors, and securing healthy environment conditions across the country.

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

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

- Ministry of Agriculture and Water Resources (MAWR)
- State Committee for Land Resources, Surveys, Cartography and the State Cadastre (or Goskomgeodezkadastr)
- State Committee for Geology and Mineral Resources (or Goskomgeologia)
- Centre of Hydro-meteorological Service (or Uzhydromet)
- Ministry of Health Republic of Uzbekistan (or MHRUz)
- State Inspectorate for Exploration Supervision, Operations Safety Supervision of Industry, Mining and Utilities Sector (or Sanoatgeokontekhnazorat)
- Ministry of Internal Affairs (or MVD).

### **2.1.1. National Legislation on the EIA**

42. The EIA procedure is regulated by Law on Environmental Expertise and The Regulation on State Environmental Expertise (SEE) approved by Decree No.491 of the Cabinet of Ministers on 31 December 2001 and amended in 2005 and 2009. The regulation defines the legal requirements for EIA in Uzbekistan. SEE is a review process conducted by the Goskompriroda Department for SEE ('Glavgosecoexpertiza') at either the national or the regional level, depending on the project category.

43. State Committee of the Republic of Uzbekistan for Nature Protection (Goskompriroda) is specially authorized supreme and coordinating authority, implementing state control and intersectoral governance in Nature protection, using and reproducing

nature resources. Goskompriroda of the Republic of Uzbekistan is under governance of and accountable to Oliy Majlis of the Republic of Uzbekistan.

44. Goskompriroda on state environmental expertise is a uniform system of State Environmental Expertise, methodological guidance of which implemented by Glavgoosecoexpertise. Glavgoosecoexpertise undertakes the state environmental expertise on below objects:

- Pre-project and project documentations, operating enterprises and other objects effecting negative impact on environment and population health, objects with special legal status (on activities belonging to Category I and II);
- Materials of integrated monitoring of the territory for assigning the status of conserving nature territories, emergency environment situation zone, as well as environmental disaster (Paragraph in the Cabinet Ministers' Decree of the RUz No.95 from 01.04.2005);
- Documentation on creation new types of technique, technology, materials, stuffs, productions;
- Programs of State projects, concept, schemes of location and productive forces development in economic and social sectors;
- Town planning documents for object designing with a total population of 50 thousand people;
- Projects of standard technical, instructional and methodological documents (technical specifications, standards, environmental standards, rules, instructions...), regulating economic and other activities related to the use of nature resources.

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

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

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

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

49. Currently the Project Electrification of Railway Pap-Namangan-Andijan has completed Stage I. Per Environmental Appraisal conclusion received from State Nature Protection Committee, the Project does not need to conduct Stage II of Environmental Assessment. Stage III will be conducted prior project commencement in operation.

50. SEE approval (Glavgoosecoexpertiza/Gosecoexpertise opinion) is a mandatory document for project financing by Uzbek banks and other lenders (Section 18) at Stages I and II and for project commissioning at Stage III of the national EIA procedure. An overview of the national EIA process is provided in Figure 1.



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

### **2.1.2. Environmental regulatory framework**

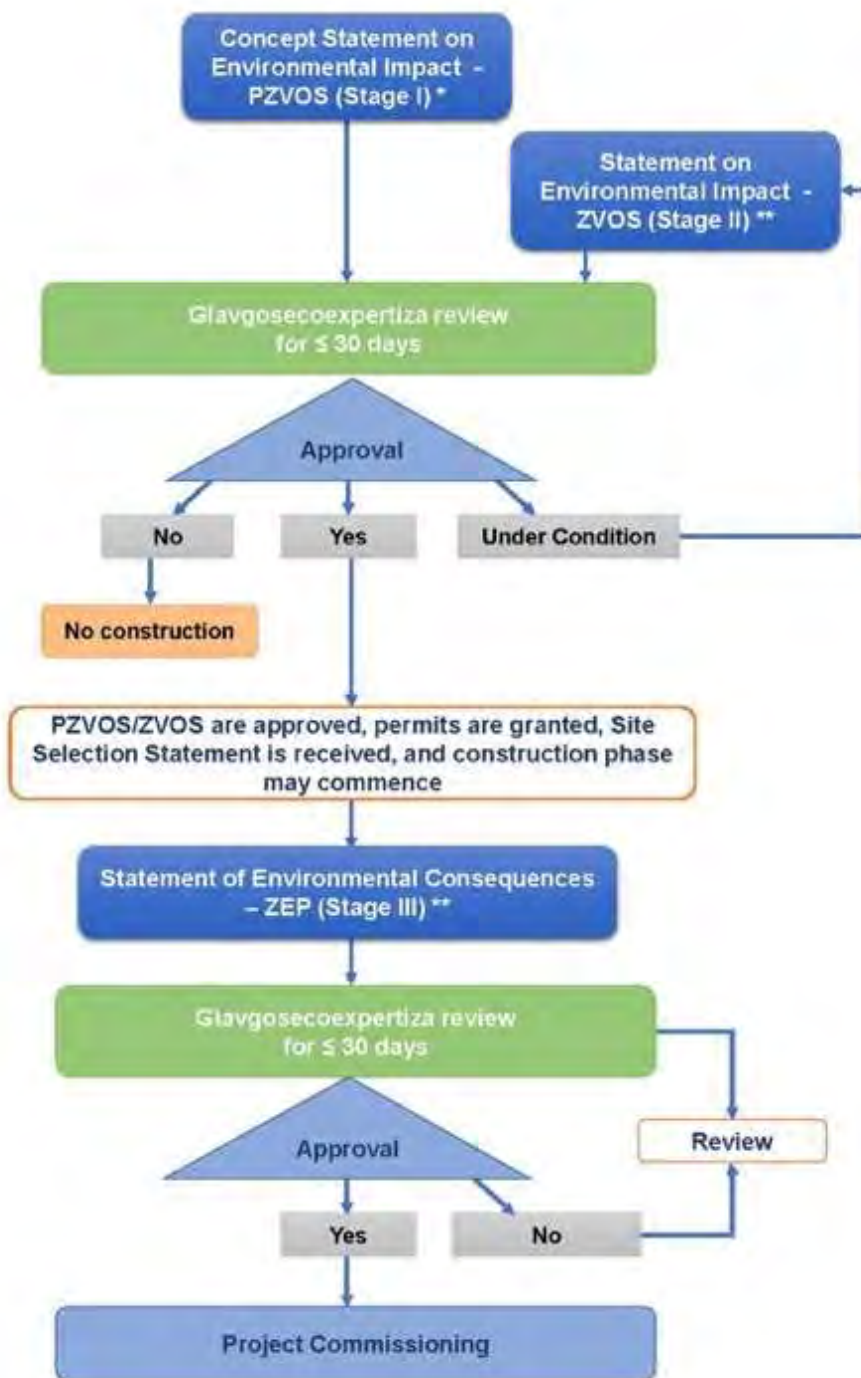
52. The major emphasis of the environmental policy of Uzbekistan is on environmental safety being regarded as a strategic component of national security, and the most important aspect of protecting the vital interests of the state, society and identity. The environmental safety policy of the country is based on the Constitution, national laws, the National Security Concept of the Republic of Uzbekistan, the principles of the Rio de Janeiro Declaration on Environment and Development and the Johannesburg Declaration on Health and Sustainable Development with due regard of national commitments under international conventions and agreements, as well as legislative experience of leading countries.

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

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

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

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



**Figure 1: Uzbek EIA procedure <sup>1</sup>**

\* - Apply for Project Categories I to IV

\*\* - Apply for Project Categories I to III

<sup>1</sup> (Source: Regulation on the State Environmental Expertise in the Republic of Uzbekistan No.491 of 31.12.2001, as amended on 05.06.2009)

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

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

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

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

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

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

- Law on Protection and Usage Objects of Archeological Heritage (2009);
- Hygienic norms. List of Maximum Allowable Concentrations (MACs) of pollutants in ambient air of communities in the Republic of Uzbekistan including Annex 1. SanR&N RUz No.0179-04;
- ShNK 4.02.33-04 Transmission lines;
- ShNK 4.02.67-07 Electric installation works. Repair and construction works;
- KMK 2.01.11-97 Engineering protection of the territories, buildings and constructions against the hazardous geological processes. Main provisions of the design KMK 3.05.06.97 "Electrotechnical devices";
- KMK 3.01.02-00 \* "Safety measures in construction";
- The Rules for Electrical Equipment Installation, 2004;
- RD (Ruling Document) 34.20.501-05. Operating Rules for the Power Plants and Electric Networks;

- RD (Ruling Document) 34.03.202.95. Safety Rules for the Electrical Equipment Operation;
- SanR&N 0236-2007 “Sanitary norms and rules (SNR) on the effects of the electric field generated by overhead transmission lines of alternating currents of industrial frequency”;
- "Instructions for design of fire protection of the power enterprises"
- "Rules of organization and technical operation of the contact network of the electrified railways of SJSRC "Uzbekiston Temir Yullari";
- Admissible noise level into the living area, both inside and outside the buildings (SanR&N No.0267-09);
- “O‘z DSt 1057:2004 Vehicles. Safety requirements for technical conditions” and “O‘z DSt 1058:2004 Vehicles. Technical inspection. Method of control”;
- Decree of the Cabinet of Ministers of the Republic of Uzbekistan on Approval of the collection and disposal of used mercury-containing lamps. No. 266 of 21.09.2011;
- Decree of Cabinet Ministries of RUz on the procedure of settlement usage of biological resources and procedure of issuing permits in the field of nature use, No. 290 of 20.10.2014.

## 2.2. International Legislation

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

- ADB’s Safeguards Policy Statement (June 2009)
- ADB’s Operations Manual Bank Policies: Safeguard Policy Statement (March 2010)
- ADB’s Environmental Safeguards a Good Practice Sourcebook Draft Working Document (December 2012)
- IFC General Environmental, Health and Safety Guidelines (April 2007)

### 2.2.1. World Bank IFC Environmental, Health and Safety Guidelines

63. ADB Safeguard Policy Statement indicates that during the design, construction and operation promoter must apply pollution prevention consistent with international good practice, as reflected in internationally recognized standards such as the World Bank Group’s Environment, Health and Safety Guidelines.

64. In this project, the following IFC (World Bank Group) EHS guidelines have been taken into account to:

- General EHS IFC guideline (2007) – (i) provide prevention and control measures for each source of pollution applicable to this type of industry Environmental Monitoring programs; and (ii) Provide occupational health and safety sources of threats, prevention and control measures and monitoring.
- EHS IFC Railway (2007)
- EHS IFC Electric Power Transmission and Distribution (2007)

### 2.2.2. International conventions

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

**Table 2:** Key applicable international conventions and protocols

Convention or protocol	Overview	Relevance to project
<b>UN Framework Convention on Climate Change (2007).</b>	The Kyoto Protocol (a Protocol to the UN UNFCCC) aims to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.	The Project will not lead to increasing emission to atmosphere. It will lead to decreasing CO <sub>2</sub> emission due to replacement locomotives on electrified trains
<b>Kyoto Protocol (1997), ratified in 1999</b>		
<b>Convention Concerning the Protection of World Cultural and Natural Heritage (2004).</b>	The Convention Concerning the Protection of World Cultural and Natural Heritage is the precursor to the establishment of UNESCO World Heritage Sites as a place (i.e. natural or built environment) that is listed by the UNESCO as of special cultural or physical significance.	The Project will have no interaction with these. As such, requirements under the convention will not be triggered.
<b>The Stockholm Convention on Persistent Organic Pollutants (2004)</b>	The Convention is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment.	The project will comply with national and international standards for hazardous wastes (chemicals) generation and management.

### 3. PROJECT DESCRIPTION

#### 3.1. Existing situation

44. Pap-Namangan-Andijan railway line under consideration runs through the territory of two provinces of Ferghana Valley of Uzbekistan – Namangan (Pap, Chust, Namangan, Chortoq, Khakkulabad) and Andijan (Figure 2). Namangan’s part of the road is about 112 km, while Andijan’s part is about 33 km. The railway line runs through the territory of settlements and agricultural lands. The main settlements that are crossed by the railroad are: Pap city, Namangan, Chortoq, Uychi, Haqqulobod, Paytug, Qurgan Yer, and Andijan city.

45. The existing railway line is a single-track line, and the length of the section to be electrified is 145.2 km. The section has 14 separate points, two of which are sectional stations (Pap station and Andijan station), and others – intermediate stations (Figure 3). The number of artificial structures totals in 422, of which 74 are bridges, 5 – over-crossings, 2 – pedestrian tunnels, and 341 – pipes. The section under consideration has 34 crossings: of which, 17 are non-guarded, and 17 – guarded.



Figure 2: Ferghana Valley railway lines map

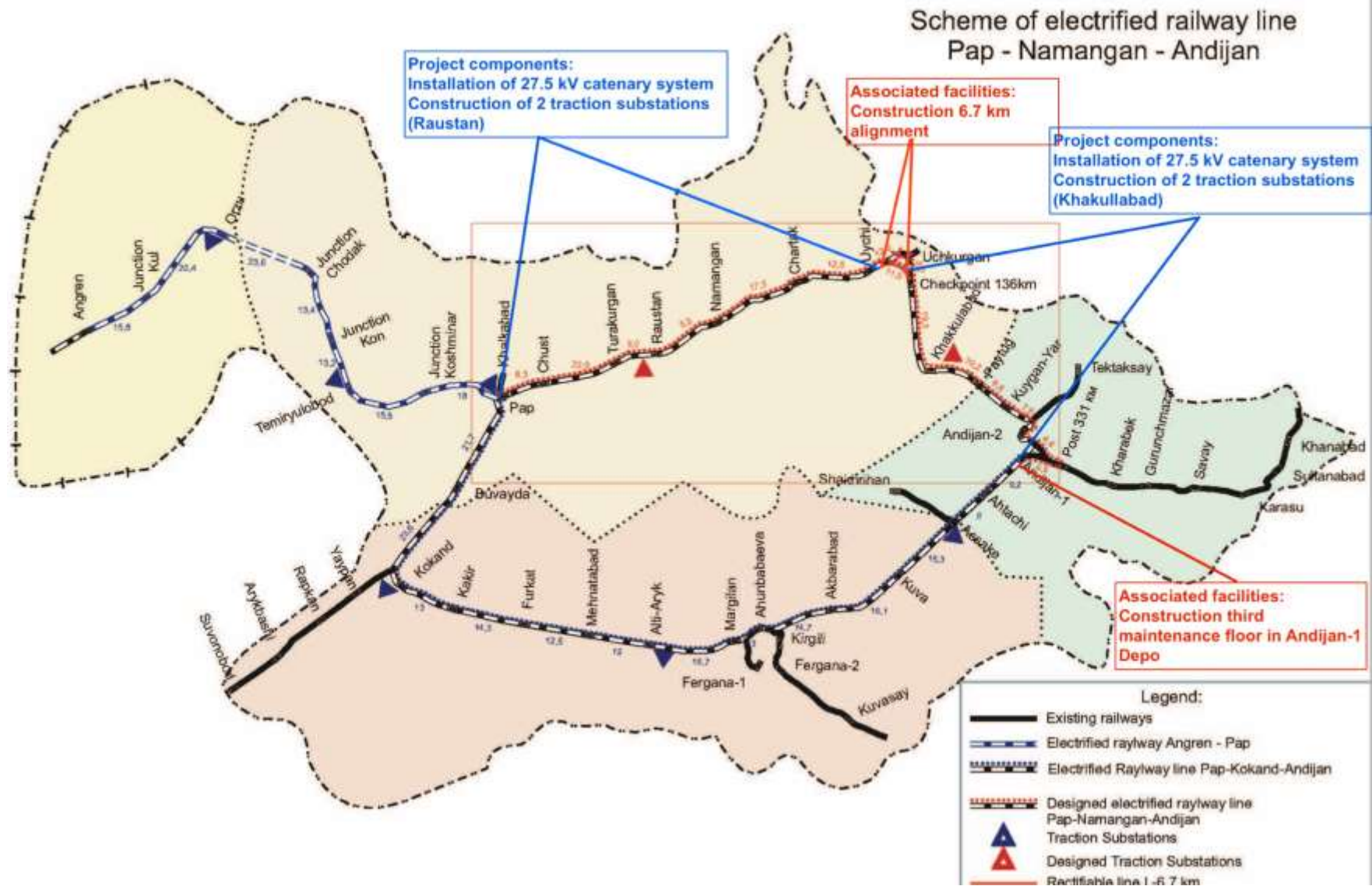


Figure 3: Pap-Namangan-Andijan railway track section layout

46. The railway line meets the requirements of Category III Railway Lines Code for lines with a speed of up to 120 km/h, but current maximum speed of trains on Pap-Namangan-Andijan does not exceed 60 km/h. Major parameters of the railway line are given in Table 3.

**Table 3:** Major parameters of the railway line

No.	Indicators	Unit of meas.	Pap-Namangan-Andijan section			
			Indicators			Total
			along existing railway line	after reconstruction		
		along existing railway line		along new direction		
1	2	3	4	5	6	7
1	Length of line in operation	km				145.60
	without calling at Uch Qourghon station	km		133.97	7.90	141.87
	Block station – Uch Qourghon station	km		3.23	-	3.23
2	Smallest length of separator platforms	m	130	200	250	
3	Useful length of reception and departure tracks	m	less than 850	850		
4	Traction type		Diesel	Electric		
5	Roadbed width	m	6.2	6.2	7.0	
6	Railways and local motor roads crossing					
	- unguarded province-level crossings	Nr.	16	16	1	17
	- guarded country-level crossings with crossing barriers	Nr.	16	16	1	17
	- railway over-crossings	Nr.	-	-	2	2

Source: National Feasibility Study, 2016

47. Passenger and freight transportation is currently underway at this section – passenger trains run every morning and night and freight trains - per flexible schedule. Existing traffic volume is presented in Table 4.

**Table 4:** Traffic volume on Pap-Namangan-Andijan part of railway for 2013 and 6 months of 2016

Period	Andijan- Namangan				Namangan - Pap			
	Ton-km of net	Ton-km of gross	Tons of gross	Length of site	Ton-km of net	Ton-km of gross	Tons of gross	Length of site
2013	13551	24924	249.2	100	68973	118032	2565.9	46
2014	17054	30692	306.9	100	66012	115633	2513.8	46
2015	15468	28083	280.8	100	12387	22448	488.0	46
6 m. 2016	6699	12160	121.6	100	7494	13541	294.4	46
<b>Period</b>	<b>Passenger – km on Fergana Valley</b>				<b>Passenger – km on Andijan site</b>			
2013	52924				15450			



2014	47990	10658
2015	54185	12911
6 months 2016	27960	6883

Source: Project Implementation Unit, UTY, 2016

48. As per Financial Analysis for this Project, adopted World Bank forecast<sup>2</sup> expecting freight and passenger traffic estimates for Ferghana valley are provided in Table 5.

**Table 5:** Freight and passenger traffic estimates

(Millions tons)	2018	2020	2030	2040
WB estimates				
Freight	4.6	6.7	13.4	16.8
Passenger	0.7	1.2	1.7	2.6

Source: World Bank

49. It has been assumed, that 30% of the total rail freight traffic will use the Pap-Namangan-Andijan route (i.e. the Northern loop) post electrification, and 70 % of the traffic will be transported via Kokand and Margilan (i.e. the Southern loop).

50. In accordance with Financial Analysis, traffic forecasts for the electrified Pap-Namangan-Andijan electrified railway are given in Table 6.

**Table 6:** Annual Freight Traffic Volumes (millions tons)

2020	2025	2030	2035	2040	2046
2.04	2.88	4.08	4.96	6.03	6.03

Source: PPTA Financial Analysis,2016

51. For passenger traffic, the World Bank estimated that the number of annual passenger journeys would increase from 0.7 million in 2016, to 1.7 million in 2030, and to 2.6 million in 2040. Only a proportion of these journeys will be on the electrified Pap-Angren line (Northern loop). The World Bank forecasts assume an annual growth rate of 3.5% up to 2030, and increasing to 4.3% per annum after that. Table 7 shows that the average annual growth in passenger journeys on the UTY network has been above 4.3% for most years. Given this, and expected annual GDP growth of 5%, the World Bank estimates of rail passenger journeys and annual growth rates in the Fergana Valley are reasonable.

**Table 7:** Annual Growth in Uzbekistan Rail Passenger Journeys (percentage growth)

2007	2008	2009	2010	2011	2012	2013	2014
-5.0%	13.0%	8.5%	2.8%	2.8%	6.7%	9.4%	9.8%

Source: PPTA Financial Analysis, 2016

52. For passenger traffic, the World Bank estimated that the number of annual passenger journeys would increase from 0.7 million in 2016, to 1.7 million in 2030, and to 2.6 million in 2040. Only a proportion of these journeys will be on the electrified Pap-Angren line (Northern loop).

<sup>2</sup> 2015. Uzbekistan - Pap-Angren Railway Project, Project Appraisal Document. Washington DC

53. According to the World Bank Pap-Angren report, UTY will have to operate 5 train pairs a day (10 trains in total) in the Fergana Valley by 2040 to meet the expected passenger forecasts. Based on current traffic levels in the Northern and Southern loops, it has been estimated that 4 trains per day will have to operate on the Northern loop, and 6 per day on the Southern loop. Based on these service numbers and train capacity it has been estimated that around 32% to 38% of passenger journeys will be on the Pap-Namangan-Andijan electrified route (Northern loop). The forecast annual passenger journeys are given in Table 8.

**Table 8: Annual Passenger Traffic**  
(million journeys)

<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>	<b>2046</b>
0.38	0.55	0.58	0.69	0.85	0.85

**Source:** PPTA Financial Analysis, 2016

54. Activities proposed within the planning project are presented into the next chapter.

### **3.2. Project components**

55. Under the project electrification of the Pap-Namangan-Andijan railway track section, the following activities will be implemented:

- Installation of catenary system for the existing track, 6,7 km bypass and within Andijan Depot;
- Construction of 2 traction substations and 2 section posts;
- Installation of signalling, telecommunications and SCADA;
- Construction of External power supply;
- Purchase of machinery/equipment for maintenance of catenary system.

56. Two Environmental Management Plans were developed within this IEE since two different procurement packages for civil works will be used for this project: (i) for railway electrification and (ii) for construction external power supply. As per procurement plan, two separate contractors will be contracted – one under the UTY and second under the JSC “Uzbekenergo” as only certified company is eligible to conduct such kind of civil works. Two different EMPs will be included into bidding documents for contractors.

#### ***Installation of catenary system***

57. Alternating current and 27.5 kV voltage electrification of the railway line is provided for and includes equipping of the operating railway with devices that ensure usage of electric power for trains’ traction.

58. The project provides for resilient catenary suspension of the contact system compensated at waysides and main tracks. Unified prestressed contact-system masts with 10.8 and 13.6 m length and three-armed socket-type footings are adopted as supporting structures (Figure 4). Metal hard structures are applying at the stations. The height of contact wire suspension is adopted as 6.6 m. Apart from contact suspension, the contact system masts are also suspended by PRR [Primary Regulation Range] lines, group grounding wires, reverse current, etc.



**Figure 4:** View of contact-system masts (picture from operating Andijan-Kokand railway)

59. Along the railway track, it planning to reconstruct the existing 6 (10) kV A/B OHL into a 10 kV A/B OHL by replacing the worn-out elements (masts, bracket arms, insulators, wires, etc.) and replacing the 6 kV equipment by 10 kV equipment at the section of Pap station - Chortoq station and at the section of Khakkulobod station - Andijan station.



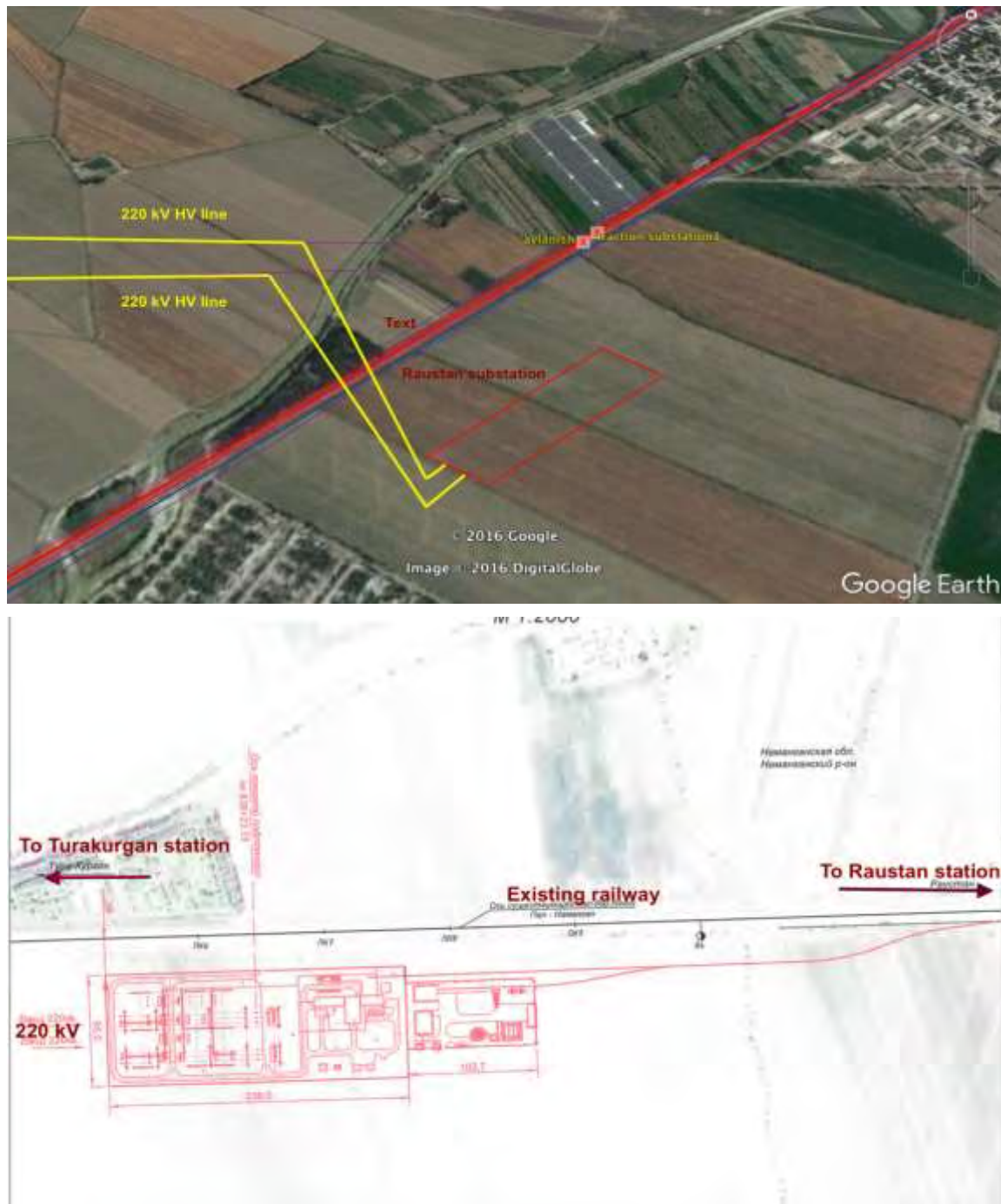
**Figure 5:** Existing 10 kV OHL

60. For designing of catenary system, the following parameters were considered: (i) maximal temperature of ambient air  $+44\text{ }^{\circ}\text{C}$  and minimal temperature  $-28\text{ }^{\circ}\text{C}$ , (ii) maximal wind speed  $-29\text{ m/sec}$ , and (iii) sleet intensity  $-10\text{ mm}$ . These parameters ensure compliance of designing catenary with national regulations, indicated in “Rules of maintenance of electrical equipment” (2007) to avoid wire breakage.

61. Construction of catenary will consist of: digging ditches for towers foundation, filling certain part of foundation with inert materials, installation of concrete foundation and towers, and unrolling and installation contact wires. Digging ditches will be done manually. For installation of precast concrete tower foundations and towers railway crane will be used. Automobile railway car will be used for unrolling and installation contact wires.

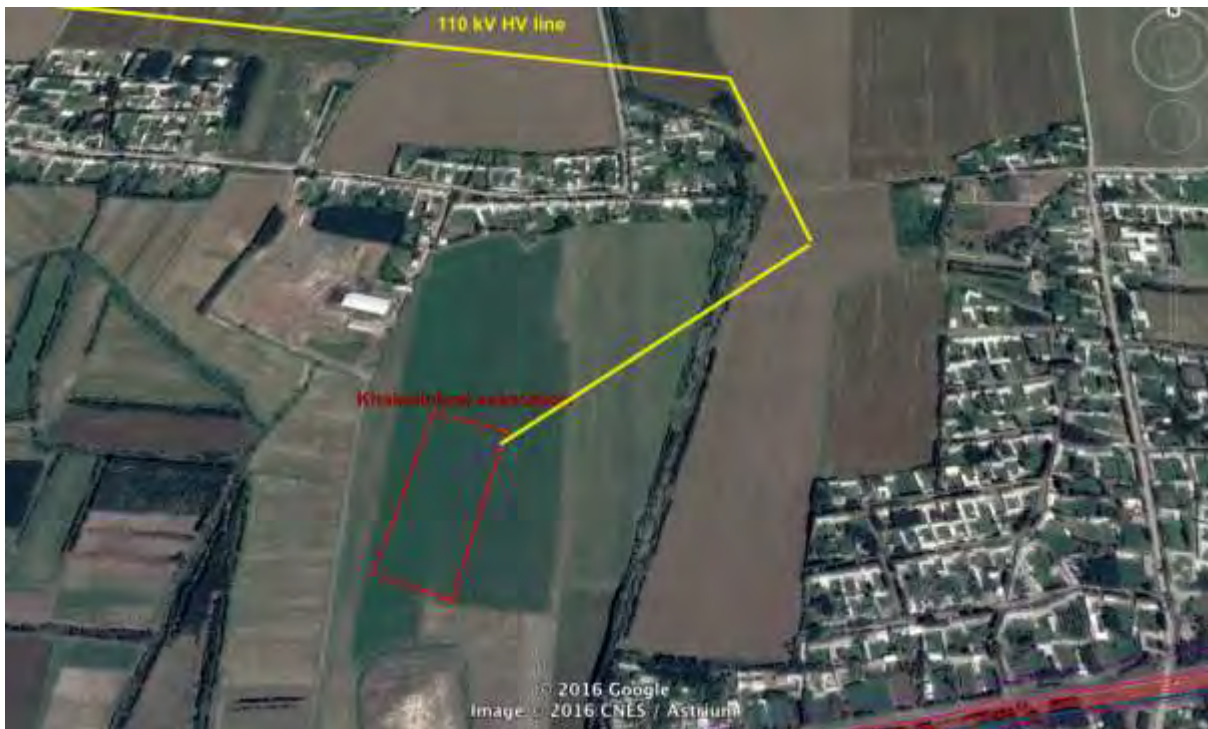
### Construction of traction substations

62. Contact power supply will be provided from two projected traction substations: TPS 220 / 27.5 / 10 kV "Raustan" and TPN 110 / 27.5 / 10 kV "Khakkulabad". Location and capacity of traction substations are selected based on the results of traction and electric calculations and revision alternatives. Locations of Raustan and Khakkulabad traction substations layouts are shown in Figures 6 and 7.



**Figure 6:** Draft layout of TSS «Raustan» in Google map and schematic view<sup>3</sup>

<sup>3</sup> Final location of substations will be finalized at the project design stage



**Figure 7:** Draft layout of TSS «Khakullabad» in Google map and schematic view<sup>3</sup>

63. A provision for storage tanks for clean transformer oil used to add oil to the equipment is also made in the territory of the traction substations being designed. The equipment platforms are backfilled with gravel for ease of maintenance.

64. At the traction substations, three-winding power transformers, which are intended for railways, are adopted with fan cooling, load voltage regulation, and coil voltage of 110 / 27.5 / 10 kV and 220 / 27.5 / 10 kV.

65. The power supply system is equipped with telecontrol devices. The telecontrol system includes: traction substations, sectionalizing points, disconnectors control of the traction power supply PRR [primary regulation range] line and 10 kV PTL [power transmission line] disconnectors of Centralized Traffic Control (CTC) system. Dispatcher's control room is situated in the Dispatching Centre building in Tashkent city, with a standby room at Pop station.

66. The power supply devices being designed will be operated by Kokand power supply division. Contact system maintenance is provided by the contact system districts, with construction of the contact system duty points (CSDP) at Raustan and Khakkulabad stations. These subdivisions are equipped with emergency and recovery vehicles, and railway inspection trolleys.

67. Master plan of substations are presented on Figures 8 and 9. Area required for 110/27.5/10kV substation is 1 ha and for 220 kV – 2,2 ha. The main facilities of 110 kV traction substation (Figure 8) includes: building of traction substation (34); outdoor switchgear 110 kV (39); traction-feeding transformer (40a), b; power transformers (42); emergency oil drain reservoir (43); reserve tank of transformer oil (44); warehouse for materials (45).

68. The main facilities of 220 kV traction substation include: building of traction substation (80); outdoor switchgear 10 kV of Signaling Centralization and Blocking Devices (SCBD) (87); traction-feeding transformer 4000/27.5/10 kV (90); power transformers (91); emergency oil drain reservoir  $V=50 \text{ m}^3$  (96); reserve tank of transformer oil (97); cableway (103); shelter for storage (105); additional current transformers 220 kV (110-1, 110-2).

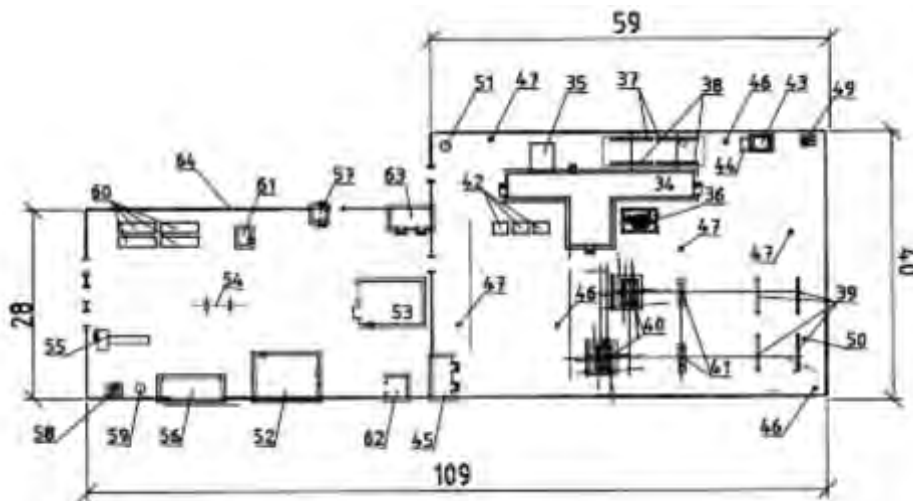
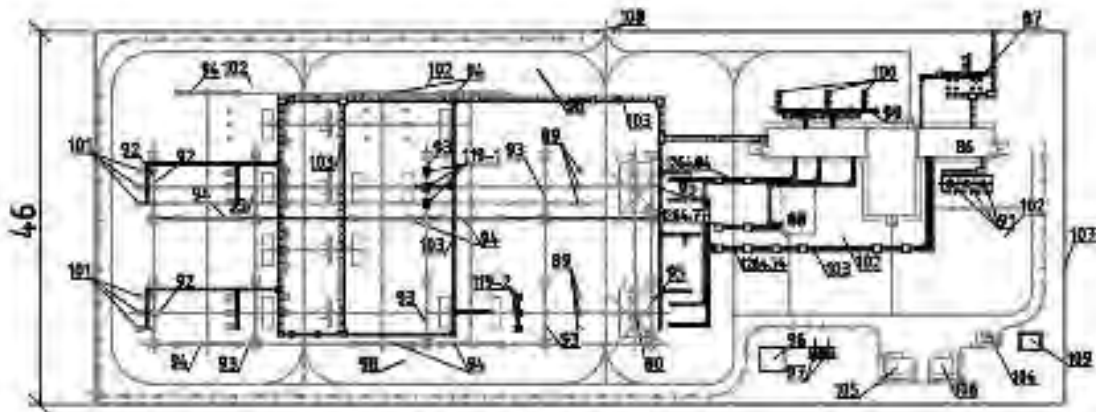


Figure 8: Master Plan of 110/27,5/10 kV



**Figure 9:** Master Plan of 220/27.5/10 kV

69. Projected power supply device will be operated by Kokand distance power. Maintenance of contact network will be performed by districts of contact network with construction of rescue points of contact network (DPKS) at stations Raustan and Khakkulabad. These units will be equipped with emergency and recovery vehicles and railcars.

### ***Construction of external power supply***

70. Construction of high-voltage power lines of 110 kV (40 km) and 220 kV (12 km) is planning to supply traction substations.

### **220kV TL to Raustan TSS**

71. The route for 220kV TL L-S-O to Raustan TSS starts at the span of towers 40-41; and angle tower Nr 1 shall be installed in 75 metres from tower 41. From there, the line will run 550 meters in southern-eastern direction, crosses 110kV TL from Sardor SS to Pap SS (single circuit) and 110kv TL from Sardor SS to Tepakurgan SS (double circuit), turns to south and crosses the Big Namangan Canal.

72. From there, angle towers 3 and 4 will direct the line along new rural residential construction sites<sup>4</sup>. Angle towers 4 to 7 will run the line through croplands, bypassing the city of Turakurgan first on west then on south. Here, angles 5-6 will route the line to cross Kasansay River.

73. From angle Nr 7 the line will run towards the Raustan TSS site. Angles 8-9 will have the line cross Turakurgan-Raustan railway section and bring the line to the Raustan TSS located along this railroad on its southern side.

### **220 kV TL from Raustan TSS**

74. The route for outgoing 220 kv TL from Raustan TSS starts at the span of towers 45-46; angle 1a shall be installed in 90 meters from tower 45. From Angle 1a the line will head to east, through the northern outskirts of Kichik Kurgancha village. On the north-eastern

<sup>4</sup> Under Government of Uzbekistan program new residential missives are being constructed in each province, including Andijan and Namangan

border of the village Angle 2a will be installed from where the line goes to south, to the east from the village.

75. After Angle 3a the route turns to east. Between angles 4a and 5a the line crosses main gas pipeline. From Angle 5a, route goes to the Raustan TSS site. As the line approaches the TSS, Angles 6a and 7a will route the connect the 220kV outgoing line in parallel to the incoming 220kV line in 30 m from it, then the line crosses the railroad and enters the Raustan TSS. Route of 220 kV line is presented on Figure 10.



**Figure 10:** 220 kV external Power Supply line route

### **TL 110kV from Kizil-Ravat SS to Khakkulabad TSS**

76. The route of 110kV TL starts at 110 kV switchgear of the 220/110/10kV Kizil-Ravat SS. There is one vacant section at the 220/110/10kV Kizil-Ravat SS, section Nr 9, and Section Nr 10 currently occupied by 110 kV TL L-Jidakappa should be vacated with the current line diverted to section 16 on the southern side of the substation.

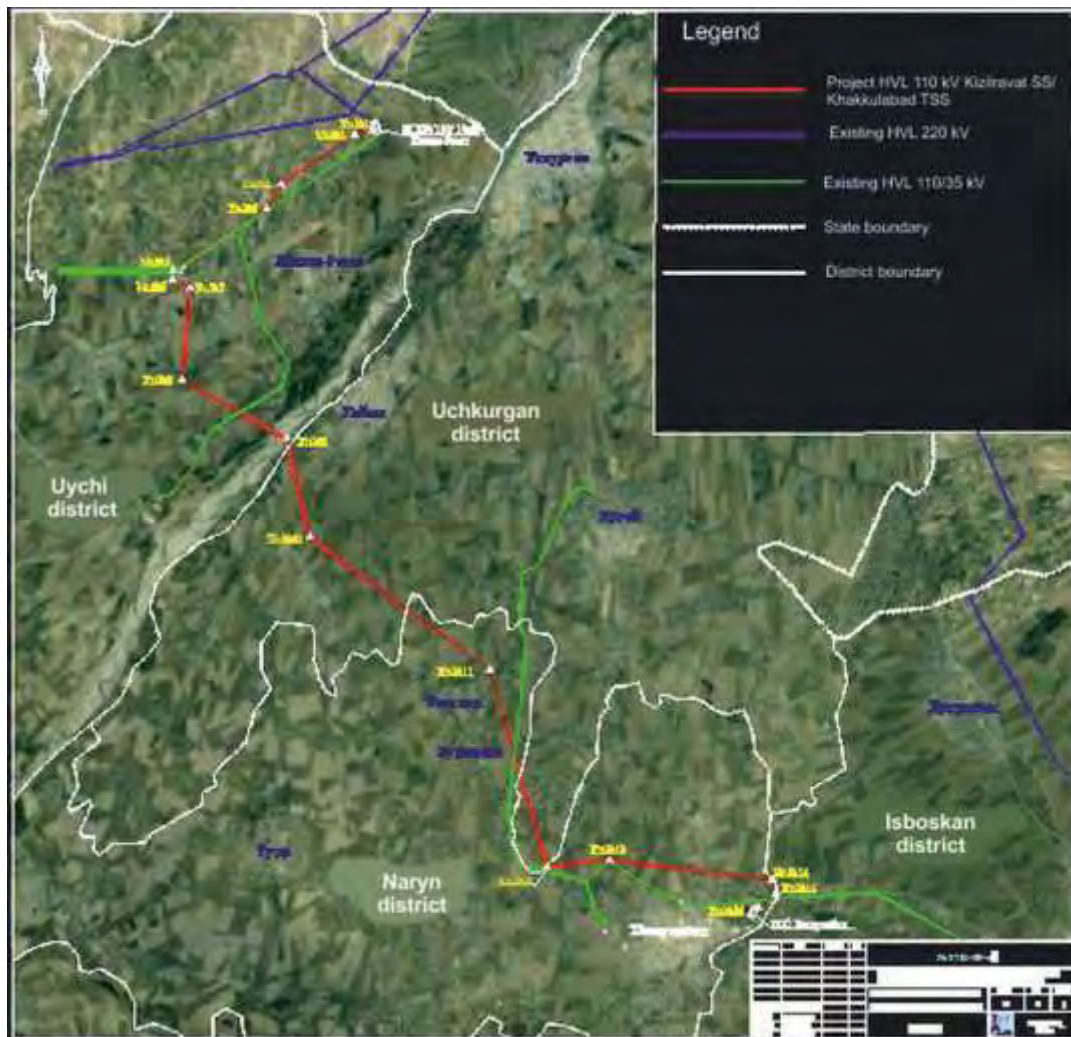
77. Angle Nr 1 shall be installed in 35 meters from 110kV switchgear of the 220/110/10kV Kizil-Ravat SS, from there the route goes south-west till Angle Nr 5 crossing hilly land occupied by gardens and fields. Between Angles 3 and 4 the route crosses the Big Namangan Canal, and angles 4 and 5 route the line in parallel (in 30 m) to 110kV TL Uychi-1,2.

78. Angles 5 and 6 route the line around the pump station, then line crosses the 110kV Uychi-1,2 line and HVL branch line going to the pump station. After angle 6 the line crosses the Northern Ferghana Canal and moves to plains.

79. Angles 7-8 route the line to south, along a narrow corridor between Birlashkan, Kakhraman, Kizil-Ravot villages. Then, from Angle 8, the route goes south-east, crosses the Naryn river, and Angle Nr 9 is installed after the first embankment after the line crosses the river. The inspection of the shoreline showed that this would be the optimal option for crossing the river.

80. From Angle 9 the route goes south-east, crosses croplands, runs north of Kazahaul and Chek villages. Angle 11 is installed on the north-eastern outskirts of Tashlak village. From Angle 11 the route runs south between Buritepa and Parakanda villages, and reaches northern outskirts of Nayman village where Angle Nr 12 is installed. Running north of Khakkulabad city, the route bypasses it on the east on Angles 14-16, and Angle 16 brings it to the Khakkulabad TSS site. Route of 220 kV line is presented on Figure 11.





**Figure 11:** 110 kV external Power Supply line route

81. The transmission towers are made of steel. The steel structures are fabricated in the factory in sections that could be easily stacked and transported to the site. The prefabricated sections are assembled on site to complete the tower. As steel is a good transmitter of electricity, the conductor is separated from the steel tower by glass insulators, which are circular plates of glass hanging at the arm of the steel tower. The conductor is thus hung at the arms of the tower by insulators. At the top of the tower is attached a lightning rod to attract and transmit to the ground the electricity from lightning. Lightning, if not properly diverted from the conductors, could cause high voltage surge that could destroy the transformers. Vibration arresters or stabilizers are added to reduce the swaying of the conductor during high wind or earth movement.

82. The tower foundation could be made of precast concrete structural members. Precast concrete is preferred to minimize activities to be done on site. Precast concrete foundation reduces the environmental impacts such as noise, dust, and workers on site.

83. The national regulation “Rules of maintenance of electrical equipment” (2007) establishes norms for minimal distance between wires of transmission lines and ground in populated and unpopulated areas. High voltage transmission lines (110 and 220 kV) will not go above houses. Table 9 presents standards for distance until ground and buildings.

**Table 9:** Distance from transmission wires to ground surface (in unpopulated area) and to buildings (in populated are)

Characteristics of the area	Minimal distance (m) for voltage of transmission line (kV)		
	up to 35	110	220
Unpopulated area – until ground surface		6	7
Populated area – until ground surface	7	7	8
Populated area – until buildings	3	4	5

84. Para 2.5.112 of the “Rules...” also states that “horizontal distance from outer wires of transmission lines with maximum deviation until the closest overhanging part of building for transmission lines with voltage up to 20 kV should at least 2 meters and form 35-110 kV at least 4 meters”. A distance between railway track axis and 27 kV match will be 3 meters<sup>5</sup>, which complies with established minimal 5 meters RoW for the Pap-Namangan-Andijan railway alignment.

### Installation of Signaling and SCADA System

85. The signaling system comprises of 5, 4, 3 and 2 aspect signals. Also, 3 and 2 ground signals are adopted for shunting movements within the station area. The switches are motorized and can operate individually or in conjunction with route setting. The system employs a semi-automatic block system, and also uses ALS (Automatic Locomotive System) to assist the train driver.

86. Equipment will consist of Computer-based Interlocking/Solid State Interlockings and electro-mechanical relays. Operations can be performed either from the station control room or from a central dispatcher. It is assumed the monitoring system are standard desktop computers and VDU's.

87. To install signaling system, rehabilitation of existing buildings and construction of new ones for installation equipment will be required. Besides this, warning lights at all railroad crossings, automatic barriers will be installed. Rehabilitation of existing communication building will be conducted mostly within territory of railway stations.

88. Fiber-optic line for fiber-optic connection will be installed to meet the needs for transfer of signaling information about performance of signaling devices to the neighboring stations, as well as to ensure operation of the semi-automatic lock microprocessors throughout alignment “Pap-Namangan-Andijan-1”.

89. Fiber-optic cable (32 fibers) is laid over the entire section from the post of EC station Pap to the House of Communication station Andijan I to all communication buildings separate points, in buildings of traction substations, protected crossings, posts of the rolling stock control systems. Scheme desoldering of optical fibers will be determined at the design stage.

90. The SCADA system is used exclusively for the control and monitoring of the power supply system. This enables isolation of power supplies for maintenance purposes, for the switching of power supplies. It also allows the voltages and amount of current used. The monitoring is similar to that of the signaling system and tends to be available as commercially-off-the-shelf equipment.

<sup>5</sup> In conditions when electrification is being implemented in high populated area this distance may decrease up to 2.60 meters

91. For SCADA system telemechanical equipment on two traction substations will be installed. In addition, similar equipment will be installed at the Namangan station back up and at the main dispatch center in Tashkent to implement overall monitoring.

92. Communication cable for SCADA system will be placed together with fiber-optic cable into the same tranche.

93. Prior conduction of civil works on construction catenary, installation of signaling and SCADA system the special schedule will be developed by NOKS (department within UTY responsible for civil works) and approved by Kokand railway department (Authority within UTY responsible for maintenance these part of railway).

### ***Purchase of machinery/equipment***

94. Within the project machinery/equipment and materials for (i) for maintenance catenary system, and (ii) materials for signaling, telecommunication and SCADA system. A detailed list of machinery and equipment will be finalized at the project detail stage.

95. All Goods packages (maintenance machinery, TSS equipment) will not have EMP attached to bidding documents, but they are subject to environment-related technical specifications such as emission and noise level standards. Particularly, toxic level of machinery must meet "Euro 3" environmental requirements as defined by national regulations<sup>6</sup>. Noise level of machinery should not exceed 87 dB<sup>7</sup>.

96. Goods procured for project implementation will be done in compliance with ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009). It is necessary to ensure that transformers for signaling system procured within National Contract Bidding (NCB) process does not contain oil with polychlorinated biphenyl (PCB).

97. These environmental-related technical specifications are included in EMP for construction catenary and traction sub-stations.

### **3.3. Associated and existing facilities**

98. A small section (6.7 km) of the project electrification will be over tracks that are being constructed by the government to bypass the existing tracks travelling through neighboring Kyrgyz Republic. The construction of this bypass is outside the project scope and is being conducted by the government and UTY regardless of ADB finance for the electrification project. The government and UTY confirmed that the bypass construction was initiated without anticipation of ADB financing the project. There is also an existing facility outside of the project scope, comprising the building and maintenance activities at the Andijan Depot

99. For associated facilities a due diligence assessment was conducted and a corrective action plan was developed. Audit of operations was conducted for existing facilities, namely Andijan depot building itself. Due diligence assessment and audit findings are presented in chapter 4. General information about project components and required actions are included in Table 10. Figure 2 also presents information about project components and associated facilities.

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<sup>6</sup> Resolution of President of RUz "On measures for further development of production at the Samarkand automobile plant and renewal automobile park", dated from December 14, 2006

<sup>7</sup> Attachment # 6 to Cabinet Ministries Resolution # 192 dated from July 4, 2012 "On approval of general technical regulations "On safety during operation of railway transport"

**Table 10:** Information about project components, associated and existing facilities

<b>Classification</b>	<b>Proposed investment</b>	<b>Approach</b>
<b>Part of project scope</b> (regardless funding sources)	<ul style="list-style-type: none"> <li>• Catenary system for the existing track, 6km bypass and within Andijan Depot.</li> <li>• 2 traction substations</li> <li>• Signaling, telecommunications and SCADA</li> <li>• External power supply</li> </ul>	Full Initial Environmental Examination (IEE) + 2 Environmental Monitoring Plans (EMP)
<b>Associated facilities</b> (not in project scope but needed for the project)	<ul style="list-style-type: none"> <li>• 6.7 km new alignment - construction</li> <li>• Andijan depot: construction additional floor</li> </ul>	Due diligence assessment and Corrective Action Plan (if needed)
<b>Existing facilities</b> (not in project scope and already existent)	<ul style="list-style-type: none"> <li>• Andijan Depot: building improvement and maintenance</li> </ul>	Audit of operations and Corrective Action Plan (if needed)

### 3.4. Implementation Arrangements

100. UTY will be the EA. It has a sound track record with execution of similar projects, as well as operations and maintenance of electrified and non-electrified lines. The project implementation unit (PIU) established by UTY, with experience of ADB procedures and policies, will be responsible for implementation of the Project. The technical departments of UTY will also assist the PIU during project implementation. UTY will work in association with Uzbekenergo, the state-owned power utility company, especially on the installation of external power supply.

101. The main objective of railways electrification is:

- Reduction of costs through replacement of existing diesel locomotive traction by AC electric traction;
- Improve safety of railway operations;
- Reduction of operation costs;
- Increase of transit and carrying capacity of railway sections;
- Improvement of the region's ecology through decreasing emissions of air pollutants on the local and regional levels.

102. It is planned that the project will be completed by 2020.

### 4. DUE DILIGENCE ASSESSMENT OF ASSOCIATED FACILITIES

103. As it was described in Chapter 3.2 construction of the 6,7 km bypass, and an additional floor in Andijan Depot are considering as associated facilities for this project. Per ADB SPS (2009), these activities are considered as associated facilities which are not funded as part of the project (funding may be provided separately by the borrower/client or by third parties), and whose viability and existence depend exclusively on the project and whose goods or services are essential for successful operation of the project. As part of

environmental assessment, due diligence of these facilities have been conducted and corrective action Plan were developed

#### **4.1. Construction of new 6,7 km alignment**

104. National environmental assessment for this part of the project was conducted within general environmental assessment for entire project. Environmental Appraisal from State Nature Committee was received in November 5, 2016. The document highlighted several requirements for implementation before commencement of civil works, during construction and before operation. Requirements related to this part of the project are followings:

- development of plan – schedule of conducting step by step technical and biological re-cultivation of disturbed lands, approved by provincial committee on nature protection;
- cutting trees in the buffer line railway track, which should be approved by provincial committees for nature protection in a fixed legislative order with indicating compensation amounts (in accordance with Resolution of Cabinet of Ministries of the Republic of Uzbekistan No. 290 dated 20.10.2014);

105. Present due diligence assessment was conducted based on desk review of available materials, site visits and consultation with specialists, stakeholders and population from the project area.

106. Constructed new track starts from km 125 + 700 (Uychi station) to km 132 + 400 (Khakkulabad), the route runs along a new direction of length 6.7 km (Figure 12). Rectification will diverse the railway line to the border with the Republic of Kyrgyzstan that currently is creating difficulties with track maintenance in term of accessing to the territory of neighboring country.

107. From the point of unlocking the railway track with 620 m radius extends to the right and passes irrigated lands on the PC 1272 + 22 crosses the North Fergana Canal (NFC). Before the NFC railway track crosses the highway. Right Bank Canal is densely populated residential area and partially will be resettled. Tunnel type overpass 96,61m length will be constructed to cross highway. Construction of concrete bridge length of 64.6 m is planned for crossing the NFC. An automobile road runs along the left bank of the NFC and railway overpass length of 53.2 m will be constructed to cross it. Then the railway route comes to the Naryn River, which is one of the main water source of the Ferghana valley. Naryn river splits into two branches at the project area. It is proposed to build concrete bridge over right branch (length 270.80 m). The left branch will be reverted into the right branch through construction of dams. The left branch of NFC and flood plain will be passed by construction railway embankment. Further railway track passes irrigated land and at point PC 1295 + 34.5 crosses Khakkulabadsay (smaller canal) concrete bridge length of 57,5m will be constructed to cross it. At the point PC 1297 + 35.5 railway track crosses the South Fergana Canal (SFC), by construction of concrete bridge length of 64.6 m. Then the railway track route passes through farmland and at the point PC1311 crosses highway 4R116. A railway overpass length of 53.2 m will be built for intersection railway with automobile road. Further 600 m radius of the track of the railway line adjacent to the checkpoint at the PC 1361 of the existing railway line. At the intersections of railway with smaller roads, at the PC in 1296 and + 82 + 45 PC 1301 protected and unprotected passes will be constructed. A scheme of new alignment is provided in Figure 12.

108. The route passes mostly through agricultural lands and some parts of residential area (Kizil Ravat village and Uchkurgan city), which requires land acquisition and

resettlement activities. As per national regulation, RoW for new alignment was defined as 25 meters<sup>8</sup>.

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<sup>8</sup> Draft LARP (2016) \*\* Government requirement KMK 2.10.08-97, 1997, Table 2

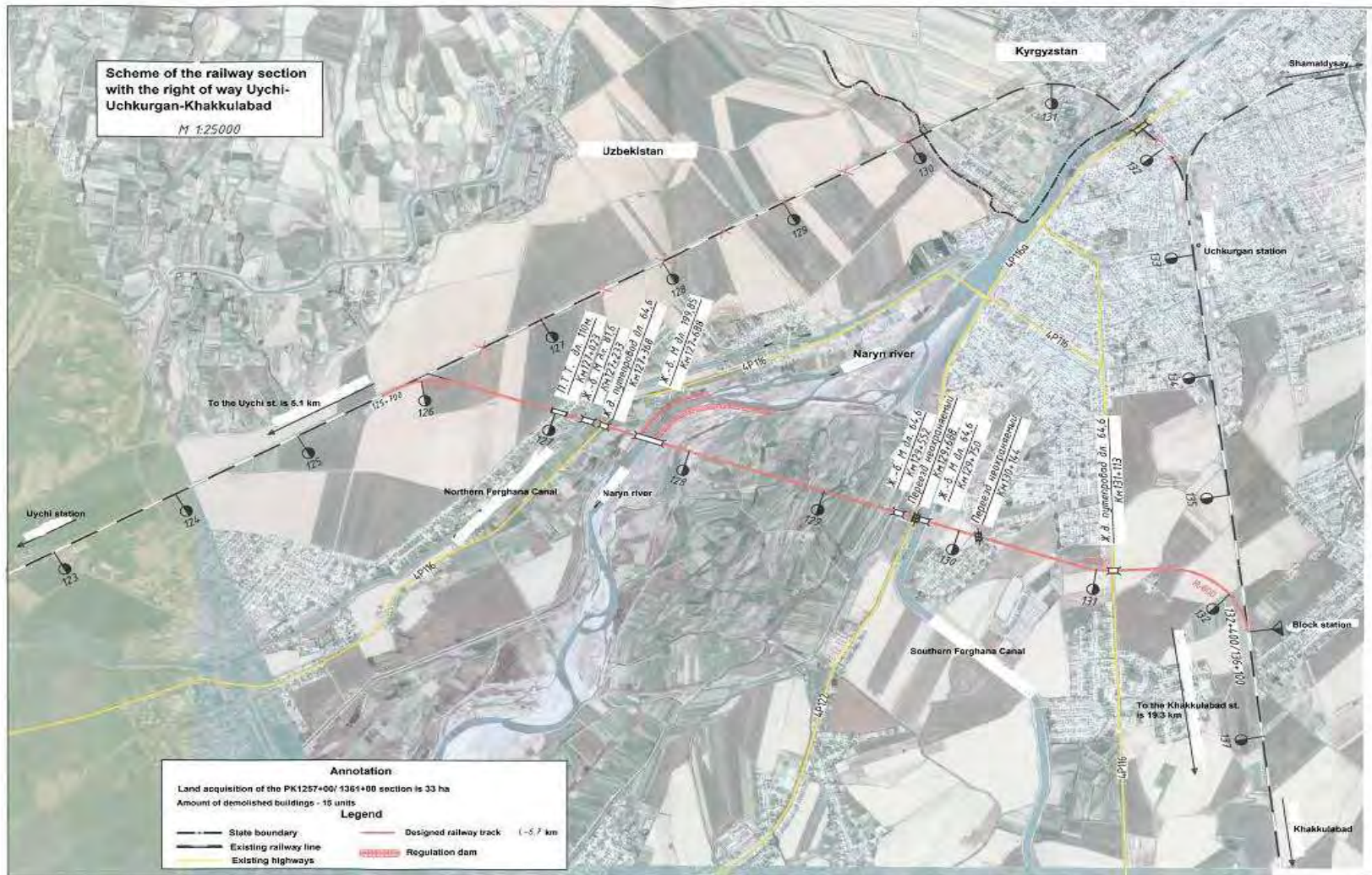


Figure 12: New 6,7 km alignment

109. At the stage of this due diligence conduction, some works on construction new alignment have been started. However, a permission for cutting trees has not been obtained from Goskompriroda yet. It is recommended to get permission for cutting trees as per national legislation and requirement indicated in Environmental Appraisal (2016).

110. National environmental assessment identified the following main impacts for this part of the project: disturbance, losses and pollution of soil, increasing of noise level during train movement, water resources pollution and impact on birds.

111. As stated in Environmental Assessment, for construction of new alignment 560 thousand m<sup>3</sup> of inert construction materials will be required. As per condition indicated in Environmental Appraisal, the Implementation Agency has to provide information about existing sources of minerals, certificates for their usage and permission for usages carries if any and way of their reclamation. Initial national feasibility study provides information about potential sources of mineral materials in Ferghana valley. It says: "Construction materials (sand, gravel and pebbles) are found in quantities in the areas adjusted to Ferghana and Margilan cities.

112. Building material loose filler (sand, gravel and pebbles) are found in large quantities in the vicinity of the cities of Fergana, Marghelan, Andijan and others. There are significant reserves of pebble materials in Pridonovskoe, Papal and Massalsky deposit of Ferghana valley".

113. A certificate for usage inert materials from authorized source in Namangan province was provided by Contactor constructing this part of railway track. There is no certificate or permission on usage of soil yet.

114. Due diligence review showed that, labor camps are located for from water bodies and equipped with all necessary facilities. Construction materials are storage on the territory of construction camps.



**Figure 13:** Location of labor camp for new part of railway track

115. Requirements on environmental protection, occupation safety and health during construction are being implemented as part of general requirement for conduction construction works as indicated in relevant national regulatory documents and relevant IFC



guidelines. Supervision of construction works including H&S measure are being implementing by NOKS (Department of capital construction under UTY).

116. As per national and UTY's internal regulations, each worker attends introduction training on general H&S issues and specific training on working with equipment. A logbook on conducted training with indication name, title and topic of training is maintained by manager of construction sites.

117. Environmental Assessment states that after project implementation level of noise will significantly increase in compare with existed situation. Area where new alignment will be constructed is residential area and agricultural lands without any source of significant noise pollution.

118. Measurements of background noise level were conducted within current IEE in both settlements – Kizil Ravat village and Uchkurgan city. Measurements were conducted by Kokand Sanitarian Epidemiological Station (SES) in accordance with interstate standards # 20444-2014 “Noise. Traffic flows. Methods of noise characteristic determination” (2014). The standard sets the characteristics of noise during the movements of traffic flows in the streets, motor and railway roads, open underground lines were used for this measurements. Requirements for conduction noise measurement from railway is presented in Attachment 9 and results are presented in Table 11.

119. For the new alignment, expecting equivalent noise level ( $L_{eqv}$ ) was calculated in accordance with guideline provided in “Calculation of railway noise” (Department of Transport, HMSO, London, 1995). National regulation – Construction Norms and Rules (CNR) 2.01.08-96 “Noise Protection (Chapter “Residential area of urban and other settlements”)” also provides an instruction on calculation of expecting noise from railway trains. However, CNR misses corrections necessary for electrified trains. Therefore,  $L_{eqv}$  was calculated based on guideline provided in “Calculation of railway noise”.

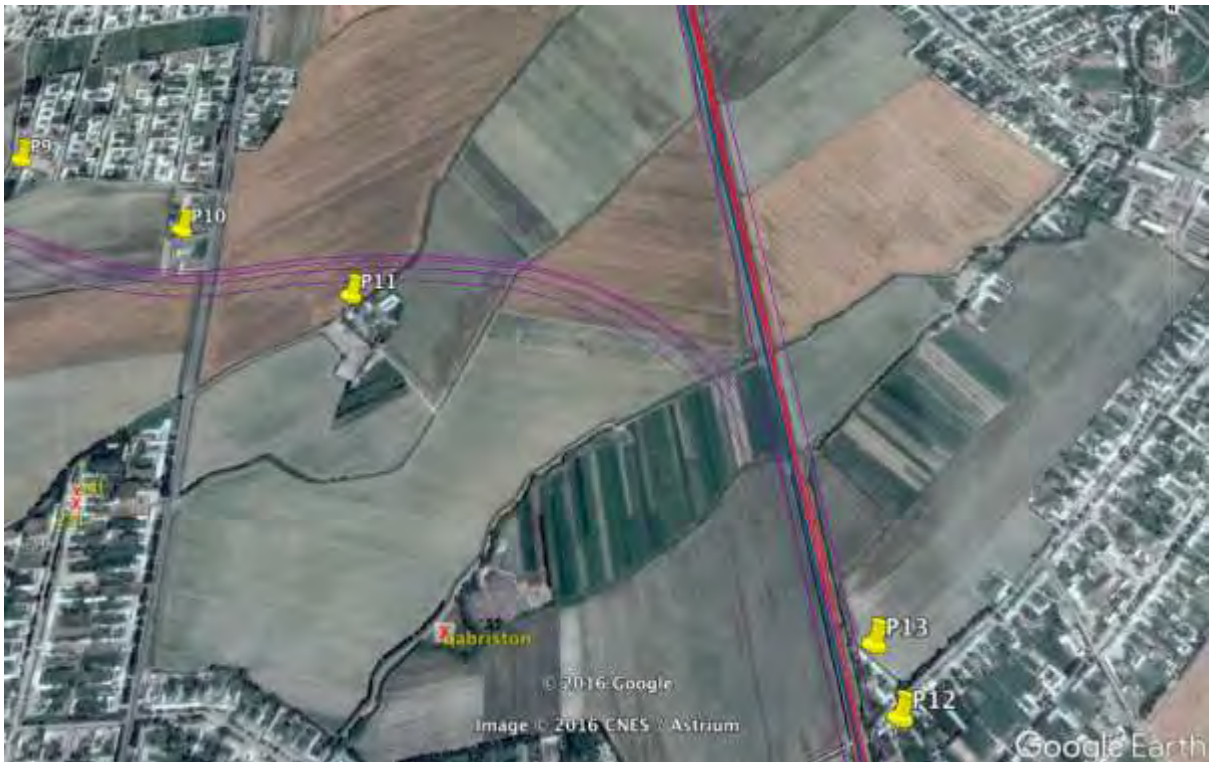
120. Calculations of noise level were done for three points in Kyzyl Ravat village and Uchkurgan city. The points were selected at the distance on 12 meters from railway (RoW) in front of the houses which will be on the closest distance to railway (Figures 14-16).



**Figure 14:** Location of P1a and P1b in Kyzyl Ravat village



**Figure 15:** Location of P2-P8 points in Kyzyl Ravat village



**Figure 16:** Location of P9-P13 points in Kyzyl Ravat village

121. A table with calculations for each point with considering all required corrections are presented in Attachment 10. Results of calculation of noise level for scenarios with various train speeds (115, 60, 50 km/h) are presented in Table 11.

**Table 11: Results of noise level calculations**

Point	Description	Distance from railway axis, m	Expecting noise level, $L_{eqv}$ , dB 115 km/h	Expecting noise level, $L_{eqv}$ , dB 60 km/h	Expecting noise level, $L_{eqv}$ , dB 50 km/h	Type of proposing mitigation measure for 50 km/h	Noise level after mitigation measure, dB
P1a	House	25	72	66.7	65.7	1.7 m height acoustic barrier	53.5
P1b	House	18	73.8	68	66.5	1.5 m height acoustic barrier	55.0
P2	House	31	71	65.7	64.1	19 m greenings	54.5-55.1
P3	Warehouse	51	69	63.3	61.8	14 m greenings	54.8-55
P4	House	62	68	62.4	60.8	12 m greenings	54.8
P5	House	85	66.5	60.8	59.3	10 m greenings	54.3
P6	House	70	67	61.8	60.2	10 m greenings	55.2
P7	House	100	66	60	58.4	10 m greenings	53.4
P8	House	163	63	57	55.8	2 m greenings	54.8
P9	House	138	64	58	56.7	4 m greenings	54.7
P10	Gas station	72	67	61.6	60.1	10 m greenings	55.1
P11	House	70	67	61.8	60.2	10 m greenings	55.2

122. The table includes also expecting noise level from railway after implementation mitigation measures for the points with excess standards (55 dB). Two types of mitigation are suggested: (i) construction of acoustic barriers, and (ii) greenings area between railway and receptors.

123. Construction of acoustic barrier is proposing for P1a and P1b, since there is limited distance between railway axis and receptors. Calculations showed that acceptable noise level could be achieved for points "P1a" and "P1b" by construction 1.7 and 1.5 meters high acoustic barriers. The length of the barriers should be not less than 160 meters for P1a and P1b (both sides of railway – total 320 meters). A distance between barriers and railway (noise source) should be 6 meters. Considering that installation of 1 running meter of noise barrier will approximately cost 70 USD, the total amount will be 22,400 USD.

124. In accordance with national regulations<sup>9</sup>, greening of area adjacent to railway also can serve as a sound consumption barrier. A green stripe width of 10 meters can reduce

<sup>9</sup> Construction Norms and Rules 2.01.08-96 "Protection from noise", Table 33

noise level up to 5 dB. Therefore, implementation of greenings of the area adjusted to railway for the rest receptors will decrease noise level until acceptable 55 dB (Table 12).

125. Measurements of existing noise level in two settlements – Kizil Ravat village (Uychi district) and Yoshlik RCA (Uchkurgan district) were conducted within current IEE. The results are presented in below table. The existing noise level does not exceed national and international standards (55 dB).

**Table 12:** Background noise level in Kizil Ravat and Uchkurgan district

Location	Time	Noise level, $L_{eq}$ dB	Standard, $L_{eq}$ dB
Qizil Ravat Uychi district - <b>P1</b>	11.30 am	41	55
Qizil Ravat Uychi district - <b>P2</b>	12.50 pm	43	55
Qizil Ravat Uychi district - <b>P3</b>	1.00 pm	43	55
Uchkurgan district Yoshlik RCA - <b>P7</b>	3.30 pm	49	55
Uchkurgan district Yoshlik RCA - <b>P10</b>	4.00 pm	48	55

*Source: Kokand Sanitarian Epidemiological Station, 2016-2017*

126. Due to absence of relevant requirements, there is no reporting system on implementation of environmental protection measures indicated in Environmental Appraisal at the project sites. Requirements on conduction environmental monitoring of air quality in residential areas and water quality during construction period have not been also included into the Environmental Appraisal.

127. Before construction the new alignment, Public Consultations were not conducted. Within current IEE, as part of Public Information Disclosure, representatives of of Kyzyl Ravat and Yangiyer settlements affected by this associated project's components participated at the Public Consultations on November 23, 2016. Detail information about the PC is presented Chapter 7.

128. The main issues raised during the discussion were related to road restoration, which are currently used by Contractor. It was noted that local road has been deteriorated due the movements of trucks. Many questions were asked regarding resettlement issues and compensations.

129. It was learnt that there is no GRM at the project level, therefore, people do not know where and how to apply in case of complaints or inconveniences due to project works.

#### **4.2. Construction of third floor in Andijan-1 Depot**

130. As noted above, in depot Andijan-1 the additional floor to existing second observation desk (48 meters length) will be constructed for control and maintenance electrical contact parts of electric trains which will start to operate after railway electrification. Existing facility in depot Andijan-1 is not sufficient to maintain such trains.



**Figure 17:** Second floor-observation desk in Andijan-1 depot

131. In accordance with national legislation<sup>10</sup>, conduction of Environmental Assessment for this type of project activity is not required since all rehabilitation/construction works are conducted within existing facilities and will not to significant increasing of wastes generation.

132. Construction of additional third floor in Andijan-1 Depot will be implemented by UTY. All civil works, including delivering of construction materials, welding works and others will be conducted through railway and within the territory of Depot. Due to low impact of this construction on air quality, no impact on water resources and other components, this activity was not included in national Environmental Examination and there are no specific requirements for this part of the project in national Environmental Appraisal. It is expected, that only wastes from installation catenary and other signaling and SCADA system may have some impact, which will require implementation of general mitigation measures indicated in EMP in part of construction 27.5 kV catenary.

133. Oil spills were observed on the railway track on territory of Andijan-1 Depot. Due to expecting increasing number of trains which will be maintained in Depot after railway electrification, existing practice of oil handling may increase pollution of soil and ground water. Therefore, it is recommended to upgrade oil handling practice through development of preventive measures and disposal of spilled oil.

#### **4.3. Compliance Audit of operation of Andijan-1 Depot (existing facilities)**

134. Rehabilitation of Andijan-1 Depot have been implementing by UTY, department of capital construction (NOKS). Civil works on roof resurfacing, replacement of framework and windows have been completed and only some works on painting are remained. From environment protection and health safety aspects, all observed works were implemented in compliance with environmental requirements.

135. Based on the results of due diligence, a Corrective Actions Plan was developed for associated facilities in order bring these components in compliance with ADB safeguards requirements.

<sup>10</sup> Resolution of Cabinet Ministries of RUz # 491 "On environmental Expertise", 2001

**Table 13: Corrective Action Plan**

Identified issue	Action	Responsible	Implementation period
<b>6,7 km of new road</b>			
Absence of official permission on cutting trees and no compensation payment for already cut trees	<ol style="list-style-type: none"> <li>1. Obtain permission of cutting trees from Goskompriroda</li> <li>2. Pay compensations for cut trees</li> </ol>	<ol style="list-style-type: none"> <li>1-2 Department of capital construction (NOKS) under UTY</li> <li>1-2 PIU monitor implementation</li> </ol>	<ol style="list-style-type: none"> <li>1. One month from official submission of IEE by IA to ADB</li> <li>2. Two months from submission this report</li> </ol>
Absence of the permission/agreements with local agencies on usage carriers for soil	<ol style="list-style-type: none"> <li>1. Submit permission / agreement to PIU</li> <li>2. Ensure usage only authorized carriers during construction stage</li> </ol>	<ol style="list-style-type: none"> <li>1. NOKS submit permission</li> <li>2. NOKS's and PIU's experts conduct monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. One month from submission of IEE to ADB</li> <li>2. Continuously during construction</li> </ol>
Poor GRM at the construction site	Develop and implement GRM for this part the project	1. NOKS develop and PIU monitor	Two weeks after submission the report
Deterioration of local roads due to movement of heavy techniques	<ol style="list-style-type: none"> <li>1. Revise access road to construction sites and optimize their direction in order to minimize impact on public roads</li> <li>2. Ensure that impacted roads are rehabilitated</li> </ol>	<ol style="list-style-type: none"> <li>1-2. NOKS revise access road direction</li> <li>1-2. PIU monitors repairing roads</li> </ol>	<ol style="list-style-type: none"> <li>1. One month after submission of this report</li> <li>2. Upon completion civil works</li> </ol>
Environmental monitoring are not conducted	Establish env. monitoring system through: <ol style="list-style-type: none"> <li>(i) monitoring of air quality (dust, NO<sub>x</sub>, SO<sub>2</sub>) at the construction sites next to residential areas (monthly),</li> <li>(ii) noise level monitoring at the construction sites next to residential areas (weekly and per complaints from residents),</li> <li>(iii) water bodies at the point where railway track crosses the river /canals/ drainage (oil residual,</li> </ol>	<ol style="list-style-type: none"> <li>1. NOKS hires Kokand Sanitarian Epidemiological Station to conduct monitoring</li> <li>2. PIU monitors results</li> </ol>	One months after official submission of IEE by IA to ADB

	turbidity, BOD, COD)		
Noise from railway operation will exceed acceptable standards	Install acoustic barriers and greenings as it is recommended in para 121-122 <sup>11</sup> .	NOKS is responsible for inclusion of acoustic barrier and greening activities in the project design  PIU monitors inclusion and construction of acoustic barriers	During construction phase. Acoustic barriers should be completed upon new part of railway will be commencement
Impact on air, water and soil during construction	Continue existing practice. Based on the results of environmental monitoring develop and implement additional measures for air and water protection as required	Contractors implements existing practice  NOKS implements environmental monitoring with involvement of Kokand department of SES  PIU monitors results and implementation mitigation measures as required	Start within 2 weeks after submission this report and continue through whole period of the project construction
<b>Depot Andijan-1</b>			
Spills of oil within territory of depot	1. Develop and implement practice on preventing soil pollution by oil 2. Clean up the territory of depot from oil spills	1-2. NOKS implements	1. One month for development practice and continuously implement 2. 3 months after submission of this report

<sup>11</sup> Admissible noise level into the living area, both inside and outside the buildings (SanR&N No.0267-09)

## 5. DESCRIPTION OF ENVIRONMENT

### 5.1. Physical conditions

#### Climate

136. The climate of Ferghana Valley is arid, extremely continental and somewhat different across districts depending on their elevation, proximity to mountains and remoteness from the western open, the most arid, windy part of the valley.

137. **Andijan province.** The climate of Andijan province is extremely continental, with relatively mild winter and continuous hot summer. Basic peculiarity of Central Ferghana's climate is a hot dry summer and an especially cool and humid winter.

138. Based on observations of many years, the average monthly temperature of the coldest month of the year, January, is  $-3.4^{\circ}\text{C}$ , and the hottest, July –  $+26.8^{\circ}\text{C}$ . The absolute maximum of positive temperatures reached  $44^{\circ}\text{C}$  (in the shade) and the maximum of subnormal temperatures –  $29^{\circ}\text{C}$ . An average year-round temperature is  $13.4^{\circ}\text{C}$ .

139. The average yearly precipitations total in 208 mm. Their main part falls in winter and spring months, which is 89 % of all precipitations. The precipitation minimum falls on the months of June, July, August and September. March accounts for the largest amount of precipitations – 33 mm.

140. Mainly north and north-westerly winds are characteristic of this province. Heavy dust storms causing wind erosion are normally observed during April and May.

141. **Namangan province.** The climate is continental. Summer is hot and long, winter is relatively mild and short. There is wide diurnal fluctuation in temperature, and little precipitation. January temperature in the plains averages  $3.5^{\circ}\text{C}$ , and July –  $+25^{\circ}\text{C}$ . Annual density of precipitations in the plains and in the vicinity of mountains is about 100-200 mm, and at the foothills – up to 600 mm. The vegetation period in Namangan province lasts 229 days. It is the longest period with respect to the southern and eastern parts of Ferghana Valley.

142. Meteorological data for Andijan and Namangan provinces are given in Table 14.

**Table 14:** Meteorological data for Andijan and Namangan provinces

Weather station	Average annual precipitation (mm)	Temperature, °C			Average annual evaporation (mm)	Frostless seasons, day/year
		Average annual	Average, January	Average, July		
Andijan	226	13.1	- 3.0	27.3	1183	221
Namangan	205	13.4	- 3.4	27.6	-	-

Source: MAWR, 2012

#### Geological and hydrogeological peculiarities

143. Geological structure of Ferghana Valley territory is extremely complicated. Mountain borders are massive fold and block uplifts of Paleozoic sandstones, shale rocks, limestones, conglomerates, gneisses, and volcanic tuffs. Piedmont and foreset ridges of mountain ranges are formed by Meso-Cainozoic sedimentary rocks (conglomerates, sandstones, limestones, clays, and siltstones). On the plains, they are buried under thick mass of quaternary deposits. Adyr ridges are formed by poorly defined mass of lower quaternary deposits represented by conglomerates, pebble-bed, and gravel.



144. Orographic features of Ferghana Valley have determined a great variety of hydrogeological conditions. Following zones are differentiated: (i) submersion zone with stably deep groundwater occurrence and low mineralization (adysrs and upper parts of alluvial cones); (ii) fringe zone with stably close groundwater occurrence with low and medium mineralization (middle part of alluvial cones); and (iii) dispersion zone with unsecured outflow and unstably close occurrence of groundwater with increased mineralization (lower part of alluvial cone and interconal declines).

145. The value of groundwater salinity ranges from 1.2 to 3.74 g/l, very low-mineralized and brackish, which enables to develop sub-irrigation owing to their shallow lying in order to reduce irrigation water discharge. The water has a qualitative – sulphated – composition with high calcium and magnesium content.

146. In the project area ground water are located on the different depth, which varies from 1 to 5 meters. Ferghana valley belongs to 6-8 points seismic zone.

### **Soil conditions**

147. Historically, Ferghana Valley soils are the most productive in Uzbekistan, which, together with climatic conditions, is a major prerequisite for agricultural importance of the project area. Other factors contributing to this are regulated river runoff and adequate natural drainage.

148. The Ferghana Valley soils are formed by the main soil formation conditions as follows: climatic, lithological, geomorphological, hydrogeological, and ameliorative processes.

149. *Andijan province.* At the foothills and in the intermountain valleys of Andijan province, nonsaline bright, typical and fuscous sierozems are developed in good drainage conditions of the upper terraces of river valleys, alluvial cones, and deeply defined loessial terraces.

150. *Namangan province.* Sierozem soils predominate: bright sierozems – up to a height of 700-850 m, typical and fuscous sierozems – from 850 to 1,200 - 1,500 m, and chestnut and chernozem-like soils – from above.

151. Depending on the nature of the relief railway runs mostly embankments in height from 2 to 6 meters, and recesses with depth up to 14 m. Soils grounds mound represented mainly by loess loams, sandy loams with interlayers and lenses of sand, detrital soils. Subgrade deformation undergone as a result of compaction of soil embankments. Embankments is broadened due launching soil from reserves on slopes. Ballast tail is under launched soil with width up to 1.5 m.

## **5.2. Water resources**

### **Surface water resources**

152. The main source of surface water in the provinces being considered is Syr Darya River. It is a typical mountain river with snow- and glacier-derived nourishment, low runoffs in April-May and high runoffs from late June until the second half of August, and a wide discharge range during a day. There are main canals (BFC and BAC) constructed to balance the runoffs with the irrigation needs and to transfer excess water from the rivers to water scarcity zones.

153. Big Fergana Canal (BFC) consists of two sections:

- Naryn, consisting of two mains that are connected to each other at the 20th kilometer and deliver to Karadarya river (through Tentaksoy);

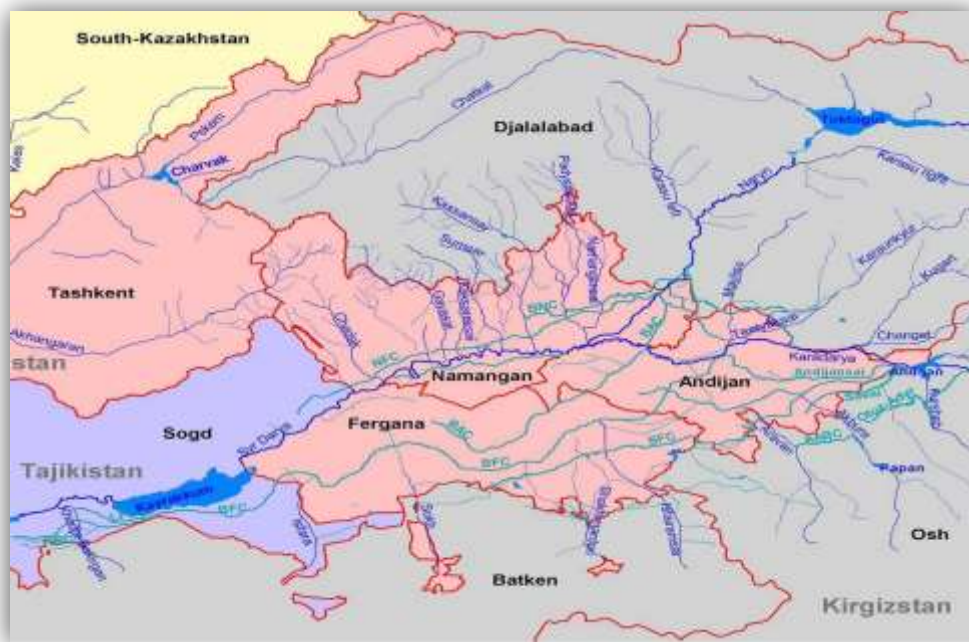
- Kara Darya, having a length of 205.3 km.

154. Big Andijan Canal (BAC) with a length of 109.1 km and a forced discharge of 330 m<sup>3</sup>/s in the head originates from Uchkurgan hydrosystem at Naryn River. The existing left-bank regulator at the head of BFC feeding canal is used as a head structure, through the reconstructed bed of which BAC canal runs at its first 6.6 km. The railway alignment crosses Naryn and Kara

155. On the territory of Uzbekistan water salinity of Naryn river is increasing from the cross-border point (Uchkurgan town) to the delta of river on the, on average of 432-602 mg/l, mainly due to the sulfates, which the average concentrations are exceeding the Maximum Permitted Concentration (MPC) by 1,2-2,0 times (121-211 mg/l). Average annual concentration of nitrite nitrogen also noticeable increases up to 0,022-0,025 mg/l (1,1-1,2 MPC). The concentrations of other ingredients are within the background levels and do not exceed maximum permissible concentration. Until 1993, in the Naryn river water observed pesticide residues - on average of 0,040 mg/l, however, they are not found since 1994<sup>12</sup>.

156. Similar trend in the Naryn river water quality is observed for Karadarya river within the Uzbekistan territory from the p. Karabagish point to the delta (Uchtepe town). The organic matter content is raising that confirmed by increasing of values BOD<sub>5</sub>, COD, growth of mineralization in average up to 545 mg/l, mainly due to magnesium sulfate, which average concentrations exceed the MPC and reach, respectively, 206 and 48 mg/l. The water hardness is growing up to 7,92 mEq/l (7 mEq/l is MPC). Concentrations of heavy metals also are also increasing and exceeding the MPC by 1,5-2,7 times, however, remaining within the background levels<sup>2</sup>.

157. The map showing large rivers and canals of Ferghana Valley is given in Figure 18.



**Figure 18:** Hydrological network of Ferghana Valley

<sup>12</sup> Water quality in Amudarya and Syrdarya rivers' basins, Analytical report, Central Asian Regional Environmental Center, 2012

158. **Andijan province.** The main water artery of the province is Kara Darya River that crosses the province from the East to the West, its water is mainly used for irrigation. There are 3 reservoirs and several lakes.

159. Andijan province is famous for its springs, the water of which is very tasty and useful. Thus, there are natural areas of protection in the province's territory, namely Baliqchi district, where the springs like Sariq Suv, Kul, Uch Buloq, and Tuzloq Buvi are located. The settlements of Nayman, Bouta Qori, Olim, Doustlik, Imom Ota hold the springs of Qora Bosh Buloq, Olim Buloq, Qirq Buloq, Qambar Ota, and Imom Ota. In total, there are 26 springs, predominantly of ascending type, registered in the territory. All of the springs have approaches and power grid.

160. **Namangan province.** The main water artery of Namangan province is Syr Darya River that is formed within the province by the confluence of Naryn and Kara Darys rivers. Podshaotasoy, Chortoqsoy, Namangansoy, Kasansoy, Novasoy, Chodaksoy, Govasoy, and other sais flow down to it from the mountains slopes. Kosonsoy, Chortoq, Eski Yer reservoirs were built to regulate the rivers' runoff. There are more than 15 lakes.

161. The province has about 90 springs with cold water, the most famous of which are Imom Ota spring located in Parda Tursun settlement, Kengulsoy spring, Chust in Chust city, and Abdullah Bur in the boundaries of Yangi Qourghon settlement.

### **Underground water resources**

162. Ferghana Valley is rich in underground water stocks and has about 38.6 % of the underground water resources of Uzbekistan. The total stock of underground water in Ferghana Valley is estimated at about 6,500 m<sup>3</sup> a day, of which about 1,900 m<sup>3</sup> and 1,700 m<sup>3</sup> a day are in **Andijan** and **Namangan** provinces, respectively. Formation of underground water reserves takes place through infiltration from rivers, canals, streams, and irrigated fields.

163. In Ferghana Valley territory, a trend has been set in recent years of a growth in mineralization and total hardness of underground water with respect to their background content that often result from irrigation of lands. These studies of the state of underground water show that there were no changes recorded in the regional plan, but there are qualitative changes in the dry residue and the total hardness.

### **5.3. Biological resources**

164. **Andijan province.** The main crop in the province is cotton. Apart from cotton, the province grows cereals, grapes, pomegranates, figs, persimmons, peaches, apricots, melons and gourds, and other species.

165. The flora is rich and diverse, a great number of different plant species grow in the floodplain, such as: Asiatic poplar, tamarisk, 'changyl', 'trostlik', licorice, camel's thorn, 'shurazhnik', etc.

166. Two rare red-listed species of Uzbekistan's flora grow in the province: Tulipa ferganica and Allochrusa gypsophiloides (bekh, yetmak, in Uzbek).

167. Species composition of the fauna inhabiting the province is diverse. It is a habitat for animal species listed in the Red Book of the Republic of Uzbekistan, such as: luciobarbus capito and other representatives of fish fauna, pygmy cormorant, white stork, white-eyed pochard, and many others.

168. **Namangan province.** The climatic conditions are quite favourable for cultivation of cotton and other warm-weather crops. Magnificent apricots, pomegranates, figs, grapes, persimmons, apples, pears, etc. ripen here.

169. The vegetation in the plains and in the adyr belt is ephemeroïd-type, and, above this point, it is replaced by sagebrush, then saltwort-sagebrush, graminaceous-sagebrush, and forb-fescue steppe. There are forest communities with walnut, alycha, apple, etc., while at an altitude of about 3,000 m archa [juniper] communities occur. Upwards, there are subalpine meadows – a belt of summer pastures.

170. In the project area along with railway the following trees grow: poplar, mulberry, jida (*Elaeagnus*), sycamore, elm, walnut, almond, peach, apricot, plum, apple, pear, quince, figs, pomegranates. The railway also crosses agricultural lands where cotton, wheat and vegetables, forage crops are grown.



**Figure 19:** Mulberry and poplar trees along railway



**Figure 20:** Corn (left) and alfa-alfa fields

### **Natural protected areas**

171. There are two natural areas of protection in **Namangan province** territory:
- i. Ming Buloq nature monument, established at an area of 1,000 ha in 1991. The purpose of its creation is to preserve desert ecosystems and residues of Oq Qum sands Accum in the Namangan province territory.
  - ii. Chust nature monument, established at an area of about 96 ha in 1994.
172. They were created to conserve desert complexes and species of entomofauna.

173. 5 species of trees, 24 species of shrubs, 10 species of dwarf shrubs, 98 species of perennial herbs, and more than 160 species of annual and biennial plants grow here.

174. Black and white saxaul, calligonum, salsola richteri, aristida, desert wild grape, astragalus, and other plant species, also vegetate here.

175. Among natural areas of protection, there are protected sites falling into the IUCN's [International Union for Conservation of Nature and Natural Resources] categories III, IV, V. Pursuant to resolutions Nos. 178 and 179 of 13th April 2004 of the Cabinet of Ministers of Uzbekistan, following water conservation zones are located in the territory of Andijan and Namangan provinces of Ferghana Valley:

- Water conservation zones of Naryn river in Namangan province;
- Water conservation zones of Kara Darya river in Namangan and Andijan provinces;
- Water conservation zones of Syr Darya river in Andijan province;

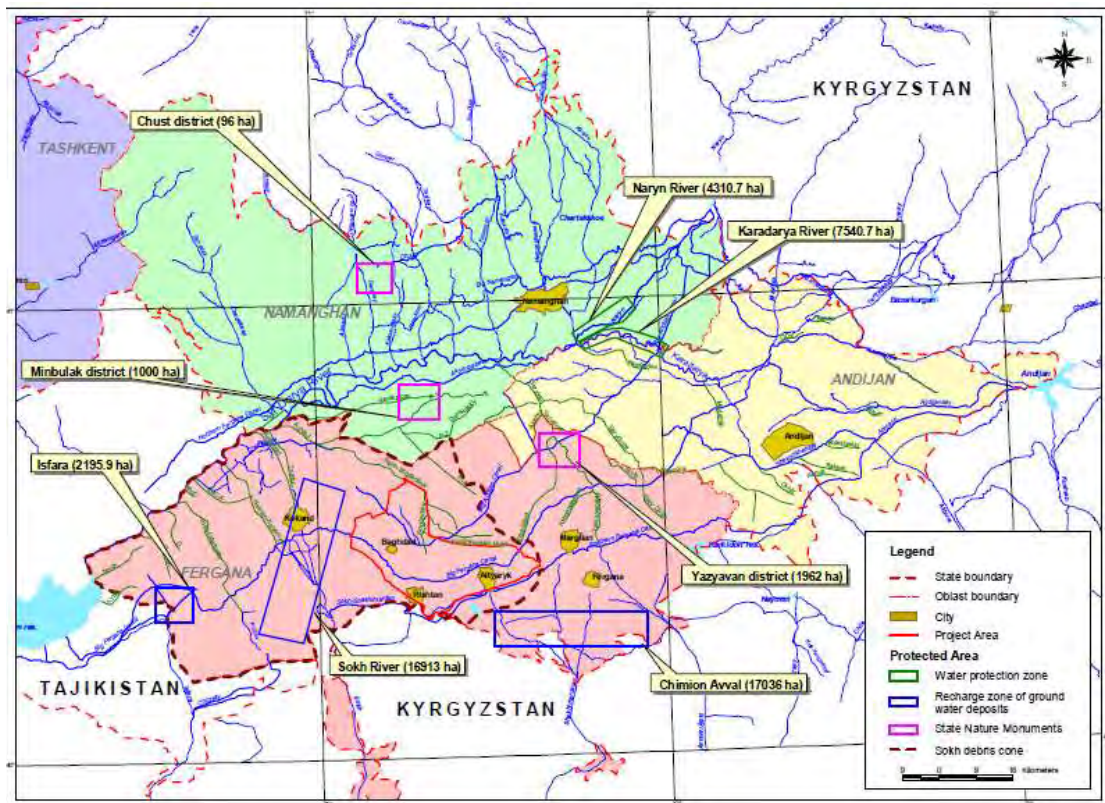
176. Local hokimiyats, MAWR branches, and Forest Administrations are charged with establishing and ensuring security of water conservation zones.

177. Fergana Valley holds underground water stocks, and some of the underground water formation zones in Andijan and Namangan provinces were granted the status of natural areas of protection. The location and territory of such zones is presented in Table 15.

**Table 15:** Fresh underground water formation zones with the status of natural area of protection in Andijan and Namangan provinces

No.	Province and district	Deposits	Area (ha)
<b>Province-level deposits</b>			
1.	Namangan province	Olmos-Vorsiq, Iskovot-Peshku	22,664.8 49,677.2
<b>Country-level deposits</b>			
2.	Namangan province	Noryn	5,685
3.	Andijan province	Osh-Aravon	35,294
	<b>Total</b>		<b>113,321</b>

*Source: IWRM Plan Report, September 2013*



**Figure 21:** Location map of natural areas of protection in Ferghana Valley

178. The nearest natural area of protection in Namangan province is the Chust nature monument located at a distance of more than 50 km from the project area. The remaining natural areas of protection are on the territory of other districts of Namangan and Andijan provinces. There are no any bird areas or transect within the project territory. Therefore, the project will not have impact on the biological resources.

#### 5.4. Socio-economic conditions

##### General information on the provinces

179. **Andijan province** is a large agro-industrial region of Uzbekistan. The province borders with the Republic of Kyrgyzstan from the North-East and the South, with Uzbekistan's Ferghana province – from the West, and with Namangan province – from the North-West. The total area of the territory is 4,300 square kilometres. The province is composed of 14 administrative districts and 3 cities. The administrative centre is the city of Andijan. It covers an area of 74.3 square kilometers.

180. The province's population numbers 2,857,300 people (as of 1st January 2015), while it ranks the first in the country by the resident population density – 661.7 persons/km<sup>2</sup>. People of more than 100 nations and ethnic groups reside in the province. The main population is represented by Uzbeks, and still there is a large number of Russians and Kyrgyzs.

181. The Gross Regional Product (GRP) of Andijan province amounted to UZS 3,563 billion in 2014, showing a growth of 109.6 % compared to 2013. The volume of industrial production has increased by 109.4 %, car industry – by 107 %, consumer goods – 109 %, agriculture – 108.1 %, and construction industry – 108.9 %.

182. The province's priority branches of economy are agriculture and such industries as: car industry, mechanical engineering, and textile and clothing industries. One of the leading areas of economy is consumer goods production.

183. Small business and private entrepreneurship are also rapidly developing in the province. As of 1st January 2015, about 35,400 subjects of small and private business have been registered in Andijan province. In 2014, they manufactured products for an amount of USD 369.0 billion, or 56 % of the province GRP.

184. Total length of the province's asphalt motor roads is 8,200 km. There are 4 bus terminals and 8 bus stations in the province. The province's railway tracks used are 262 km long. The railways and motor roads network makes it possible to transport export and import cargo in the direction China-Andijan-Tashkent.

185. 456 kindergartens, 742 schools, 12 academic lyceums, 117 professional colleges, and 4 Higher Education Institutions operate in the province. The developed library network consists of 241 information and resource centres and 1 Information and library service centre. Among the cultural and enlightenment institutions, there are 149 clubs, 2 museums, 3 theatres, 27 music and art schools, 23 cinemas, and 24 culture and leisure parks.

186. 86 outpatient polyclinics and rural health stations and 41 in-patient medical institutions are operating in the province.

187. **Namangan province** is situated in the north-eastern part of Ferghana Valley. It borders on Uzbekistan's Ferghana province in the South, Andijan province – in the South-East, and Tashkent province – in the West; while in the North there passes a State border with the republics of Kyrgyzstan and Tajikistan. The province is composed of 11 administrative districts, 8 cities, 12 urban-type settlements, and about 100 villages. The administrative centre is the city of Namangan. The province's territory is 7,900 sq. km.

188. Its population numbers 2,554,200 people (as of 1st January 2015), while the resident population density is 288.54 per./km<sup>2</sup>. Ethnic composition of the province's population: 88.4 % are Uzbeks, 8.8 % – Tajiks, 0.7 % – Russians, 1.0 % – Kyrgyzs, and 1.0 % – other nationalities.

189. A significant growth in the real volume of gross regional product has been achieved in Namangan province over 2012, and compared to 2011 it grew by 10 % (UZS 3,296 tln.). Growth rates in the industry have amounted to 14.9 %, agriculture – 7 %, construction – 10.2 %, retail trade turnover – 16.6 %, and the sphere of paid services – 16.8 %.

190. The total length of motor roads is more than 11,800 km (including asphalt roads – about 4,000 km). In the South-West, the province territory is crossed by Tashkent-Kokand main motor road linking Ferghana Valley with Tashkent province through Qamchiq mountain pass.

191. The province has 681 general education schools, 11 academic lyceums, 98 professional colleges, and 3 higher educational institutions.

192. 435 libraries, 146 culture palaces, 1 local history museum, 1 drama and comedy theatre in Namangan city, 5 culture and leisure parks, 69 hospitals, 337 out-patient stations and polyclinics, 222 rural health stations, as well as sanatoria and recreational houses.

## 5.5. Cultural heritage

193. **Andijan province.** Among the historical sightseeing places of Andijan province, it is worth noting: Jome architectural complex (mosque and madrasa) located in a district of Andijan called Eski Shahar (Old Town); Babur's house museum situated on Boghi Shamol hill likewise in Andijan Old Town; the tomb of the Arab commander, Qutayba ibn Muslim, which is located in Pakhtakor village, Jalol Quduq district, 28 km from Andijan city;

Khonobod park city, Ming Tapa archaeological monument located in the eastern part of Marhamat city, 38 km from Andijan city centre; Fozilmon Ota temple located in Fozilmon Ota village near Khonobod city, 70 km from Andijan's centre; Bibi Seshanba temple located in Sultonobod village of Kourgan Tapa district, 60 km from Andijan's centre. It is a sacred place where the healing springs Kouk Buloq and Qiz Buloq are situated.

194. The project area does not have historical monuments, and above listed sights are located over a distance of 50 km from the project sites.

195. **Namangan province.** Among the main sights of the province we can note Hoji Omin mausoleum located in Namangan city at Kouzagarlik street; Mullah Kyrgyz madrasa in Namangan city. The sights are located over a distance of 10 km and 12 km from the railway track, and therefore no impact on them is expected from the project work.

196. At a site between Namangan and Andijan provinces, next to the place where the second substation is proposed in Khakkulabad village, there is a small historical site, Kultepa, which is a small hill. When carrying out the substation construction work, measures will be taken to ensure security of this historical place.



**Figure 22:** Kultepa hill in Andijan province

## 6. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATE MEASURES

197. Anticipated the project's environmental impacts were reviewed at the three stages – pre-construction, construction and operation stages. A summary of potential impacts is presented in the table below.

**Table 16:** Summary of potential impacts

<b>Project activities</b>	<b>Potential impacts</b>	<b>Level of impacts and duration</b>
Installation of catenary system for the existing track, 6,7 km bypass and within Andijan Depot	<ul style="list-style-type: none"> <li>• Soil disturbance (construction materials);</li> <li>• Generation of solid</li> </ul>	<ul style="list-style-type: none"> <li>• Moderate, medium-term</li> <li>• Moderate, short-term</li> </ul>



Project activities	Potential impacts	Level of impacts and duration
	wastes; <ul style="list-style-type: none"> <li>Noise pollution (from machinery)</li> <li>Air pollution</li> </ul>	<ul style="list-style-type: none"> <li>Moderate, short-term</li> <li>Moderate, short term</li> </ul>
Installation of signaling and SCADA system;	<ul style="list-style-type: none"> <li>Solid and hazardous wastes eg:               <ul style="list-style-type: none"> <li>Scrap metals, old batteries, circus boards;</li> <li>Asbestos from demolition works.</li> </ul> </li> <li>Noise pollution</li> </ul>	<ul style="list-style-type: none"> <li>Moderate, median-term</li> <li>High, long-term</li> <li>Low, short-term</li> </ul>
Construction of 2 traction substations and section posts;	<ul style="list-style-type: none"> <li>Soil disturbance (construction materials);</li> <li>Noise pollution from construction machinery;</li> <li>solid wastes;</li> <li>changes in land use;</li> <li>disturbance of population</li> </ul>	<ul style="list-style-type: none"> <li>Moderate, medium-term</li> <li>Low, medium-term</li> <li>Moderate, medium-term</li> <li>Moderate, short-term and long-term</li> <li>Moderate, short-term</li> </ul>
Construction of External power supply;	<ul style="list-style-type: none"> <li>Noise pollution,</li> <li>solid wastes,</li> <li>water resources pollution</li> </ul>	<ul style="list-style-type: none"> <li>Low, short-term</li> <li>Moderate,</li> <li>Moderate, short-term</li> </ul>
Maintenance machinery/equipment purchase.	Air pollution and increasing of noise level	Low, long-term
Project operation	<ul style="list-style-type: none"> <li>Noise and vibration pollution from trains movement</li> <li>Train safety and electrocution issues during</li> <li>Waste generation               <ul style="list-style-type: none"> <li>Non-hazardous: solid wastes and liquid wastes</li> <li>Hazardous wastes (used oil)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>High, long-term</li> <li>High, long-term</li> <li>Low, long-term</li> <li>Low, long-term</li> </ul>

## 6.1. Pre-construction stage

### Impact

198. At pre-construction stage anticipated impact related to: (i) land acquisition for construction 27,5 kV, 110 and 220 kV and 2 new track substations, (ii) receiving all required permissions as indicated in chapter 2 (iii) organizing labor camps.

199. At the stage of preparation this report, preliminary route of 110 and 220 kV HV was selected by design institute under JSC “Uzbekenergo” “Sredazenergosetproject”. Based on this preliminary design and data received during field visit to the project site initial LARP<sup>13</sup> was prepared.

200. According to LARP, a total of 10,8408 ha of land (116 land parcels) will be acquired permanently for the project of which 10,3554 ha (95.5%) is arable/crop cultivation land and 0,0658ha (4.5%) of land is classified as orchard/garden land. Namangan and Norin are the most affected districts with 5.9 ha and 4.4 ha accordingly. The most permanent land acquisition is needed for the construction of two new traction substations (10,3 ha). There are only 3 land plots permanently affected within the RoW of main railway track which are severely affected by the Project (83.3%). Similarly, 10,3554ha (114 land parcels) of land is likely to be impacted temporarily due to the construction of transmission lines, of which 97,3016 ha (89.8%) is arable/crop land and 10,9719 ha (10.1%) of land is classified as orchard/garden land. The mostly affected districts are Turakurgan (45,681 ha), Norin (22,5929 ha) and Uychi (20,2799 ha).

201. Currently, according to the preliminary impact assessment, the Project in total will permanently affect 24 structures, from which 21 are residential houses, 2 are walls and 1 is a mosque. From the total affected structures 23 located within the RoW of main track (145.1 km) and 1 structure is located within the RoW of 3.5 km line from bloc-post 136.1 to Uchkurgan. The affected structures have been identified within the standard RoW of 5 meters from axis to each site (width of corridor is 10m). From the total affected houses, 5 are also small shops adjacent to residential houses. Thereby, in total 24 AHs will be physically displaced under the Project.

202. The project will have impact in terms of loss of trees and loss of crops. The total number of trees being affected is 4598 (210 due to permanent and 4388 due to temporary land acquisition) mainly located in Norin and Namangan districts. In this stage, all affected trees have been considered as fruit trees. The main types of affected trees are apple, apricot and cherry. It is found that there are various types of crops being cultivated which may be affected for a period of one season during construction of transmission lines. These crops are: wheat, vegetables, cotton and alfa-alfa.

203. Construction of electric lines and substations will require cutting trees along existing and new alignments. In accordance with national regulation<sup>14</sup> an official permission needs to be received from Provincial Nature Protection Committee and appropriate compensations need to be paid in order established by Law.

204. Different types of inert materials (rubble, gravel etc.) will be used for construction. Opening of new borrow pits without getting permission from respective national agencies, or usage of unauthorized borrow pits is prohibited by law. Therefore, Contractor will be required to get such permission prior commencement of construction works.

205. Environmental specifications have to be included in bidding packages for purchase machinery within the project. Particularly, toxic level of machinery must meet “Euro 3”

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<sup>13</sup> Land Acquisition and Resettlement Plan for UZB: Central Asia Regional Economic Cooperation (CAREC) Corridor 2 (Pap-Namangan-Andijan) Railway Electrification Project, PPTA, November 2016

<sup>14</sup> Law of RUZ “On Protection Flora”, 1997

environmental requirements as defined by national regulations<sup>15</sup>. Noise level of machinery should not exceed 87 dB<sup>16</sup>.

206. Goods procured for project implementation will be done in compliance with ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009). It is necessary to ensure that transformers for signaling system procured within National Contract Bidding (NCB) process does not contain oil with polychlorinated biphenyl (PCB).

### **Mitigation measures**

- After detail design stage PIU has to update LARP for 110kV and 220 kV. All activities related to land acquisition and compensations payment need to be completed prior commencement of construction works;
- A detail survey of existing 27,5 kV alignment and new construction of 110 kV and 220 kV HV line for identification type and number of trees for cutting needs to be conducted jointly by representatives of PIU and relevant provincial Nature Protection Committee (NPC) prior construction works. Official permission for cutting trees needs to be obtain from the NPC and necessary compensation payments need to be paid;
- Selected contractor needs to identify location of closest authorized borrow pits and conclude agreements on inert material supply with relevant agencies (State Committee on geology and mineral resources, Sanitarian Epidemiological Station);
- Goods procured for project implementation will be done in compliance with ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009).

## **6.2. Construction stage**

### **6.2.1. Physical resources**

#### **Impact on air quality**

##### ***Construction of 27,5 kV catenary***

207. During construction stage air pollution may occur during excavation works for installation towers for transmission lines. Digging of pits for tower foundation will be implemented manually.

208. Installation of foundation will be done by railway crane and usually installation of one tower takes 40 minutes<sup>17</sup>. A distance between two towers usually is 50 meters, in special cases (when railway turns) the distance could slightly decrease. Installation of towers will be implemented one week later after foundation shrinkage. This procedure will take also around one hour. Wire unrolling will be implemented by using automobile railway car (ADM) which will act

209. Therefore, impact on air quality during implementation these types of work will be moderate but short term for the areas where settlement locate very close to railway (5-12 m).

##### ***Construction of 110 kV and 220 kV HV lines***

210. The construction activities for the HV line will involve excavation for the foundation of the HV line towers. Since soil in the project area is clay loam, pilings will be done to reinforce

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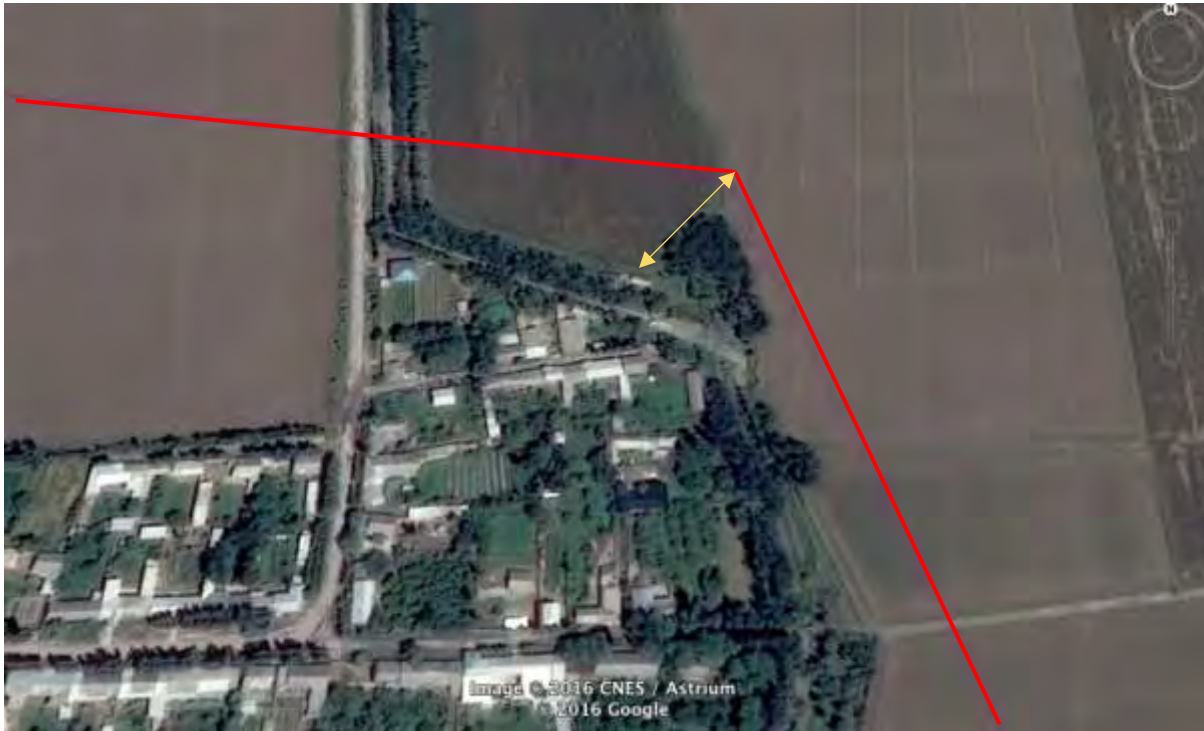
<sup>15</sup> Resolution of President of RUz "On measures for further development of production at the Samarkand automobile plant and renewal automobile park", dated from December 14, 2006

<sup>16</sup> Attachment # 6 to Cabinet Ministries Resolution # 192 dated from July 4, 2012 "On approval of general technical regulations "On safety during operation of railway transport"

<sup>17</sup> Based on experience with implementation similar project "Electrification of Marakand-Karshi railway"

the capacity of the soil to support the weight of the tower and the conductors and to withstand the wind force and seismic activities. No blasting works will be done to construct HV lines. Steel reinforcement and formworks will be installed after which concrete will be poured. When the concrete has cured, the excavation will be backfilled and tampered.

211. Route of HVs line passed mostly through agricultural lands, only in few parts, the line will go through area close to settlement areas. The closest distance between planning HV line and houses is 80-100 meters (Figure 23).



**Figure 23:** Location the closest houses to anchor tower of 110 kV HV line “Kyzyl Ravat SS – Khakkulabad SS”, Tashkent massive, Naryn district of Namangan province.

212. The other impacts of the construction activities are from the fuel combustion in the equipment. Considering the distances between equipment and the high assimilative capacity of the operating environment, the emissions from the equipment will not have any detectable impact on the environment.

213. The welding and painting operation will have certain cumulative emission but considering the distances between the towers, the emission could be easily dispersed. Each tower is expected to use 100 kg of welding electrode. The welding process will generate trace quantities of nitrogen oxides, ozone and particulate matter.

214. Taking in consideration that 220 kV and 110 kV HV line mostly will go through agricultural lands areas, remote from settlement, the impact on air quality from this type works is also considered as insignificant.

### ***Construction of traction substations***

215. The construction of the traction substations will be similar to constructing a small building except that there will be extensive network of conduits to accommodate the wires and communication cables. The yard will be leveled and unsuitable soil, normally the top soil will be removed. The location of heavy equipment such as the transformers, towers, water tank and oil storage tanks will be identified and the foundation excavated.

216. As a rule, for traction substation leveling, excavation works and putting concrete as a basement, UTY hires subcontractors which carry these works. After completion this phase, UTY continues construction works, installation transformers and other equipment.

217. Like HV line construction activities during construction traction substation, pollutants from heavy equipment will be generated. For Khakkulabad traction substation (110 kV) the nearest settlement is Tashkent massive in Naryn district of Namangan province (Figure 24). Approximately distance between track substation and settlements is 180-220-240 meters. Therefore, dust and pollutants from equipment during the windy weather may impact on population of the settlements located around track substation.



**Figure 24:** Location of Khakkulabad (110 kV) substation and the closest sensitive receptors (220 m and 340 m)

218. For Raustan substation (220 kV) the nearest village is located at distance of 155 meters (Figure 25).



**Figure 25:** Location of 110 kV Raustan (220 kV) substation and the closest sensitive receptors (205 m)

219. Even sensitive receptors are located in remote distance, during construction traction substations temporary dust pollution may have place especially during the dry season.

### ***Installation of signaling and SCADA system***

220. During construction/rehabilitation of building/facilities necessary for installation of signaling system and SCADA stage air pollution is anticipated as construction/demolishing activities and exhaust gases from vehicles. It is expected that dust pollution will occur more frequently. At the same time equipment and vehicle with improper technical characteristics or in poor conditions also may lead to pollution by exhausted gases.

221. Two approaches will be used for lying pipe for optic fiber cable. A cable trench digger will be used for digging tranches in the area remote from settlements. Inside settlement pipe lying will be implemented manually.

222. Impact on air quality during construction of third floor in depot in the Andijan-1 station will be very limited and related to welding works, which will be conducted on the territory of depot.

223. Therefore, mitigation measures mainly have to be implemented mostly for activities related to construction/rehabilitation of buildings and facilities.

### **Mitigation measures:**

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

- For construction 27,5 kV and construction/rehabilitation of building/facilities for installation of signaling system and SCADA apply watering of construction sites during the windy weather inside settlements in dry season;
- Unsure that all used techniques and heavy equipment are complied with national standards on gases emissions ("O'z DSt 1057:2004 Vehicles. Safety requirements

for technical conditions” and “O’z DSt 1058:2004 Vehicles. Technical inspection. Method of control”);

- All piles of soil, sand and gravel that will not be used within the next 24 hours will be covered to prevent dust generation;
- Transported bulk materials will be covered;

### **Noise and vibration**

225. During construction phase noise pollution and excess norms for vibration may occur due to the very nature of the work at the sites located close to settlement areas.

#### ***Construction of 27,5 kV catenary***

226. Construction of 27,5 kV catenary, will have temporary impact mostly during installation of towers caused by filling foundation of towers with gravel as a base and movement of maintenance train.

227. Noise generated by machinery for installation foundations, towers, unrolling and installation cables will be around 83 dB (maximum sound level). Taking in consideration duration of works, this impact could be assessed as moderate and short term.

228. However, if during construction works equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110dB(A), workers should use hearing protection equipment<sup>18</sup>.

#### ***Construction of 110 kV and 220 kV HV lines***

229. During construction HV lines, the noise level would appear louder in the normally quite open field. However, the areas where the noisiest equipment, such as the boring machine, compressors, and mobile electric stations, will be used mostly in agricultural lands. As it was noted above, the nearest settlement areas are located at the distance around 80-100 meters.

230. Modeling and assessment of the noise, caused by construction activities is based on existing information about operation of various equipment at various stage of construction. Level of noise generated by various equipment was used based on existing standards<sup>19</sup>.

**Table 17:** Noise level form various techniques

<b>Noise source</b>	<b>Noise level (maximum), dB</b>
Excavator (cabin - 7 meters)	95-92
Bulldozer (cabin - 7 meters)	84-85
Grader (cabin - 7 meters)	85-92
Electric compressor (cabin - 7 meters)	93-80
Pile boring equipment (cabin -7 meters)	72-82

<sup>18</sup> General EHS guidelines, Occupational H&S, IFC, 2007,

<sup>19</sup> M. Nechaev, V. Gister, V. Silkin Environmental protection during design and construction roads, Moscow, 2004

231. As a rule, noise caused by moving equipment is reduced at some distance. Such reduction has logarithmic properties. In case of noise caused by construction activities, noise spread pattern from the noise point is used, that can be determined as:  $\text{Noise level}_2 = \text{Noise level}_1 - 20 \log d_2/d_1$ , (d – distance from noise source until receptor). Results of expecting noise level at the different distances are presented in the below table.

**Table 18:** Noise propagation with distances

Distance	Noise level (maximum), dB
20	83.9
60	74.3
80	71.8
100	69.9
120	68.3

232. As shown in the Table 18, at the distance 80 meters expecting maximum noise level exceeds national and WHO norms (70 dB) on 1,8 dB. Taking in consideration that excavation works will be used during limited period, this impact could be considered in insignificant.

233. As it was mentioned above, the nearest to HV line houses are located at the distance 100 meters. General mitigation measures for the construction works in such area need to be implemented.

### ***Construction of traction substations***

234. The expected noise level from construction equipment to be used in the substation is shown in Table 19.

**Table 19:** Standard noise impact during the construction phase<sup>20</sup>

Noise source	Equivalent noise level, dB
Concrete mixer	87
Cranes	86
Paint spray guns	89
Excavators	92

<sup>20</sup> In accordance with Uzbek regulation - KMK 2.01.08-96



Welding machines	73
Dumpers	87

235. In accordance with above calculation, on the distance 100 meters from construction site, maximum noise level will not exceed standards (70 dB). As it was described in Chapter 3.2, traction substations are located more than 200 meters away from settlements. It means that the noise impact from construction traction substations will be insignificant.

236. Measurement of ambient noise level have been conducted in the nearest settlements located to traction substation. Results of measurements are presented in below table. As shown in the table, all results do not exceed national and international standards (Figure 23-24).

**Table 20: Ambient noise level**

Location	Time	Noise level, $L_{eq}$ dB	Standard, $L_{eq}$ dB
Near to <i>Khakulabad traction substation P1</i>	10.30 am	40	55
Near to <i>Khakulabad traction substation P2</i>	11.40 am	40	55
Near to <i>Khakulabad traction substation P2</i>	12.45 am	41	55
Near to <i>Raustan traction substation P1</i>	2.30 pm	41	55
Near to <i>Raustan traction substation P2</i>	4.00 pm	41	55

**Source:** Kokand Sanitarian Epidemiological Station, 2016-2017

### ***Installation of signaling and SCADA system***

237. Lying pipe for optic cable for signaling and SCADA system will be done manually inside of settlements and by using machinery in unpopulated areas. Therefore, noise and vibration level impact will be short term and low, which requires implementation of general mitigation measures indicated in para 206.

238. Rehabilitation and construction of existing buildings for installation signaling system and SCADA will be implemented without using heavy techniques generating significant level of noise. For lying foundation of buildings only truck crane will be used. Taking in consideration that all construction works will be conducted on the territory of existing station, which is fenced from living houses, this impact is considered as insignificant.

### **Mitigation measures:**

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

- Operation of heavy equipment shall be conducted between 7 am and 7 pm only and be undertaken intermittently not continuously when in proximity to residential etc.;
- In case of receiving any complaints from population, additional noise measurements need to be conducted and in case of exceeding established standards<sup>21</sup>, additional mitigation actions for decreasing noise level need to be undertaken (establishing temporary sound absorbing barriers and others);
- Schedule construction so as to minimize the multiple use of the noisier equipment near sensitive receivers;
- Use of Personal Protective Equipment (PPE) by workers involving in construction works in conditions of increased acceptable noise level (for situation when equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110dB(A), workers should use hearing protection equipment) is mandatory.

### **Impact on water resources**

#### ***Construction of 27,5 kV catenary and lying pipe for optic fiber cable***

240. Existing part of railway alignment does not cross any water bodies. However, new part of alignment (6,7 km) crosses Naryn river, North Ferghana Canal, canal and collectors. Four single span concrete bridges will be constructed for the new part of the alignment (with width 64.6, 270.8, 57.5 and 64.6 meters). Towers for 27,5 kV catenary and optic fiber cable will be included in the bridge design and no impact from their construction are expected.

#### ***Construction of 110 kV and 220 kV HV lines***

241. 110 kV HV line to Raustan will cross Big Namangan Canal and Kasansay river (Figure 16-17). 220 kV HV line to Khakkulabad will crosses North Ferghana Canal and Naryn River (Figure 26-27).



**Figure 26:** Crossing point of 220 kV with Big Namangan Canal



**Figure 27:** Crossing point of 220 kV with Kasansay river

<sup>21</sup> Admissible noise level into the living area, both inside and outside the buildings (SanR&N No.0267-09)



**Figure 28:** Crossing point of 110 kV with North Ferghana Canal



**Figure 29:** Crossing point of 110 kV with Naryn River

242. In accordance with national regulation construction line towers in a manner which avoid pollution of water bodies. In accordance with regulation (ShNK 4.02.33-04 Transmission lines), the towers will be installed in the distance 60 meters away from river bank, that prevent pollution of water bodies.

243. Improper selected location of labor and construction camps and poor their maintenance may lead to pollution of surface water bodies by communal waste waters and waste water from machinery washing. Therefore, the contractor will be required to implement measures to prevent the discharge of wastewater during the construction of the project from entering directly into the river.

### ***Construction of traction substations***

244. There are no water bodies at the area of location Raustan traction substation (220 kV). There is small water stream (110 meters) in the area close Khakkulabad traction substation (110 kV). The stream is located to the west of planning substation and it is serve as irrigation canal for the Khakkulabad village.



**Figure 30:** Location of small irrigation canal close to Khakkulabad track substation

245. Even the project may have a moderate impact on water resources, implementation of the mitigation measures will be essential.

***Installation of signaling and SCADA system***

246. Civil works related to the installation of signaling and SCADA system will be implemented in the area remote from water resources. Therefore, this activity will not impact on water resources.

**Mitigation measures:**

247. The following mitigation measures shall be implemented to minimize impact on water bodies:

- Construction and labor camps, including storage places for lubricant, fuel and other oils will be located 100 m away from water bodies;
- If washing equipment and vehicle is planning to be conducted at the labor/construction camp's site, appropriate wastewater treatment facilities have to be organized on the camp in specially designated area. The maintenance area should be provided with oil and grease traps to prevent oil from being washed into the offsite drainage canals.
- Conduction of refueling, oil replacement or repairing works will be banded at the area within 50 m from water streams;
- Sanitary water and solid wastes will not be released directly into water streams. Adequate on-site sanitation facilities with septic tanks to prevent untreated sewage from being channeled into the drainage canals, irrigation canals, and river have to be provided
- Topsoil stripped material shall not be stored where natural drainage or within 100m of water bodies will be disrupted;

248. Groundwater table level within the Project zone is deeper than 5 meters. Therefore, potential impact arises from maintenance of contractors' camps, transport, maintenance of vehicles and handling and storage of lubricants and fuel. The required provisions for construction camps are described in the following chapters.

**Impact on soil**

***Construction of 27,5 kV catenary and lying pipe for optic fiber cable***

249. Disturbance or loss of top soil may occur during construction 27,5 kV catenary and lying pipes for optic fiber cable. Excavated soil will be temporary stored alongside the towers and trench and refilled after pipe lying

250. Gravel will be used as a bed for the pipes and catenary towers. Usage unofficial carriers without official permission may lead to loss of soil as well. Therefore, Contractors have to use only official carriers for construction materials or in case of opening new ones get official permission and make sure that after construction completion all carriers are rehabilitated.

***Construction of 110 kV and 220 kV HV lines***

251. Similar impacts on soil are expecting during construction HV lines. The same procedure on refilling of soil and usage only officially permitted carriers are used.

### ***Construction of traction substations***

252. Surplus excavated soil will be generated during construction of track substations. This excavated soil will be used for construction earth bed for various equipment of substation and landscaping of territory communication parts of substations adjusted to technical part.

253. Gravel and sand will be required for pipe lying and rehabilitation of damaged roads. Unauthorized excavation of such construction materials and improper restoration works on closing used carriers will negatively impact on soil. The contractor will be required to use only authorized carriers or get all necessary permissions for opening new ones. After completion construction works new carriers need to be closed

254. 300-400 meters of additional road to existing one in Raustan settlement will be constructed for Raustan track substation. For Khakullabad substation around 1,5 km of new road will be built as continuation of existing village road.

### ***Installation of signaling and SCADA system***

255. Civil works related to construction and rehabilitation of signaling system will be implemented on the territory of existing railway station. Insignificant amount of surplus soil generated during digging works will be used for landscaping of the territory of station or placed in the area indicated by local hokimiyats. Therefore, impact on soil will be minor.

### **Mitigation measures:**

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

- Remove the top soil (about 30 cm depth) and store separately during excavation work, and after use for filling tranches and tower ditches;
- Use surplus soil generated during construction of track substations at the same substations for creation earth bed for equipment or landscaping adjusted communication block;
- Use only authorized carriers with getting all necessary permissions per respective national legislation;
- In case of necessity to open new carrier for construction materials, obtain all necessary permissions and certificates on proper closing after completion project works;

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

### **Waste management**

#### ***Non-hazardous wastes***

#### ***Construction of 27,5 kV catenary and lying pipe for optic fiber cable***

257. At this stage, wastes will be generated during replacement of existing small transformers at the stations, and installation of new equipment for communication and signaling system.

258. Used transformers will be transferred to Electrical Department under UTY which will assess conditions of transformers and make decision on their further usage– in other UTY's divisions or they need to be demolished and oil from transformers could be used as

lubricant. All transformers were produced after 2000, which means no PCBs in their oil. It is expected that used welding rods, packing materials, woods will be generated as well.

259. Municipal solid wastes and waste waters will be generated at the construction and camp sites. Mainly this is rubbish, plastic or glass bottles, glasses, waste food, etc. Improper wastes management may cause the spread of infectious diseases, emergence of insects and parasites in construction camp sites. In addition, it may lead to conflict with local population. This may happen mostly during conduction works on leveling, building construction for track substations and HV lines

260. During conduction all works related to construction 27,5 kV catenary and installation its equipment, fiber cable lying, installation equipment of track substation UTY will use own facilities. The UTY will use special train equipped with all necessary facilities: kitchen, washrooms and rest rooms. Generated solid and liquid wastes will be kept in the train and disposed at the closest station upon arrival.

### **Mitigation measures:**

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

- Dispose oil from dismountable transformers in accordance with established procedure (“RH 34-301-941: 2007 Individual consumption rates of transformer oil for the repair and maintenance needs for equipment of power facilities”) and avoid leakages and spills on soil;
- Segregate wastes on recyclable and non-recyclable;
- Conclude agreement with relevant agencies (Hokimiyat, Vodokanal and etc.) on solid and liquid wastes disposal;
- Provide hydro isolated septic tank for collecting waste waters at the camp sites and bio toilets for workers at the construction sites and timely disposal of waste waters to the local waste water treatment plants.
- Sell recyclable wastes to relevant organizations and ensure timely disposal (each 3 days) of non-recyclable wastes;
- Forbid burning of waste on any construction site.

### ***Hazardous wastes***

#### ***Installation of signaling and SCADA system***

262. During rehabilitation of existing buildings for installation of new equipment on signaling system and SCADA, demolishing of existing old buildings and constructions may take place. Therefore, there is a possibility of presence of asbestos materials (in roofing slate). Necessity of conduction such works will be determined at the project detail design stage.

263. Improper storage and handling of oil materials may lead to land contamination, which through leaching and transport may affect groundwater, surface water, and adjacent sites.

### **Mitigation measures:**

- Prior to commencement of rehabilitation works on demolishing existing buildings, ES with Civil Construction and Environmental specialist will conduct vision observation of old buildings and facilities on presence of asbestos materials;

- In case of presence such materials, a detailed “Waste Asbestos-Containing Material Management Plan” is to be developed by Contractors (examples of such plan is presented in Attachment 8);
- Conduct refueling vehicles and replacement oils in special designated and properly equipped places. Emergency facilities have to be at the place for elimination of accident of oil spills.

## **6.2.2. Biological resources**

### ***Construction of 27,5 kV catenary and lying pipe for optic fiber cable***

264. Project sites are combination of populated area and agricultural lands represented by typical urban and agro-biocoenosis. There are no natural protected areas close to project sites. During construction works the impact on biological resources will be limited by cutting trees and bushes along existing railway alignment within buffer zone (5 meters). As described in chapter 5.3 flora along railway track are represented by poplar, mulberry, jida (*Elaeagnus*) walnut trees. For construction traction substation in Khakullabad 172 trees, in main railway track – 12 trees and HV line (220 kV and 110 kV) – 26 trees will be cut<sup>22</sup>.

265. Per national legislation<sup>23</sup> and requirements indicated in received Environmental Appraisal a permission for cut trees from State Nature Protection Committee needs to be received and calculated compensation fees needs be paid (as indicated in para 12 of this IEE).

266. As part of technical requirement, landscaping of the territory the Duty Point of Contact Network (DPCN) adjusted to track substations will be implemented.

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

### **Mitigation measures:**

- Construction during agricultural off- season may further minimize the impact (loss of agricultural income);
- If cutting trees is unavoidable, to compensate losses as indicated in the LARP for this project.
- Inform community in advance about planning works;
- Landscaping and vegetation of territory should be implemented in fully compliance of project technical specification.

### **Impacts on land use**

268. Impact on land use will occur during construction of 110 kV and 220 kV HV lines, 2 new track substations and 27,5 kV catenary.

269. For construction of 110 kV and 220 kV lines temporary and permanent land acquisition will be required. Alignments of HV lines goes through agricultural land without

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22 LARP, UZB: Central Asia Regional Economic Cooperation (CAREC) Corridor 2 (Pap-Namangan-Andijan) Railway Electrification Project, PPTA, 2016

<sup>23</sup> CMR # 290 dated from 2014, “About regulation use of biological resources and on the order of procedure of getting permission for their use”

impact on residential houses and construction. For this, the following area will be required for permanent acquisition: anchor metallic tower – 40 m<sup>2</sup>, for intermediate tower – 13 m<sup>2</sup>. For tower construction temporary acquisition will require more land: for construction of anchor metallic tower – 800 m<sup>2</sup>, intermediate towers – 550 m<sup>2</sup>, for concrete towers – 250 m<sup>2</sup>, and right of way for 110 kv line is 10 meters and for 220 kv – 15 m.

270. For construction of 110 kV track substation 1 ha will be acquired and for 220 kV – 2,2 ha. Based on construction 27,5 kV 26 residential buildings will be affected.

271. At stage of preparation of this report, initial data was available. At the stage of detail design, these numbers may change in accordance with updated LARP.

#### **Mitigation measures**

- All relevant compensation will be paid prior commencement of construction works in full compliance with updated LARP.

#### **6.2.3. Socio-economic resources**

272. During construction phase, the project will have positive effect and may have some negative impacts on socio-economic resources. Negative impact may occur due to inconveniences caused by increasing of traffic inside of settlements located close to traction substations construction sites. However, this impact will be temporary (during 2-3 months) and could be mitigated through communication with population. Besides, loss of income from agricultural production may happen due to civil works.

273. Another impact is aesthetic – installation of 27,5 kV catenary may change view of crossing settlements.

274. For most of the project works personnel with different special qualifications will be required. However, for construction of traction substations local Contractors will be hired, which means creating job opportunities for local communities.

275. Moreover, indirect services will be needed to provide needs for housing, catering, petrol stations, etc. This temporary positive impact will contribute overall project positive impact.

#### **Mitigation measures**

276. The following measures need to be undertaken to minimize or compensate above mentioned impact:

- Increase public awareness among population on the project area through communication and informing public in advance about project works;
- Try to involve local workers in project works where specific qualification is not required.

#### **6.2.4. Health and safety issues**

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



### ***Community Health and Safety***

278. During construction inadequate lighting and fencing of construction sites inside of settlement areas can be dangerous for population during the night time. Construction sites, including pits and trenches shall be fenced and properly lightened. On fences and hazardous areas should be installed warning signs.

279. It is expected some increasing of trucks and vehicles movement inside the settlements located close to project sites: in Yangier makhalla in Namangan district and Khakkulabad settlement in Naryn district. Even this inconvenience will have temporary impact during leveling and basement laying of track substations, Contractors will be required to follow speed limitation inside settlements (30 km/h).

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

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

282. The existing health services in the vicinity are located in the commune areas. The commune health services may not be able to accommodate any additional patients from the construction workforce. Therefore, in the construction phase, the contractor will be required to provide first-aid facilities for the workers and at least one trained first-aider should be available at the construction camp.

### **Mitigation measures**

283. All national relevant regulations indicated in chapter 2.1 and IFC EHS General Guideline (2007) and IFC EHS Electric Transmission and Distribution (2007) have to be complied. The following measures need to be undertaken to minimize this impacts:

- Contractor and CSC will inform population about anticipated works in the settlement in advance;
- Contractors will be required to develop a Traffic Management Plans with clear indication routes of vehicles' movements, placement special signs, and speeding allowance inside of the settlements (30 km/h) and schedule transportation activities by avoiding peak traffic periods;
- Clear signs will be placed at construction sites in view of the public, warning people of potential dangers such as moving vehicles, excavations etc. and raising awareness on safety issues.
- All construction sites, tranches and ditches will be properly lightened and fenced;
- Site Specific Plans for campsites will be developed by Contractors;
- After completion works all roads shall be rehabilitated at least up to condition of pre-construction stage;
- Carry out regular awareness campaigns among work staff, including specific hazards associated with the spread of HIV/AIDS.

### ***Occupational Health and Safety***

284. Safe working conditions, compliance with sanitation, fire protection and other norms related to construction need to be provided to prevent accidents, electric shock during

construction stage. The Contractors will be required to develop an Occupation Safety and Health Plan, which will cover such topic as usage of PPE, usage fire protection equipment, training program based on all relevant national regulations (KMKs, SanPiNs) and IFC EHS General Guideline (2007), IFC EHS Electric Transmission and Distribution (2007), IFC EHS Railway (2007).

285. Improper house keeping practice in construction camps may lead to spreading infection diseases among workers and population. Depending on specific of civil works, labor camps may locate on the territory of existing stations, mobile living wagon or on construction sites. Another option is renting houses for workers in nearest settlements. For labor camps located at the construction sites a Site Specific EMP for labor/construction camps will be developed by Contractors, endorsed by CSC and approved by the Environmental/Social Specialist of PIU prior commencement of works. SSEMP for labor/construction camps will describe waste collection and disposal procedure, set up of camp facilities (such as a storage place for construction materials and techniques if any, laundry and toilets, access roads). The Contractors shall instruct all workers to act in a responsible manner.

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

#### **Mitigation measures**

- Contractors have to develop Occupational Safety and Health Plan (OSHP) based on IFC General EHS Guideline (2007), IFC EHS Guideline Electric Power Transmission and Distribution (2007) program;
- Contractors have to conduct training for workers on EHS and SSEMP implementation;
- Contractor have to ensure proper implementation of OSHP and SSEMP by all workers.

#### **6.2.5. Cultural heritage**

287. One historical heritage Kultepa hills is located within project area – on the territory of Naryn district in Kultepa Rural Citizen Assembly. This is small hill, revered by the local population as a holly place. Khakkulabad traction substation will be located at the distance 180-200 meters to the north from Kultepa hills. 110 kV HV line will be connected to substation from north as well and it will not impact on the heritage.

288. Even the project area is represented by settlements and agricultural land and area excavated is very small and limited to the foundation of the towers, there some chance to find archeological find that might have significant value. Therefore, for the rest of the area mitigation measures will be undertaken in accordance with the procedure indicated in the Law of RUz “On Protection and Use of Objectives of the Archeological Heritages” (2009).

#### **Mitigation measures**

289. The following measures need to be undertaken to avoid impact on Kultepa hill:

- No earth works could be conducted at the area closer than 200 meters to hill,
- Labor camp (in case its location at construction camp) should not be located from Kultepa hill side
- Contractor has to ensure no-impact of construction works at the hill

290. For the rest area the following actions need to be undertaken in case of finding potential heritage:

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

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

- After completion of the main construction Contractor shall provide full reinstatement of the construction and camp sites by bringing them to its primary condition;
- Remove all rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; and
- All disrupted utilities restored, all affected structures rehabilitated /compensated;
- The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up;
- All hardened surfaces within the construction camp area shall be ripped, all imported materials removed;
- CSC will conduct post-construction audit during defect liability period to make sure that construction sites and camps are properly cleaned and restored to pre-project conditions before acceptance of works before hand-over to Kokand Regional Departments of UTY, which will be responsible for operation and maintenance electrified railway.

### **6.3. Operational stage**

#### **Impact on the air**

##### ***Noise and vibration***

292. During electrified railway operation, the main impacts on air will be noise and vibration. Within this initial environmental examination baseline survey on noise and vibration level in settlements located close to railway was conducted by a certified laboratory of Kokand Sanitarian Epidemiological Station under UTY in November 2016. Measurements were conducted in accordance with National Standards GOST 12.1.050-86. The laboratory has certification on conduction such measurements, which is valid until 2020.

293. Noise and vibration levels were measured at the distances: (i) 7,5 meters from track center (as per GOST), (ii) inside of the closest houses<sup>24</sup> (indoor), and (iii) at the yards (outdoor). Total 43 points were observed in 5 settlements and stations. These parameters were examined for both – passengers and cargo trains. All trains moved during the day time between 7 am and 9 pm (Attachment 2).

294. Results were compared with national and international standards – Sanitarian Norms and Rules (SanPiN) # 0267 (2007) and IFC standards (Table 20). As it is shown in the table national norms complies with international for both - day time (55 dB) and night time (45 dB).

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<sup>24</sup> During site visit it was found the the closes houses are located within 5 meters from railway tracks. Those houses were included in baseline survey. However, the real closes distance from railway track was more than 5 meters – 8 meters and more, due to walls and requirements on conduction conduction of noise measurements

**Table 21:** Comparison table of national and international standards of maximum allowable noise standards (dB)

Receiver	National		International (IFC)	
	Day time (7.00 am – 11 pm)	Night time (11.00 pm – 7.00 am)	Day time (7.00 am – 11.00 pm)	Night time (11.00 pm – 7.00 am)
Residential	55	45	55	45

295. As per Attachment # 6 to Cabinet Ministries Resolution # 192 dated from July 4, 2012 "On approval of general technical regulations "On safety during operation of railway transport", maximum allowed noise level from locomotive/electrified trains should not exceed 87 dB at the distance 7,5 meters from railway axis.

296. Results of baseline survey conducted in project area showed that in all points existing ambient noise level exceed national and international standards for living an adjusted to houses (yards). Vibration levels do not exceed standards (Table 22).

**Table 22:** Results of noise and vibration level measurements generated by passenger train

Name of station	No	Distance	Vibration, dB			Maximum noise level (LA <sub>max</sub> ), dB measured	
			Results	Standards (31,5 and 63)	Results	Standards	
Pap	P1	7,5 m from railway				85	87
		11 m inside house	39	40	67	72	70
		15 m garden				78	70
	P2	11 m inside house	38	37	67	72	70
		12 m garden				77	70
	P3	12 m Inside house	37	38	67	70	70
16 m garden					76	70	
Chust	P4	7,5 m from railway				84	87
		24 m inside house				74	70
		32 m	28	30	67	65	70

		garden					
	P5	23 m inside house	30	31	67	70	70
		32 m garden				74	70
	P6	30 m inside house	28	29	67	65	70
		17 m garden				78	70
<b>Namangan</b>	P7	7,5 m from railway				85	87
		8 m garden				80	70
		12 m Inside house	40	41	67	75	70
	P8	14 m inside house	38	39	67	74	70
		11 m garden				78	70
	P9	11 m inside house	42	43	67	72	70
		11 m garden				78	70
	P10	14 m inside house	38	35	67	70	70
		15 m garden				78	70
	P11	9 m inside house	50	48	67	72	70
13 m garden					82	70	
<b>Chartaq</b>	P12	7,5 m from railway				84	87
		11 m garden				82	70
		8 m inside house	44	43	67	78	70
	P13	15 m inside house	34	33	67	72	70
		12 m garden				78	70
	P14	13 m inside house	37	39	67	72	70

		15 m garden				78	70
	P15	11 m inside house				80	70
		15 m garden	32	34	67	70	70
	P16	16 m garden				78	70
		14 m inside house	33	35	67	72	70
<b>Andijan-2</b>	P17	7,5 m from railway				85	87
		9 m garden				82	70
		13 m inside house	32	34	67	70	70
	P18	11 m inside house	38	39	67	72	70
		13 m in garden				80	70
	P19	15 m inside house	34	35	67	70	70
		11 m in garden				78	70
	P20	6 m in garden				82	70
		14 m inside house	33	34	67	72	70
		12 m garden				80	70
	P21	15 m inside house	36	35	67	68	70
	<b>Andijan - 2</b>	P22	63 m from railway at the street				75
						74	70
						70	70
P23		80 m inside classroom				62	70
						60	70
						58	70

297. Noise level generated by trains moving in operating part of recently electrified railway Andijan-Kokand was measured as well. Similar trains will run through Pap-Namangan-Andijan direction. The noise levels were measured for various speeds – 60, 80 and 115 km/h

at the 7.5 m distance. In addition, noise level was measured on various distances (12 and 25 m) for trains move with speed 80 km/h.

298. The measurements of  $L_{max}$  were conducted in the open area at the distances 7,5 m, 12 m and 25 meters during the day time between 12.00 pm and 2.00 pm. The results were compared with national standards for  $L_{max}$  and international WHO's standards. Results are presented in Table 23.

**Table 23:** Noise level. Operating alignment Andijan-Kokand

Train speed km/h	Distance from railway axis (m)	Type of train	Measured noise level, dB ( $L_{max}$ )	National standards, dB ( $L_{max}$ ) <sup>25</sup> for area adjusted to residential houses (day time)	WHO requirements, dB ( $L_{max}$ ) <sup>26</sup> for area adjusted to residential houses (day time)
40	7.5	Freight	85-86	70	70
60	7.5	Passenger	83-85		
80	7,5	Passenger	94-96		
115	7.5	Passenger	98-97		
80	12	Passenger	88		
80	25	Passenger	82		

299. Comparison Tables 22 and 23 showed that, the maximum noise level ( $L_{max}$ ) from electrified train at the distance 7.5 m (the closest distance) and with speed 60 km/h **does not exceed** existing noise level in the project area. Increasing speed up to 80 km/h and higher leads to increasing noise level more than on 3 dB.

300. To reflect the increase in train frequency in future at projection to maximum number of 10 trains/day, conversion from  $L_{max}$  to  $L_{ecq}$  was conducted.

301. Calculation of expecting  $L_{ecq}$  was done based on methodology described in interstate standards 2044-2014. "Noise. Transport flows. Method of determination of noise characteristics" (2014). Noise level measurements were done in accordance with guideline provided in Chapter 7 "Conduction of measurements" of the standard.

302. The standard recommends to calculate noise from railway with low intensively of trains movement (less than 20 trains per day) based on measurements of Maximum Noise Level ( $L_{max}$ , dB) and Sound Level Exposure ( $L_{EA}$ , dB) for each type of trains: passenger and freight.

303. In accordance with standard, time interval during which  $L_{max}$  is reduced by 10 dB has to be recorded in order to calculate  $LA_{ecq}$ .

304. The following formula was used for calculation equivalent noise level (para 7.2.9, formula 2):

<sup>25</sup> SanPiN 0227-07, Planning and construction residential area in Uzbekistan (2007), Table 20.1

<sup>26</sup> <http://www.who.int/docstore/peh/noise/Comnoise-4.pdf>

$$L_{Aeq\ flow}^{rw} = 10 * \lg \left\{ \frac{1}{T} * \left( 10^{(\bar{L}_{Aeqq,p} + 10 * \lg n_p)/10} + 10^{(\bar{L}_{Aeqq,p} + 10 * \lg n_f)/10} \right) \right\}$$

**where:**

$L_{Aeq\ flow}^{rw}$  - equivalent noise level of railway flows (passenger and freight), dB

$T$  - reviewing period, h ( $T = 18$  hours – between 6 am and 12 am)

$n_p$  and  $n_f$  – number of trains for reviewing period (maximum number of trains until 2030 will be 4 passenger and 6 freight per day)

305.  $\bar{L}_{Aeqq,p}$  and  $\bar{L}_{Aeqq,f}$  – average equivalent noise level for passenger and freight trains, dB – calculated based on formula (2):

$$\bar{L}_{Aeqq.(p,f)} = L_{EA(p,f)} - 10 * \lg \left( \frac{T}{T_0} \right)$$

**where:**

$L_{EA(p,f)}$  - sound level exposures for passenger and freight trains, dB – measured.

$T$  - period of time, second

$T_0$  - 1 second

306. Results of actual measurements conducted on electrified part of railway Andijan-Kokand and non-electrified part Pap-Namangan-Andijan are presented in below table 24.

**Table 24:** Equivalent noise level for electrified and non-electrified railway

Type of train	Speed, km/h	$L_{max}$ , dB	$L_{EA}$ , dB	Timing of decreasing noise level on 10 dB, sec
Andijan-Kokand (electrified)				
Passenger	60	86	76	7
Freight	40	85	75	6
Pap-Namangan-Andijan (non-electrified)				
Passenger	40	84	74	3
Freight	40	85	75	4

307. Calculation of  $L_{Aeqq}$  for passenger and freight trains for operating part was done:

$$\bar{L}_{Aeqq.(p)} = L_{EA(p)} - 10 * \lg \left( \frac{T}{T_0} \right) = 76 - 10 * \lg \left( \frac{7}{1} \right) = 67.6, \text{ dB}$$

$$\bar{L}_{Aeqq.(f)} = 75 - 10 * \lg \frac{6}{1} = 67.22, \text{ dB}$$



308. Equivalent noise level of railway flow for electrified part for conditions, with 4 passenger trains and 6 freight trains:

$$L_{Aeq\ flow1}^{rw} = 10 * \lg \left\{ \frac{1}{18} * \left( 10^{\frac{(67,6+10*\lg 4)}{10}} + 10^{\frac{(67,22+10*\lg 6)}{10}} \right) \right\} = 64,8 \text{ dB}$$

309. The same calculations were done for non-electrified route which is existing (2 passenger and 2 freight trains per day):

$$\bar{L}_{Aeq.(p)} = L_{EA(p)} - 10 * \lg \left( \frac{T}{T_0} \right) = 74 - 10 * \lg \left( \frac{3}{1} \right) = 69,2, \text{ dB}$$

$$\bar{L}_{Aeq.(f)} = 75 - 10 * \lg \frac{4}{1} = 68,9, \text{ dB}$$

$$L_{Aeq\ flow2}^{rw} = 10 * \lg \left\{ \frac{1}{18} * \left( 10^{\frac{(69,2+10*\lg 2)}{10}} + 10^{\frac{(68,9+10*\lg 2)}{10}} \right) \right\} = 62,5 \text{ dB}$$

310. As showed calculation expecting equivalent noise level  $L_{ecq1}$  (64.8 dB) after project implementation will not exceed existing  $L_{ecq2}$  (62.0 dB) more than on 3 dB ( $\Delta=2.3$ ).

311. Measurements of maximum noise level were conducted inside of houses or fenced yards. Therefore, to meet requirements on non-exceeding of expecting noise level on 3 dB UTY will build walls for houses located within 5 meters ROW. The wall will be constructed in the way ensuring compliance with above condition.

312. There are 23 structures (according to LARP) within existing alignment which will be partly demolished in order to provide 5 meters RoW for railway electrification. The project will construct noise barrier for this property instead walls. This measure will ensure noise level from electrified railway within background level (83-85 dB). The average length of one house is not more than 20 meters, for 23 structures it will be around 552 meters (20 meters house plus 2.5 meters extension from each side to consider noise angle).

313. Installation of acoustic barrier within ROW will ensure compliance with noise standards for the following conditions: (i) train movement is allowed only between 6 am and 12 am (ii) number of trains will not increase 10 trains per day, and (iii) trains speed will not exceed 60 km/h.

314. If one of these parameters increase, UTY has to implement additional measures such as installation of special double glazed windows. For day time noise level should not exceed 3 dB comparing with existing situation (83-85 dB). This condition is applicable only in case when trains do not move during the night time. If trains start to move during the night time, noise level for this part of day should not exceed 45 dB.

315. Use for this part of railway (Pap-Namangan-Andijan) less noise generating trains vehicles/wagons as much as possible. Timely and proper maintenance of railway will also minimize generation of railway noise.

### **Mitigation measures**

- Limit of train speed by 60 km/h and avoid train movement between 12 am and 6 am. In case of train movement during the night time, develop and implement noise mitigation measures in advance to bring expecting noise level  $L_{Aeq}$  up to 45 dB.
- Conduct regular monitoring of noise level by measuring  $L_{Amax}$  in the settlements adjust to railway. In case of exceeding standards, develop and apply additional mitigation measures.
- Provide regular maintenance of vehicles/wagons and railway condition to minimize noise generated from them.

### **Air pollution**

316. It is expected that electrification of the the railway Pap-Namangan-Andijan will decrease pollutants emissions due to stop usage of diesel and coal<sup>27</sup> as fuel for locomotive. The main source of energy for electrified railway will be Turakurgan Thermo Power Plant (TPP) which will produce electricity based on Combine Cycle Gas Turbine. It is expected that Turakurgan TPP will be commissioned in 2018-2019 (first and second turbines). Therefore, air quality in the project area will improve.

317. Due to the replacement of diesel locomotives by electric locomotives emissions will be reduced by 2.85 thousand tons, including carbon oxides - by 1,370 tons, nitrogen oxides - by 548 tons, sulfur dioxide - 274 tons, carbon deposit - 219 tons and hydrocarbons - 411 tons<sup>28</sup>.



**Figure 31:** Existing situation - emission of carbon deposit from diesel locomotive

318. Electric locomotives emit less carbon dioxide (CO<sub>2</sub>) than diesel locomotives and they are more environmentally friendly. This is particularly true given that the source of electricity generation Turakurgan Thermo Power Plant which will use gas for electricity production. The CO<sub>2</sub> emissions savings were calculate based on the differences in emissions from diesel and electric locomotives, of 31.32 grams per ton-km for diesel, and 12.73 grams per ton-km for electric<sup>29</sup>. Results of calculation are presented in Table 25.

**Table 25:** Forecast of CO<sub>2</sub> emissions from diesel and electric traction for 2020

<b>Type of traction</b>	<b>CO<sub>2</sub> emission factor, Gram/Tkm</b>	<b>Traffic, million t/journey 2020-2040</b>	<b>CO<sub>2</sub> emission, tonn</b>	<b>Δ in CO<sub>2</sub> emission</b>
Diesel	31.320	252.7	7914.3	4,698
Electric	12.73	0.38	3216.8	

<sup>27</sup> Main fuel for existing locomotive is diesel, but sometimes coal is used as well

<sup>28</sup> Calculation of emissions was done within national Environmental Assessment (2016). The document refers to "Instruction on inventory of atmosphere pollution and emissions rationing", 2006

<sup>29</sup> Pap-Andijan Economic Model, PPTA, 2016

319. As shown in the table, electrification of railway will lead to decreasing CO<sub>2</sub> emissions. After replacement of diesel locomotive with electric will decrease on 4698 tons in 2020 (year of the project commissioning). As per economical analysis, total amount of CO<sub>2</sub> emissions saving until 2045 will be around 282000 tons.

### **Impact on water**

320. Due to increasing number of operating trains after railway electrification, rail car maintenance and refurbishment will also increase. Usually such activities involve high-pressure water wash, which may contain residues from transported materials, paint, oil and grease, and other contaminants. Discharge of such untreated waste water in the water bodies or municipal sewage system may pollute water bodies and destroy normal functioning of waste water treatment plants.

321. Currently, all rail car maintenance involving usage of water are being implemented only in Kokand depot (Ferghana valley), equipped with waste water treatment facilities (sedimentation tanks and oil trap). After first treatment in the depo waste water are discharged into municipal sewage system of Kokand city.

322. Discharge of waste water from traction substations to water bodies without treatment will pollute them. Therefore, rail car maintenance involving high water wash will be prohibited on the territory of traction substations. Such kind of works will be conducted in Kokand depo.

323. Due to expecting increasing number of passengers and trains, generation of domestic waste water will also increase. The project considers rehabilitation of household's part of stations as well, which includes upgrading facilities for collection and disposal of domestic waste waters. Domestic waste water from both track substations and most of the stations will be collected into the hydro isolated pits which will be collected by Vodokanal<sup>30</sup> for further disposal on waste water treatment plants. Two stations are connected to municipal sewage system. Discharge of waste water into open water bodies is prohibited.

### **Mitigation measures**

- Conclude agreement with local Vodokanal on collection and disposal domestic waste water from stations and monitor its timely proper implementation;
- UTY as maintenance company has to ensure that waste water is not discharged into water bodies without treatment;
- Washing equipment will be prohibited on the territory of the traction substations;
- Rail car maintenance will be allowed only in specially equipped depots.

### **Impact on biological resources**

324. Impact on biological resources during operation phase mostly will be related to maintenance of vegetation within railroad rights-of will be implemented during railway operation phase. Such regular maintenance will involve the use of mechanical methods (e.g. mowing), manual methods (e.g. hand pruning) or herbicides. The size of RoW for each section of railway will be established by Track Facilities Department under UTY. Vegetation maintenance beyond that which is necessary for safety may remove unnecessary amounts

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<sup>30</sup> Vodokanal – entity providing drinking water supply and waste water treatment

of vegetation, resulting in the continual replacement of successional species and an increased likelihood of the establishment of invasive species.

325. National Environmental Appraisal for this project (2016) states that OHL tower may be dangerous for birds especially for predators. Birds use towers to relax. When birds are synchronously touching a grounded traverses and current-carrying wires closure of the electrical circuit can occur which leads to death of birds. At the same time such electrical circuit negatively impact on operation of electrical network.

326. Although there are no bird areas or transects identified within the project area, UTY through its design institute has confirmed that bird protection is part of the standard design of towers. Therefore, impact on biological resources is insignificant.

327. Other impact may occur during crossing livestock a railway track. Measures on avoiding of crashing livestock with trains will be included in safety program describe which is discussed in the next paras.

#### **Mitigation measures**

- Implement integrated vegetation management (IVM). From the edge of the track area to the boundary of the right-of-way, vegetation should be structured with smaller plants near the line and larger trees further away from the line to provide habitats for a wide variety of plants and animals;
- Native species should be planted and invasive plant species removed;
- Maintenance clearing in riparian areas should be avoided or minimized.

#### **Waste management**

##### ***Non hazardous materials***

328. Due to increasing number of cargo and passenger trains it is expecting that amount of generated solid and liquid wastes will increase also. Among generating wastes will be solid, food waste from food establishments, in addition to packaging materials from retail facilities, and paper, newspaper, and a variety of disposable food containers from trains and common passenger areas. The maintenance and upgrade of rail infrastructure may also result in the generation of non-hazardous and hazardous waste including lubricants from field maintenance equipment and steel and wood from rails and rail ties

#### **Mitigation measures**

- It recommended to introduce waste recycling program, place waste labeled containers in each stations and trains for easy segregation and further disposal;
- UTY will ensure that waste collection and its disposal from passenger trains are being implemented properly, liquid wastes are not discharged during train stop;
- Agreements on waste collection and its further disposal need to be concluded between local khokimiyat, waste management's entities and railway stations and track substations;

##### ***Hazardous materials***

329. Oil is used in transforms for cooling on traction substation and smaller ones for SCADA. Quality of oil and its amount are checked regularly by electrical department under UTY. In case non-compliance of oil quality with standards, oil will be drainage and sent for regeneration to the UTY's or JSC "Uzbekenergo"'s specialized departments. Depending on

quality of treated oil after regeneration, it could be used for refilling transformers or secondary us on the UTY enterprises.

330. To prevent accidents of oil leakages from transformers a special collector basin is designed under each transformer. Volume of such basin is designed for 110 % of transformers oil.

#### **Mitigation measures**

- To avoid soil pollution all works on oil replacement have to be conducted in full compliance with JSC "Uzbekenergo"'s instruction "RH 34-301-941: 2007 Individual consumption rates of transformer oil for the repair and maintenance needs for equipment of power facilities";
- Spare oil has to be storage in properly organized place with concreted floor and cover;

#### **Health and Safety**

331. During the railway, operation health safety issues will be related to health safety issues of workers' and population living at the area adjusted to the project site.

#### ***Occupational Health and Safety***

332. During railway operation the following issues may take place<sup>31</sup>: (i) train/worker accidents, (ii) noise and vibration, (iii) fatigue, (iv) electric hazards and (v) electric and magnetic fields.

333. Work safety requirements during railway maintenance are described in detail in various UTY's internal regulations, such as a "Rules of technical maintenance of railway", "Instruction on signaling on railway", "Work safety rules during maintenance of electrical devices", "Rules of organization and technical operation of the contact network of the electrified railways of SJSRC "Uzbekiston Temir Yullari", Sanitarian Rules and Norms No 0023-94 "Hygienic requirements for working conditions and the sanitary security of workers of construction companies", other national standards and norms and IFC EHS Guideline, Railway, 2007. Railway operating entity (Kokand railways authority) is responsible for conduction training for staff in accordance with State Standards GOST 23457-86.

334. All railway and electrical facilities need to be provided with untouchable volume of water as per KMK 2.04.02-97. Electrical safety has to comply with requirements of GOST 12.1.130-81 "Electrical safety. Protective earth. The vanishing".

#### **Mitigation measures**

- UTY should ensure compliance with all safety requirements indicated in all relevant documents indicated in previous paras.

#### **Community Health and safety related to railway operation**

##### ***Impact of electromagnetic fields***

335. The main health and safety issues specific to railway operations are: (i) general rail operation safety, (ii) transport of dangerous goods, (iii) level crossing safety and (iv) pedestrian safety<sup>32</sup>.

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<sup>31</sup> IFC EHS Guideline, Railway, 2007, Occupation Safety

336. Due to close location of residential houses to electrified railway, there is risk of impact electro magnetic field on population after project commencement.<sup>33</sup> National requirements on level of electromagnetic field fully comply with international standards. IFC EHS guideline refers to International Commission on Non-Ionizing Radiation Protection (ICNIRP), and the Institute of Electrical and Electronics Engineers (IEEE), which establish allowable level for electric field as 5 kV/m for area adjusted to living houses and for magnetic fields as 100  $\mu$ T.

337. National standards – SanPiN # 0236-07 dated from 2007 “Sanitarian Norms and Rules on safety ensure for population living areas close to high voltage lines”. These standards indicated, that for living areas electromagnetic field is not exceed 0,1 kV/m and for magnetic fields – 80 A/m which is equivalent to 100  $\mu$ T.

338. SanPiN also provides size of buffer zone for electric lines with various voltages. For electric lines with voltage up to 30 kV the buffer zone is 5 meters to both sides from electric wire. Since minimal RoW for electrified railway is established as 5 meters, no impact of electric and magnetic fields is expected from electrified railway.

339. In accordance with LARP, 25 building are located within 5 meters RoW. All of them will be resettled in accordance with national and ADB safeguards requirements.

340. Impact of electromagnetic field was discussed with population during the public consultations conducted within current IEE. However, impact of electromagnetic fields has to be included in awareness program, which will be developed for this project.

### **General rail operation safety**

341. The most significant safety issue potentially affecting both crew and passengers is the threat of serious injury or the potential loss of life due to train collisions with other trains or with road vehicles, as well as the possibility of derailment due to these or other operational causes. To avoid this risk, the project includes installation of SCADA and signaling system which are designated to avoid such accidents. In additional, regular inspection and maintenance of the rail lines and facilities to ensure track stability and integrity in accordance with national<sup>34</sup> and international (IFC) track safety standards.

342. **Dangerous goods may be transported** in bulk or packaged form by rail, representing a potential risk of release to the environment in the event of accidents on a number of other causes. In intermodal containers, spills and leaks may result from improper packing and resultant load shifting during transport. To avoid this issue, it is recommended to minimize transportation of hazardous materials through PNA railway due to high density of population living very close to track. Along with this preparation of spill prevention and control, and emergency preparedness and response plans, based on an analysis of hazards, including the nature, consequence, and probability of accidents is also required. It is important to disseminate this information to potentially affected population.

343. In case of transportation such goods implementation of requirement indicated in above mentioned national and international guidelines are required<sup>35</sup>.

344. **Level crossings** (at-grade road / rail intersections) represent high-risk accident locations for railways. On railways with sparse traffic, a flagman may be used to stop all

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<sup>32</sup> IFC EHS Guideline, Railway, 2007

<sup>33</sup> Sanitarian norms, rules and hygienic norms if RUz # 0236-07 “Sanitarian norms and rules on safety of population

<sup>34</sup> Decree # 65 dated from 2002 “On approval of rules of technical operation of industrial railway transport Republic of Uzbekistan”, State inspection of RUz on safety supervision of rail transportation” “Uzgosjelnadzor”

<sup>35</sup> IFC EHS Guideline, Railway, 2007 and Resolution of Cabinet Ministry of RUz #192 dated from July 2012 “General Technological regulations of railway safety during operation”

traffic at the crossing and clear the tracks before the approach of a train<sup>36</sup>. Automatic warning lights and bells, and / or closable gates which barricade the roadway are more commonly used. The gates are intended to be complete barriers against intrusion of any road traffic onto the railway. Ungated crossings present the greatest potential risk. Recommendations to prevent, minimize, and control risks associated with level crossings includes installation of automatic gates at all level crossings, and regular inspection/maintenance to ensure proper operation. Risk related to this impact also needs to be included in awareness program.

345. Special attention needs to be paid to **pedestrian safety**, due to very close location some houses to railway (Figures 31-32). Partially this risk could be mitigated by installation acoustic barriers. However, there are high risk of accident due to walking people close to railway or crossing it.



**Figure 31:** Location of houses in Chartaq district



**Figure 32:** Situation in Chust district

346. There is sensitive receptor at Andijan-2 station located in 60 meters from station – secondary school # 44. Kids cross station and railway track and there are no any protection fence or safe passage for them.

347. Therefore, improvement of safety for this railway is crucial. Currently UTY is working on development campaign on increasing awareness among population on safety issues. Moreover, at the stage of project implementation, Construction Supervision Consultant team will include safety expert who will assess safety situation along with project area and will develop mitigation program, which will be recommended to UTY for implementation.

348. During public consultation participants from Ekin-tekini RCA in Andijan district suggestion enhancing awareness among adults was raised as well.

#### **Mitigation measures:**

349. Details will be developed by the CSC railway safety specialist, to be implemented by UTY as counterpart funding. An awareness program will be conducted by UTY as part of PIU admin and capacity building activities. As additional to awareness program the following recommendations are proposing for consideration during the development and implementation of the program:

- Conduct awareness program on regular base, which will include among others such topics as: impact of electromagnetic fields, electrocution, risk related to fast moving trains;
- Minimize transportation of hazardous goods through PNA direction;

<sup>36</sup> IFC EHS Guideline, Railway, 2007

- prepare spill prevention and control, and emergency preparedness and response plans, based on an analysis of hazards, including the nature, consequence, and probability of accidents
- install automatic gates at all level crossings, and regular inspection/maintenance to ensure proper operation
- Fulfill occupational and community health and safety requirements as indicated in national and international standards document;
- It is recommended consider high density of population in the project area during safety assessment and definition necessity of additional passages.

### **Health and Safety related to OHL operation**

350. The expected adverse impacts during the operational phase of the 220/110 kV transmission line are generally related to the occupational and community health and safety issues. The impacts are reversible, manageable, and can be mitigated with proper engineering and management controls.

#### **Occupation Health and Safety**

351. The occupational health and safety issues inherent to the operation of transmission line include hazards due to exposure to live power lines and high voltage systems, working in heights and risks of accidents, and potential exposure to electric and magnetic fields. Accidents that may occur include electro-cutting, lightning, fires, and explosion.

#### **Exposure to Live Power Lines and High Voltage Systems**

352. Workers may come in contact with live power lines during the maintenance of the facilities and electrocution from direct contact with high-voltage electricity is a hazard directly related to power transmission lines and facilities.

353. During maintenance works, worker should be guided by relevant national guidelines ((Rules of maintenance of electrical devices”, 2007, Rules of work with personnel at energy production enterprises. (Uzenergonadzor)(under UE), 2002 Rules of safety regulations for maintenance electrical (Uzenergonadzor), 2004 Standardized provision on organizing of labor safety works Labor Ministry and Professional Unions Federation of RUz and IFC EHS General Guideline (2007)) and “Environmental, Health, and Safety Guidelines – Electric Power Transmission and Distribution” (IFC) dated 30 April 2007.

#### **Working in Heights**

354. Accidents may happen when working in heights. However, a worker safety plan may be implemented to reduce risks that include testing of structural integrity prior to proceeding with the work and the use of fall protection measures.

#### **Worker Exposure to Electric and Magnetic Fields (EMF).**

355. Typically, electric utility workers have higher exposure to EMF than the general public because of working in close proximity to electric power lines. The occupational EMF exposure should be minimized through the implementation of an EMF safety program that includes but not limited by:

- Identification of potential exposure levels in the work area including surveys of exposure levels and establishment of safety zones
- Limit access to properly trained workers and those equipped with appropriate PPE when entering safety zones.



- Utilization of personal monitors during work activities
- Posting of safety signals and warning signs.

### **Community Health and Safety**

356. **Electrocution.** The community may also be exposed to electrocution hazards as a result of direct contact with high voltage electricity or from contact with tools, vehicles, or other devices that come in contact with high-voltage electricity. To prevent these hazards, NPPMB needs to implement the following improvements:

- Provision of signs, barriers and gates/posts surrounding transmission towers particularly in built-up areas
- Grounding of conducting objects such as fences or other metallic structures near power lines.

357. **Exposure to Electromagnetic Field.** The transmission frequency commonly used in transmission systems ranges from 50Hz – 60Hz which is considered as extremely low frequency<sup>33</sup>, with impacts becoming low with distance. The electric fields become shielded by trees, buildings, and other materials that conduct electricity. In general, the electric fields are strongest close to the source and diminish with distance.

358. The World Health Organization (WHO) reported that there is still weak evidence about substantive long-term health issues related to low frequency electric fields at levels generally encountered by members of the public. The potential health effects associated with exposure to EMF is not well-established due to lack of empirical data demonstrating adverse health effects. However, the public should be warned about the safety distances from the transmission system and power lines through warning signages.

359. RoW for HV lines and allowed activity is defined by national regulation SanR&N 0236-2007 “Sanitary norms and rules (SNR) on the effects of the electric field generated by overhead transmission lines of alternating currents of industrial frequency”.

360. Detail information about anticipated impacts, recommended mitigation measures, responsible people for EMP implementation and monitoring with cost estimates for this activities are presented in Chapter 9.

### **Impact on socio-economic resources**

361. Project implementation will allow reliable, more frequent and higher-speed connections between the major cities and towns in the Fergana Valley. Moreover, the project supports the improvement of Central Asia Regional Economic Cooperation (CAREC) Corridor 2, linking Uzbekistan to the People’s Republic of China to the east, and Europe to the west. This impact is considering as cumulative because its severity increases when the action that generated it continues.

## **7. INFORMATION DISCLOSURE, CONSULTATION, AND PARTICIPATION**

362. One of the main goals of the IEE is to facilitate the participation of all stakeholders and local communities at all stages of the project cycle: from the pre-construction phase and construction activities to its operation. In this regards, a number of consultations were held in the project provinces to capture the stakeholders’ opinions about the project, and agree on the project activities.

363. Prior to the public consultations several meetings were conducted with internal and external stakeholders, such as representatives of the province and district Khokimiyats, UTY (PIU’s environmental and social specialist), design institutes and others.

364. In compliance with ADB requirements with the aim of informing the communities in the project area about the upcoming consultations, the announcements have been published in the local newspapers of Namangan and Andijan provinces: “Namanganskaya pravda” dated November 19, 2016 (#48) in Russian language (in Uzbek – “Namangan haqiqati” #92 dated November 16, 2016), and “Andijanskaya pravda” dated November 18, 2016 (#95) in Russian language (in Uzbek – “Andijonnoma” #96 dated November 19, 2016). The announcements are given in Attachment 3.

365. Almost all public consultations in Namangan province were held in administrative buildings of Pap, Chartak (Chartak and Uychi districts together) and Uchkurgan (Naryn and Uchkurgan districts together) districts’ Khokimiyats on November 22 and 23, 2016. Public consultations of Chust, Turakurgan districts and Namangan city were conducted in Urban Branch of Public Education in Namangan city on November 22, 2016.

366. As to the public consultations in Andijan province, they were held for the population of Andijan city, Andijan district and Paytug and Kuygan-Yar districts of Andijan province in administrative building of khokimiyat in Andijan city on November 24, 2016. Among the participants 11 were females.

367. The registration lists of public consultations held in project districts are presented in Attachment 4.

368. **Namangan province. Pap district.** First meeting was conducted on November 22, 2016 in Pap district khokimiyat. The meeting was attended by 16 participants (2 females) from 7 Rural Citizen Assemblies (RCA): Hujabad-2, Yakkatut, Yangi Hayot, Chartak, Obihayot, Mukimiy and Bog kuchi. All these RCAs are located within the project area. Among participants were chairmen of RCAs, secretaries and citizens from the relevant settlements. Besides them, representatives of hokimiyats, specialists from district branch of Nature Protection Committee, cadaster departments attended the consultations.

369. The dialog was made through informing communities about the project and obtaining suggestions about the anticipated environmental impacts and proposed mitigation measures. Project objectives and main findings of conducted environmental assessment, EMP and GRM was presented in Power Point presentation. Specially developed Project Fact Sheet was translated in Uzbek and distributed among participants. People were requested to give their opinions and suggestions. In addition, participants were provided with contact information of focal points from railway stations of Pap-Namangan-Andijan line, PIU and PPTA’s Environmental Specialist for further suggestions and questions.

370. The main issues raised during the public consultation are presented in the Table 26.

**Table 26:** Issues raised during public consultation in Pap district

Issues raised	Response	Addressed in IEE
During train maneuver level of vibration and noise noticeable increases. Should we expect increasing these parameters after road electrification?	After electrification level of noise and vibration will not decrease. We expect that level will not increase. If after electrification you will feel that level of noise is higher than it was, you can request UTY to conduct noise measurements. In case of exceeding noise level on 3 dB, appropriate noise decreasing measures will be undertaken	Requirements on conduction regular noise measurement by UTY after railway commencement are included on EMP (Operation stage)
Is it possible to organize	Locations of passages along	1. Recommendations on

<p>additional underground/surface passage within territory of Syrdarya RCA, Pap district?</p>	<p>railway track are defined by Construction Norms and Rules (KMK). According to the KMK distance between passages is 6 km.</p>	<p>consideration high density of population in the project area during assessment and development safety plan are included in EMP.</p> <p>2. Mitigation on assessment of efficiency of number of existing passages and their location and consider option to increase their number are included in EMP (pre-construction stage)</p>
<p>Our village is located next to Namangan station. We often face with situation when road passage closed for 25-30 minutes without obvious. It is very inconvenient especially in the morning. In hurry, people cross the railway in unauthorized places, which is risk. Is it possible to optimize time of closing passage? (Khujabod-2)</p>	<p>Your proposal will be included in our recommendations, but please pay more attention safety issues</p>	<p>Recommendations on optimizing schedule of train movements are included in EMP (Operation stage)</p>
<p>We had one passages, which connected two sides of one village. Several years ago, that passage was closed, now we have difficulties especially during funeral ceremonies since cemetery is located on another side of village. Is it possible re-open that passage? (Yangihayot RCA, Pap district)</p>	<p>Your request was noted by representatives of PIU as well. The request will be reviewed by their engineers and necessary actions will be undertaken.</p>	<p>1. Recommendations on consideration high density of population in the project area during assessment and development safety plan are included in EMP.</p> <p>2. Mitigation on assessment of efficiency of number of existing passages and their location and consider option to increase their number are included in EMP (pre-construction stage)</p>

371. **Chust, Turakurgan districts and Namangan city.** Public Consultation for population of these 2 districts and Namangan city were held also on November 22, 2016 (afternoon session) in Urban Branch of Public Education in Namangan city. Representatives of the following 11 RCAs located within the project area attended the meeting. Among 53 consultation participants, 13 were females. Meeting participants represented chairman of RCAs, secretary, specialists from district branches of Nature Protection Committee, citizens, local administration (district hokimiyats).

372. Presentation flow was the same as described above. During consultation participants discussed the following issues (Table 27):

**Table 27:** Issues raised during public consultation in Chust, Turakurgan districts and Namangan city

Issues raised	Response	Addressed in IEE
Is it planning to increase number of tracks from one to two?	No, number of tracks will not increase.	
We were told that buffer zone will be 15 meters, but you told that buffer zone is 5 meters.	5 meters is minimal buffer zone for existing railway. For new alignment it may change from 25 and more depending from various factors, such as as type of soil, relief and etc.	
Will illegal building be compensated?	Per ADB SPS (2009) illegal building will be compensated as well, but approach of calculation compensation for such building will be different from calculation for legal buildings	
Should we expect increasing number of trains during the day? And how it will impact on noise level?	Yes, number of train will increase. At this stage we cannot find our exactly level of expected noise. But in accordance with existing practice, level of noise from electrified trains will not increase	

373. **Chartak and Uychi districts.** Next Public Consultations were held in Chartak and Uychi districts on November 23, 2016 (morning session) in administrative building of Chartak district khokimiyat. 30 representatives of 11 RCAs located within the project area attended the meeting: Baynalminol, Namangan, Oyqiron, Bandlikka kunlar, Rovosh, Keskan-yor, Muchum, Turkiston, A.Navoi, Yangiyor, and Laskidon. Seven women were attended the consultation. Among the consultation participants were chairman of RCAs, secretary, specialists from district branches of Nature Protection Committee, local administration (district hokimiyats), land cadaster departments, local trains station.

374. The scenario of given presentation was unchanged, just more specific for these districts. The following issues were raised by participants during the consultation (Table 28):

**Table 28:** Issues raised during public consultation in Chartak and Uychi districts

Issues raised	Response	Addressed in IEE
How big will be buffer zone? You noted that it will be 5 meters, but I was told that it should up 25 meters	For this project, a buffer zone will be 5 meters. For newly constructed railway it may be 25 and more, depending on soil quality, railway destination and etc.	
Will local population be hired for the project works?	Project specifics requires involvement of workers with needed skills. As a rule, for	Recommendations on hiring local workers for construction traction substation are

	such works UTY or Contractors bring own staf. However, for conduction earth works for construction traction substation local population could be hired.	included in EMP (Construction stage)
Some communication pipes were not reflected in the district infrastructure map. There is a risk of destroying them during its project implementation. What are you going to do?	Upon completion final project design UTY will conduct meetings with representatives of all relevant agencies and discuss project works. At this stage all communications infrastructure will be taking in consideration and project will be informed in advance about this	Mitigation measures on conduction additional meeting with relevant agencies (local Vodokanal, Ministry of Agriculture and Water Resources Management) have been included in EMP (Pre-construction stage)
We live in Baynaminal RCA, Uychi district. Local school also is located in front of railway therefore our kids have to walk along track. Is it possible to install fence along the railway for safety?	We will include your proposal in our report and technical team will make decision of possibility including the fence in the project design	Suggestion on installation fence was included in EMP (Pre-construction stage)
How compensation will be paid?	Full information about compensation procedure will be presented in LARP when detail project design will be ready. As for now, general approaches for compensations calculation, payment, GRM were presented today	Information about payment compensation for lost crop and demolished buildings is included in IEE.(Pre-construction stage)
We live in the area, where new alignment is being constructed (6,7 km). Due to movement of heavy trucks, our roads are almost destroyed. Who will repair them?	For repairing of used road is responsible Contractor. PIU representative noted this information and promised to discuss with UTY.	Requirements on bringing used facilities at the level as it was before construction, is included in EMP (Operation stage)

375. **Naryn and Uchkurgan districts.** Last Public Consultations for the Namangan province were conducted for the population of Naryn and Uchkurgan districts on November 23, 2016 (afternoon session) in administrative building of Uchkurgan district khokimiyat. 12 participants of the 6 RCAs, which are Yoshiq, Mustaqilliq, Yangitong, Bobur, KhBK and Chek, also located within the project area attended the meeting. Among the participants 8 were females. Representatives of official divisions as chairman of RCAs, secretary, specialists from district branches of Nature Protection Committee and local administration (district hokimiyats) also attended the consultation.

376. Presentation flow was the same as described above. During consultation participants raised mainly questions related resettlements issues (Table 29):

**Table 29:** Issues raised during public consultation in Naryn and Uchkurgan districts

Issues raised	Response	Addressed in IEE
What is a size of buffer zone for this project?	Taking in consideration local condition and density of population buffer zone was define as 5 meters	
What is route of HV line?	Route was shown on slide	
Is it possible to construct additional overhead passage? (Yangitong RCA)	Location of overhead is defined by national regulations. The closest existing overhead is located within 500 meters from requested place. No point to build new one.	
Who will compensation for demolishing houses?	This topic is under discussion. Regardless source of payment, all compensation will be paid.	

377. **Andijan province. Andijan city, Paytug and Kuygan-Yar districts.** Public Consultation, which was held on November 24, 2016 (morning session) in administrative building of Andijan city khokimiyat for population of Andijan city, Paytug and Kuygan-Yar districts of Andijan province, united together 59 participants (10 females) from 25 RCAs located within the project area. Meeting participants represented chairmen of RCAs, secretary, specialists from provincial branches of Nature Protection Committee, local administration (district hokimiyats), land cadasters managers and station masters.

378. During the public consultation participants were interested in the following issues (Table 30):

**Table 30:** Issues raised during public consultation in Andijan city, Paytug and Kuygan-Yar districts

Issues raised	Response	Addressed in IEE
What type of noise measure will be implemented to protect from noise? (Representatives of province land cadaster)	As we mentioned during presentation, we expect that noise level will be decreased. As per adopted IFC requirements, noise level after project commissioning should not exceed 3 dB in comparison with ambient level. At that stage another noise measurement campaign will be conducted, and in case of defining necessity, noise protection measure will apply. There are number of tools which implementation depends on type of relief, level of noise and etc.	Requirements on conduction regular noise measurement by UTY after railway commencement are included on EMP (Operation stage)

<p>In our village Railway passes several pipes – drinking, irrigation and drainage. Will railway electrification impact on these infrastructure? (Isbisgan RCA, Andijan district)</p>	<p>In accordance with established procedure, at project detail stage conditions of all crosses passes by railway will be assessed. In case of necessity of their replacement agreement with relevant agencies will be concluded.</p>	<p>Requirements on compliance with regulatory document ShNK – 3.01.01 – 03 Construction works performance is included in EMP(Operation stage)</p>
<p>During presentation requirements on preparation next stage of national EIA were mentioned. Will Statement on Environmental Consequences (SEC) submitted to us? (Nature Protection Committee)</p>	<p>Yes, in accordance with requirements, indicated in Environmental Appraisal, SEC will prepared for each station and will be submitted to respective branches of NPC</p>	<p>Requirements on development SEC are included in EMP (Pre-construction stage)</p>
<p>We noted some cases, when passengers or train staff throw rubbish out of the window and use toilet when train does not move. It is not acceptable. Could administration of railway to conduct awareness program on proper use train facilities? For example, print such awareness raising information on the backside of tickets like it done for air tickets? (Nature Protection Committee)</p>	<p>Actually it is prohibited to through garbage from windows and should be suppressed by train staff. In accordance with rules all toilets are closed for use in 2 -5 minutes upon arrival to station. Moreover, during announcement we highlight this requirements, but your suggestion has been noted and we will discuss it internally</p>	<p>Conduction of awareness program among passengers and population are included in EMP (Operation stage)</p>
<p>I am living next to railway station Paytuq. We are in trouble when empty wagons are moving and signaling. Is it possible to decrease noise level of this activity? (Ahatchi RCA)</p>	<p>The request was noted by representatives of PIU. She recorded name of the participant and his location. As was explained, additional noise measurements will be conducted and in case of exceeding appropriate noise protection action will be undertaken</p>	<p>Recommendation on revising a schedule of train movement with consideration population demands are included in EMP (Operation stage)</p>

379. During all four public consultations the GRM was discussed. Stakeholders were explained that GRM to be a continuous process that envisages a collaboration of the Implementation Agency with population during the entire project cycle. The detailed information on this mechanism will be presented in the next chapter.

380. As per social survey conducted as part of project preparation process, and draft LARP (2016), there are no disable people within surveyed area. During public consultations participants also did not raised any issues related to possible project’s impact on such people, which need to be addressed and require additional mitigation measures.

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

382. As part of information disclosure, the final version of IEE will be translated into local language and it will be delivered to local communities and relevant authorities (khokimiyats). The final IEE report will be sent to the Namangan and Andijan Provinces Nature Protection Committees, local khokimiyats, UTY and ADB for further use during the construction and operation phases.

383. For the interested parties the IEE (English and Russian versions) will be available at the offices of the PIU-E and UTY and their websites.

384. In order to maintain the transparency of public disclosure process, the semiannual environmental monitoring reports (EMRs) will be published on the ADB and UTY websites as well. The hard copies of EMRs will be also sent to the Namangan and Andijan Provinces Nature Protection Committees.

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

- (i) During detailed design stage, in case of any changes in the design/alignment/location, the IEE will be updated accordingly. The PIU will hold at least one public consultation meeting in each district at early stages to solicit perceived impacts, issues, concerns and recommendations from affected communities.
- (ii) Prior to construction, the PIU will conduct an intensive information, education and communication campaign (IEC) to ensure the sufficient level of awareness/information among the affected communities regarding the upcoming construction, its anticipated impacts, the grievance redress mechanism, contact details and location of the PIU, and status of compliance with the Government's environmental safeguard requirements.
- (iii) After completion detail design of external power supply, PIU has to conduct Public Consultations for affected people and deliver information about project the project, results of environmental examination, GRM. In case if any new circumstances appear, IEE will have to be updated accordingly and whole relevant procedure applied.

## **8. GRIEVANCE REDRESS MECHANISM**

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

387. The GRM for the current project takes into account the national legislation, the specificity of the project sites and results of public consultations. Similar GRM was established within Marakand-Karshi railway project, which was retained. Some



improvements on process monitoring and reporting were included in the GRM for this project.

388. PIU will be responsible for establishment of GRM after the project effectivity and act as the GRM secretary to make sure that the GRM is operational to effectively handle environmental and social concerns of project affected persons. The proposing GRM was discussed PIU's manager and safeguard specialist and it was presented during the public consultations. It should be noted, that a model of GRM used for previous similar project "Electrification of Marakand-Karshi railway" was updated with some improvements for proposing project. In addition, proposing GRM fully complies with UTY's existing procedure on citizens' appeal.

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

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

- **Level 1.** The aggrieved person applies to any station of railway Pap-Namangan-Andijan. Head of station or designated officer will be in charge for receiving and registration complaints. PIU representatives at the construction site will collect information about received complains from supervising stations on daily base. After registration received complaints, PIU representatives will review nature/specificity of the complaint and will forward it to relevant party for resolving. In parallel, PIU representative will inform PIU in Tashkent about received complaint and after its resolving about undertaken actions. Depending on nature of complaint it may go to Contractor, Land Cadaster, Makhalla or district branch of Nature Protection Committee. For example, complaints related to resettlement issues may be forwarded to Land Cadaster, hokimiyat and makhallas. In case of environmental issue, compliant will be forwarded to Contractor or District Nature Protection Committee. PIU representatives will be assisted by CSC and PIU's Environmental and Social Specialists in GRM implementation. At this level, complaint should be resolved during 2 weeks.
- **Level 2.** In case the grievance was not redressed on the first stage or applicant is not satisfied with the decision made/solution, s/he can submit the grievance directly to UTY's secretariat in Tashkent. In accordance with established procedure, the secretariat will review the compliant and will forward complaints to respective department to made decision on its redress. In case the the grievance is not related directly to the project, the further instance will be recommended to the applicant where s/he should apply for the decision making during 2 weeks.
- **Level 3.** If the issue was not solved or the applicant is dissatisfied with the decision/resolution, the aggrieved person may submit grievance to Economic Court where decision will be made in accordance with relevant national legislation.

391. For component related to construction of external power supply makhallas' committee will be appointed to record complaints, which later will be collected by PIU's representatives on construction site for further actions as described in previous para.

392. Most of grievances on environmental issues are redressed at 1-2 levels. All grievances received from the population will be registered in a logbook, which should be available at all levels: at the site office of Contractor, each station of railway Pap-Namangan-Andijan. Even so, the information on received by Contractor grievances and applications from the aggregated persons, and undertook measures should be submitted to the representatives of PIU on the project site for the accounting all grievances. Consequently / Thereafter the information on all received grievances will be collected at the PIU.

393. The Contractor should include the information on grievances in monthly progress reports submitted to the PIU, who in their turn will include aggregated information to the semiannual reports on environmental monitoring submitted to ADB.

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

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

## **9. ENVIRONMENTAL MANAGEMENT PLAN**

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

397. 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 IFC EHS General Guideline, Railway, Power Transmission and Distribution 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.

398. Taking in consideration different types of civil work due to specificity of project components two separate environmental management plans were developed for the project: (i) for construction 27,5 kV catenary, track substations and installation of signaling system, and (ii) for construction external power supply network.

### **9.1. Environmental Mitigation measures**

#### **9.1.1. EMP for construction 27,5 kV catenary, track substations and installation of signaling system**

399. Mitigation measures required to address the impacts identified by this IEE have been consolidated in the following EMP (Table 31\_1). The table provides information on anticipated impacts during the pre-construction, construction and operation phases with proposing mitigation measures, defining responsible party for their implementation. It is considered that Safeguards Specialist (ES) from PIU, national Environmental Specialist of CSC and Environmental Officer (EO) or designated staff from Contractors will be responsible people for EMP implementation.

**Table 31\_1: ENVIRONMENTAL MANAGEMENT PLAN FOR CATENARY AND TRACTION SUBSTATION**

Impact	Mitigation measure	Responsibility	Cost
<b>Pre-construction stage</b>			
Generation of different potential environmental impacts due to changes in design, layout	<ul style="list-style-type: none"> <li>Update or new IEE to be prepared with full compliance of ADB SPS (2009);</li> <li>Update LARPs for electrification of new 141,6 km railway, 110kV and 220 kV as per detail design. All activities related to land acquisition and compensation payment need to be completed prior commencement of construction works.</li> </ul>	<ul style="list-style-type: none"> <li>PIU's Safeguards Specialist (SE) assisted by CSC</li> </ul>	Included in CSC budget and PIU budgets
Cutting trees without permission	<ul style="list-style-type: none"> <li>Conduct survey of route of existing 141.7 km railway and new construction of 110 kV and 220 kV HV lines for identification type and number of trees for cutting;</li> <li>Obtain official permission for cutting trees from the NPC and pay defined compensation</li> </ul>	Contractor together with representatives of NPC  PIU's Safeguards Specialist (SE)	Survey expenses are included in PIU and Contractor budgets
Using of unauthorized borrow pits	<ul style="list-style-type: none"> <li>Identify location of closest borrow pits and conclude agreements with relative agencies on inert material supply with relevant agencies.</li> </ul>	Contractors	Included in Contractor budget
Non-compliance with national requirements for equipment and machinery	<ul style="list-style-type: none"> <li>Ensure that procured machinery complies with Euro-3 standards for emissions;</li> </ul>	CSC, PIU	Included in CSC and PIU budgets
Non-compliance of goods procurement procedure with ADB SPS (2009)	<ul style="list-style-type: none"> <li>Ensure that procurements of goods within the project will be done in compliance with ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009).</li> <li>Ensure that transformers for signaling system procured within NCB, do not contain oil with polychlorinated biphenyl (PCB).</li> </ul>	CSC, PIU	Included in CSC and PIU budgets
Insufficient number of passages in densely	<ul style="list-style-type: none"> <li>Revise number of existing passages and planning to be constructed (Syrdarya RCA in Pap district, Yangihayot RCA</li> </ul>	CSC, PIU	

Impact	Mitigation measure	Responsibility	Cost
populated areas	in Namangan city, Yangitong RCA in Uchkurgan district of Namangan province) and consider option to include additional passages in the project design for mentioned settlements		
Noise level during railway operation	<ul style="list-style-type: none"> <li>• Include in the project design construction of acoustic barrier.</li> </ul>	PIU, design institute	Preliminary cost of construction acoustic barrier - USD 38,640
<b>Construction stage</b>			
Air pollution	<ul style="list-style-type: none"> <li>• Apply watering of construction sites inside settlements during the windy weather in dry season;</li> <li>• Ensure compliance of used techniques and heavy equipment with national standards for gases emissions (“O’z DSt 1057:2004 Vehicles. Safety requirements for technical conditions” and “O’z DSt 1058:2004 Vehicles. Technical inspection. Method of control”);</li> <li>• Cover all piles of soil, sand and gravel that will not be used within the next 24 hours to prevent dust generation;</li> <li>• Cover transported bulk materials.</li> <li>• Conduct dust pollution monitoring</li> </ul>	Contractors implement  PIU and CSC monitor implementation	Included in the Contractors budget
Noise and vibration	<ul style="list-style-type: none"> <li>• Operation of heavy equipment shall be conducted between 7 am and 7 pm only and be undertaken intermittently not continuously when in proximity to residential etc.;</li> <li>• Conduct noise level monitoring;</li> <li>• In case of receiving any complaints from population, additional noise measurements need to be conducted and in case of exceeding established standards<sup>37</sup>, (70 dB L<sub>max</sub>) additional mitigation actions for decreasing noise level need to be undertaken (establishing temporary sound absorbing barriers and others);</li> </ul>	Contractors implement measures  PIU and CSC monitor implementation	Included in the Contractors budget

<sup>37</sup> Admissible noise level into the living area, both inside and outside the buildings (SanR&N No.0267-09)

Impact	Mitigation measure	Responsibility	Cost
	<ul style="list-style-type: none"> <li>Schedule construction so as to minimize the multiple use of the noisier equipment near sensitive receivers;</li> <li>Use of Personal Protective Equipment (PPE) by workers involving in construction works in conditions of increased acceptable noise level (for situation when equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110dB(A), workers should use hearing protection equipment) is mandatory</li> </ul>		
Pollution of surface and ground water	<ul style="list-style-type: none"> <li>Construction and labor camps, including storage places for lubricant, fuel and other oils will be located 100 m away from water bodies;</li> <li>If washing equipment and vehicle is planning to be conducted at the labor/construction camp's site, appropriate wastewater treatment facilities have to be organized on the camp in specially designated area. The maintenance area should be provided with oil and grease traps to prevent oil from being washed into the offsite drainage canals.</li> <li>Conduction of refueling, oil replacement or repairing works will be banded at the area within 50 m from water streams;</li> <li>Sanitary water and solid wastes will not be released directly into water streams. Adequate on-site sanitation facilities with septic tanks to prevent untreated sewage from being channeled into the drainage canals, irrigation canals, and river have to be provided</li> <li>Topsoil stripped material shall not be stored where natural drainage or within 100m of water bodies will be disrupted.</li> </ul>	Contractors implement PIU and CSC monitor implementation	Included in the Contractors budget
Losses of topsoil and soil contamination	<ul style="list-style-type: none"> <li>Remove the top soil (about 30 cm depth) and store separately during excavation work, and after use for filling trenches and tower ditches;</li> </ul>	Contractors implement PIU and CSC monitor	Included in the Contractors budget

Impact	Mitigation measure	Responsibility	Cost
	<ul style="list-style-type: none"> <li>• Use surplus soil generated during construction of track substations at the same substations for creation earth bed for equipment or landscaping adjacent communication block;</li> <li>• Use only authorized carriers with getting all necessary permissions per respective national legislation;</li> <li>• In case of necessity to open new carrier for construction materials, obtain all necessary permissions and certificates on proper closing after completion project works.</li> </ul>	implementation	
Waste management	<p><i>Non-hazardous wastes</i></p> <ul style="list-style-type: none"> <li>• Dispose oil from dismantlable transformers in accordance with established procedure (“RH 34-301-941: 2007 Individual consumption rates of transformer oil for the repair and maintenance needs for equipment of power facilities”) and avoid leakages and spills on soil;</li> <li>• Segregate wastes on recyclable and non-recyclable;</li> <li>• Conclude agreement with relevant agencies (Hokimiyat, Vodokanal and etc.) on solid and liquid wastes disposal;</li> <li>• Provide hydro isolated septic tank for collecting waste waters at the camp sites and bio toilets for workers at the construction sites and timely disposal of waste waters to the local waste water treatment plants.</li> <li>• Sell recyclable wastes to relevant organizations and ensure timely disposal (each 3 days) of non-recyclable wastes;</li> <li>• Forbid burning of waste on any construction site;</li> </ul> <p><i>Hazardous wastes</i></p> <ul style="list-style-type: none"> <li>• Prior to commencement of rehabilitation works on demolishing existing buildings, ES with Civil Construction and Environmental specialist will conduct vision observation</li> </ul>	Contractors implement  PIU and CSC monitor implementation	Included in the Contractors budget

Impact	Mitigation measure	Responsibility	Cost
	<p>of old buildings and facilities on presence of asbestos materials;</p> <ul style="list-style-type: none"> <li>• In case of presence such materials, a detailed “Waste Asbestos-Containing Material Management Plan” is to be developed by Contractors (examples of such plan is presented in Attachment 8);</li> <li>• Conduct refueling vehicles and replacement oils in special designated and properly equipped places. Emergency facilities have to be at the place for elimination of accident of oil spills.</li> </ul>		
Losses of trees and crops	<ul style="list-style-type: none"> <li>• Construction during agricultural off- season may further minimize the impact (loss of agricultural income);</li> <li>• If cutting trees is unavoidable, compensate losses as indicated in the LARP for this project;</li> <li>• Inform community in advance about planning civil works;</li> <li>• Implement landscaping and vegetation of territory in fully compliance of project technical specification.</li> </ul>	Contractors implement  PIU and CSC monitor implementation	Included in the Contractors budget  Cost for tree (non-fruits) for fees is approximately USD 9200- it is included in LARP budget
Health and safety issues	<p><i>Community Heath and Safety</i></p> <ul style="list-style-type: none"> <li>• Inform population about anticipated works in the settlement in advance;</li> <li>• Develop a Traffic Management Plans for construction Khakkulabad and Raustan traction substations with clear indication routes of vehicles’ movements, placement special signs, and speeding allowance inside of the settlements and schedule transportation activities by avoiding peak traffic periods;</li> <li>• Place clear signs at construction sites in view of the public, warning people of potential dangers such as moving vehicles, excavations etc. and raising awareness on safety issues.</li> </ul>	Contractors implement  PIU and CSC monitor implementation	Included in the Contractors budget

Impact	Mitigation measure	Responsibility	Cost
	<ul style="list-style-type: none"> <li>• Provide properly lightened and fenced all construction sites, tranches and ditches will be;</li> <li>• Develop Site Specific Plans for campsites;</li> <li>• After completion works rehabilitate all used roads at least up to condition of pre-construction stage;</li> <li>• Carry out regular awareness campaigns among work staff, including specific hazards associated with the spread of HIV/AIDS.</li> </ul>		
	<p>Occupational Health and Safety</p> <ul style="list-style-type: none"> <li>• Contractors have to develop Occupational Safety and Health Plan (OSHP) based on IFC General EHS Guideline (2007), IFC EHS Guideline Electric Power Transmission and Distribution (2007) program;</li> <li>• Contractors have to conduct training for workers on EHS and SSEMP implementation;</li> <li>• Contractor have to ensure proper implementation of OSHP and SSEMP by all workers.</li> </ul>	<p>Contractors implement</p> <p>PIU and CSC monitor implementation</p>	<p>Included in the Contractors budget</p>
<p>Archeological heritages: Chance of finding heritage</p>	<p>For Khakkulabad traction substation:</p> <ul style="list-style-type: none"> <li>• Forbid No earth works could be conducted at the area closer than 200 meters to hill,</li> <li>• Labor camp (in case its location at construction camp) should not be located from Kultepa hill side</li> <li>• Contractor has to ensure no-impact of construction works at the hill</li> </ul> <p>For the rest of the project area:</p> <ul style="list-style-type: none"> <li>• Excavation and other works need to be suspended immediately;</li> <li>• Area with possible heritage shall be fenced with fencing tape;</li> </ul>	<p>Contractors implement</p> <p>PIU and CSC monitor implementation</p> <p>Representative from Khokimiyat assist in assessment and undertake necessary actions</p>	<p>Included in the Contractors budget</p>



Impact	Mitigation measure	Responsibility	Cost
	<ul style="list-style-type: none"> <li>A designated focal point from a local administration (khokimiyat) needs to be informed and invited for assessment of potential heritage and undertaken necessary actions;</li> <li>Civil works at the finding place could be recommenced after obtaining permission from the focal point (deputy governor of relative district).</li> </ul>		
Construction sites and areas used for construction camps without proper cleaning and reinstatement works	<ul style="list-style-type: none"> <li>Provide full reinstatement of the construction and camp sites by bringing them to its primary condition after completion of the main construction;</li> <li>Remove all rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; and</li> <li>Restore all disrupted utilities, rehabilitate/compensate all affected structures;</li> <li>Check the area that previously housed the construction camp for spills of substances such as oil, paint, etc. and cleaned up as requested;</li> <li>Conduct post-construction audit during defect liability period to make sure that construction sites and camps are properly cleaned and restored to pre-project conditions before acceptance of works before hand-over to Kokand Railway Department</li> </ul>	<p>Contractors implement</p> <p>PIU and CSC monitor implementation</p> <p>CSC will conduct post-construction audit</p> <p>State Nature Committee accept works</p>	Included in the Contractors budget
<b>Operation phase</b>			
Noise and vibration	<ul style="list-style-type: none"> <li>Keep the following limits for operation this part of railway: (i) train movement is allowed only between 6 am and 12 am (ii) number of trains will not increase 10 trains per day, and (iii) trains speed will not exceed 60 km/h.</li> <li>Install 552 meters of acoustic barriers/walls for houses located within 5 meters ROW.</li> <li>If limits are exceeded/extended replace all windows in 23</li> </ul>	NOKS manages updating of expecting noise level	<p>Included in UTY and KRD/ARD budget</p> <p>For construction acoustic barrier/ wall - USD 38640</p>

Impact	Mitigation measure	Responsibility	Cost
	<p>structures located within 5 meters ROW. Ensure compliance with following standards: for day time noise level has not exceed 3 dB comparing with existing situation (83-85 dB) and for night time noise level standards is 45 dB.</p> <ul style="list-style-type: none"> <li>• Conduct regular monitoring of noise level by measuring <math>L_{Amax}</math> in the settlements adjust to railway. In case of exceeding standards, develop and apply additional mitigation measures.</li> <li>• Provide regular maintenance of vehicles/wagons and railway condition to minimize noise generated from them.</li> </ul>		<p>For replacement of windows - USD 10350</p> <p>Included in UTY and KRD/ARD budget</p> <p>Included in UTY and KRD/ARD budget</p>
Impact on water resources	<ul style="list-style-type: none"> <li>• Conclude agreement with local Vodokanal on collection and disposal domestic waste water from stations and monitor its timely proper implementation;</li> <li>• UTY as maintenance company has to ensure that waste water is not discharged into water bodies without treatment;</li> <li>• Washing equipment will be prohibited on the territory of the traction substations;</li> <li>• Rail car maintenance will be allowed only in specially equipped depots.</li> </ul>	Kokand Railway Department (KRD)	Included in KRD budget
Waste management	<p><i>Non-hazardous</i></p> <ul style="list-style-type: none"> <li>• Implement integrated vegetation management (IVM). From the edge of the track area to the boundary of the right-of-way, vegetation should be structured with smaller plants near the line and larger trees further away from the line to provide habitats for a wide variety of plants and animals;</li> <li>• Native species should be planted and invasive plant species</li> </ul>	Kokand Railway Department (KRD)	Included in KRD budget

Impact	Mitigation measure	Responsibility	Cost
	<p>removed;</p> <ul style="list-style-type: none"> <li>Maintenance clearing in riparian areas should be avoided or minimized</li> </ul>		
	<p><i>Hazardous</i></p> <ul style="list-style-type: none"> <li>To avoid soil pollution all works on oil replacement have to be conducted in full compliance with JSC “Uzbekenergo”’s instruction “RH 34-301-941: 2007 Individual consumption rates of transformer oil for the repair and maintenance needs for equipment of power facilities”;</li> <li>Spare oil has to be storage in properly organized place with concreted floor and cover</li> </ul>	Kokand Railway Department (KRD)	Included in KRD budget
Soil pollution	<ul style="list-style-type: none"> <li>To avoid soil pollution, conduct all works on oil replacement in full compliance with Uzbekenergo’s instruction “RH 34-301-941: 2007 Individual consumption rates of transformer oil for the repair and maintenance needs for equipment of power facilities”;</li> <li>Spare oil has to be storage in properly organized place with concreted floor and cover.</li> </ul>	Kokand Railway Department (KRD)	Included in KRD budget
Health safety	<p><i>Occupational Health and Safety</i></p> <ul style="list-style-type: none"> <li>UTY should ensure compliance with all safety requirements indicated in all relevant documents indicated in previous paras</li> </ul> <p><i>Community Health and Safety</i></p> <ul style="list-style-type: none"> <li>Conduct awareness program on regular base, which will include among others such topics as: impact of electromagnetic fields, electrocution, risk related to fast moving trains;</li> <li>Conduct regular inspection and maintenance of the rail lines and facilities to ensure track stability and integrity in</li> </ul>	UTY, KRD and media agencies	Partly included in CSC contract

Impact	Mitigation measure	Responsibility	Cost
	<p>accordance with national<sup>38</sup> and international (IFC) track safety standards Develop and disseminate</p> <ul style="list-style-type: none"> <li>• Minimize transportation of hazardous goods through PNA direction;</li> <li>• Develop and implement spill prevention and control, and emergency preparedness and response plans, based on an analysis of hazards, including the nature, consequence, and probability of accidents;</li> <li>• Fulfill occupational and community health and safety requirements as indicated in national and international standards document;</li> <li>• install automatic gates at all level crossings, and regular inspection/maintenance to ensure proper operation;</li> <li>• Organize accidents recording system. In case of accidents happening analyze reasons and revise developed safety program.</li> </ul>		

### 9.1.2. EMP for construction HV line

400. JSC “Uzbekenergo” will be contracted by UTY for construction 110 kV and 220 kV HV line, connection them to traction substations. Uzbekenergo will responsible for implementation of below EMP.

**Table 31\_2: ENVIRONMENTAL MANAGEMENT PLAN FOR HV LINE**

Impact	Mitigation measure	Responsibility	Cost
<b>Pre-construction stage</b>			

<sup>38</sup> Decree # 65 dated from 2002 “On approval of rules of technical operation of industrial railway transport Republic of Uzbekistan”, State inspection of RUz on safety supervision of rail transportation” “Uzgosjelnadzor”

<b>Impact</b>	<b>Mitigation measure</b>	<b>Responsibility</b>	<b>Cost</b>
Generation of different potential environmental impacts due to changes in design, layout	<ul style="list-style-type: none"> <li>Update or new IEE to be prepared with full compliance of ADB SPS (2009);</li> <li>Update LARP for 110kV and 220 kV as per detail design. All activities related to land acquisition and compensation payment need be completed prior commencement of construction works.</li> </ul>	<ul style="list-style-type: none"> <li>PIU's safeguards specialist assisted by CSC</li> </ul>	Included in CSC and PIU budgets
Cutting trees without permission	<ul style="list-style-type: none"> <li>Upon completion of Project Detail conduct survey of route of construction of 110 kV and 220 kV HV lines for identification type and number of trees for cutting;</li> <li>Obtain official permission for cutting trees from the NPC and conduct payment of defined compensation</li> </ul>	Contractor <sup>39</sup> together with representatives of NPC	Survey expenses are included in PIU and Contractor budgets
Using of unauthorized borrow pits	<ul style="list-style-type: none"> <li>Identify location of closest borrow pits and conclude agreements on inert material supply with relevant agencies.</li> </ul>	Contractors	Included in Contractor budget
Non-compliance of goods procurement procedure with ADB SPS (2009)	<ul style="list-style-type: none"> <li>Ensure that goods procured for project implementation will be done in compliance with ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009).</li> </ul>	CSC, PIU	Included in CSC and PIU budgets
<b>Construction stage</b>			
Air pollution	<ul style="list-style-type: none"> <li>Ensure compliance of used techniques and heavy equipment with national standards on gases emissions ("O'z DSt 1057:2004 Vehicles. Safety requirements for technical conditions" and "O'z DSt 1058:2004 Vehicles. Technical inspection. Method of control"</li> <li>Prohibit open burning of solid wastes generated particularly from labor camps and during construction activities.</li> </ul>	Contractors implement  PIU and CSC monitor implementation	Included in the Contractors budget
Noise and vibration	<ul style="list-style-type: none"> <li>Operation of heavy equipment shall be conducted between 7 am and 7 pm only and be undertaken intermittently not continuously when in</li> </ul>	Contractors implement	Included in the Contractors

<sup>39</sup> Contractor for this works will be from Uzbekenergo, and will be hired within separate procurement package. Therefore, a separate EMP for external power supply was developed

Impact	Mitigation measure	Responsibility	Cost
	<p>proximity to residential etc.;</p> <ul style="list-style-type: none"> <li>• In case of receiving any complaints from population, additional noise measurements need to be conducted and in case of exceeding established standards<sup>40</sup>, additional mitigation actions for decreasing noise level need to be undertaken (establishing temporary sound absorbing barriers and others);</li> <li>• Schedule construction so as to minimize the multiple use of the noisier equipment near sensitive receivers;</li> <li>• Use of Personal Protective Equipment (PPE) by workers involving in construction works in conditions of increased acceptable noise level (for situation when equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110dB(A), workers should use hearing protection equipment) is mandatory</li> </ul>	<p>PIU and CSC monitor implementation</p>	<p>budget</p>
<p>Pollution of surface and ground water</p>	<ul style="list-style-type: none"> <li>• Construction and labor camps, including storage places for lubricant, fuel and other oils will be located 100 m away from water bodies;</li> <li>• If washing equipment and vehicle is planning to be conducted at the labor/construction camp's site, appropriate wastewater treatment facilities have to be organized on the camp in specially designated area. The maintenance area should be provided with oil and grease traps to prevent oil from being washed into the offsite drainage canals.</li> <li>• Conduction of refueling, oil replacement or repairing works will be banded at the area within 50 m from water streams;</li> <li>• Sanitary water and solid wastes will not be released directly into water streams. Adequate on-site sanitation facilities with septic tanks to prevent untreated sewage from being channeled into the drainage</li> </ul>	<p>Contractors implement</p> <p>PIU and CSC monitor implementation</p>	<p>Included in the Contractors budget</p>

<sup>40</sup> Admissible noise level into the living area, both inside and outside the buildings (SanR&N No.0267-09)

Impact	Mitigation measure	Responsibility	Cost
	<p>canals, irrigation canals, and river have to be provided</p> <ul style="list-style-type: none"> <li>• Topsoil stripped material shall not be stored where natural drainage or within 100m of water bodies will be disrupted</li> </ul>		
Losses of topsoil and soil contamination	<ul style="list-style-type: none"> <li>• Remove the top soil (about 30 cm depth) and store separately during excavation work, and after use for filling tower ditches;</li> <li>• Use only authorized carriers with getting all necessary permissions per respective national legislation;</li> <li>• In case of necessity to open new carrier for construction materials, obtain all necessary permissions and and certificates on proper closing after completion project works.</li> </ul>	<p>Contractors implement</p> <p>PIU and CSC monitor implementation</p>	Included in the Contractors budget
Waste management	<ul style="list-style-type: none"> <li>• Segregate wastes on recyclable and non-recyclable;</li> <li>• Conclude agreement with relevant agencies (Khokimiyat, Vodokanal and etc.) on solid and liquid wastes disposal;</li> <li>• Provide hydro isolated septic tank for collecting waste waters at the camp sites and bio toilets for workers at the construction sites and timely disposal of waste waters to the local waste water treatment plants.</li> <li>• Sell recyclable wastes to relevant organizations and ensure timely disposal of non-recyclable wastes;</li> <li>• Conduct refueling vehicles and replacement oils in special designated and properly equipped places. Emergency facilities have to be at the place for elimination of accident of oil spills.</li> </ul>	<p>Contractors implement</p> <p>PIU and CSC monitor implementation</p>	Included in the Contractors budget
Losses of trees and crops	<ul style="list-style-type: none"> <li>• Plan construction activities during agricultural off- season in order to minimize the impact (loss of agricultural income);</li> <li>• If cutting trees is unavoidable, compensate losses as indicated in the LARP for this project;</li> </ul>	<p>Contractors implement</p> <p>PIU and CSC monitor</p>	Included in the Contractors budget

Impact	Mitigation measure	Responsibility	Cost
	<ul style="list-style-type: none"> <li>• Inform community in advance about planning works</li> </ul>	implementation	
Health and safety issues	<ul style="list-style-type: none"> <li>• Place clear signs at construction sites in view of the public, warning people of potential dangers such as moving vehicles, excavations etc. and raising awareness on safety issues.</li> <li>• Provide properly lightened and fenced all construction sites, tranches and ditches will be;</li> <li>• Develop Site Specific Plans for campsites;</li> <li>• After completion works rehabilitate all used roads at least up to condition of pre-construction stage;</li> <li>• Carry out regular awareness campaigns among work staff, including specific hazards associated with the spread of HIV/AIDS.</li> </ul>	<p>Contractors implement</p> <p>PIU and CSC monitor implementation</p>	Included in the Contractors budget
Construction camps	<ul style="list-style-type: none"> <li>• Develop of Separate Site Specific EMP for labor/construction camps (or part of general SEMP) with description of waste collection and disposal procedure, set up of camp facilities (such as a storage place for construction materials and techniques if any, laundry and toilets, access roads).</li> <li>• If washing equipment and vehicle is planning to be conducted at the labor/construction camp's site, appropriate wastewater treatment facilities have to be organized on the camp and respective permissions on water intake and waste water disposal need to be received by Contractor from Nature Protection Committee</li> <li>• Provide safe and adequate living conditions for workers, such as dining rooms, toilets, shower rooms etc.</li> </ul>	<p>Contractors implement</p> <p>PIU and CSC monitor implementation</p>	Included in the Contractors budget
Archeological heritages: Chance of finding heritage	<ul style="list-style-type: none"> <li>• Excavation and other works need to be suspended immediately;</li> <li>• Area with possible heritage shall be fenced with fencing tape;</li> <li>• A designated focal point from a local administration (khokimiyat) needs to be informed and invited for assessment of potential heritage and undertaken necessary actions;</li> <li>• Civil works at the finding place could be recommenced after obtaining permission from the focal point.</li> </ul>	<p>Contractors implement</p> <p>PIU and CSC monitor implementation</p> <p>Representative from Khokimiyat assist in</p>	Included in the Contractors budget



Impact	Mitigation measure	Responsibility	Cost
		assessment and undertake necessary actions	
Construction sites and areas used for construction camps without proper cleaning and reinstatement works	<ul style="list-style-type: none"> <li>• Provide full reinstatement of the construction and camp sites by bringing them to its primary condition after completion of the main construction;</li> <li>• Remove all rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; and</li> <li>• Restore all disrupted utilities, rehabilitate/compensate all affected structures;</li> <li>• Check the area that previously housed the construction camp for spills of substances such as oil, paint, etc. and cleaned up as requested;</li> <li>• Conduct post-construction audit during defect liability period to make sure that construction sites and camps are properly cleaned and restored to pre-project conditions before acceptance of works before hand-over to Kokand Railway Department</li> </ul>	<p>Contractors implement</p> <p>PIU and CSC monitor implementation</p> <p>CSC will conduct post-construction audit</p> <p>State Nature Committee accept works</p>	Included in the Contractors budget
<b>Operation phase</b>			
Health safety	<p><i>Occupational Health and Safety</i></p> <ul style="list-style-type: none"> <li>• Ensure compliance with all safety requirements indicated in relevant document (Rules of maintenance of electrical devices”, 2007, Rules of work with personnel at energy production enterprises. (Uzenergonadzor)(under UE), 2002 Rules of safety regulations for maintenance electrical (Uzenergonadzor), 2004 Standardized provision on organizing of labor safety works Labor Ministry and Professional Unions Federation of RUz and IFC EHS General Guideline (2007) and IFC EHS Electric Power Transmission and Generation (2007).</li> </ul> <p><i>Community Health and Safety</i></p>	JSC “Uzbekenergo”	Included in Uzbekenergo budget

Impact	Mitigation measure	Responsibility	Cost
	<ul style="list-style-type: none"> <li>• Provision of signs, barriers and gates/posts surrounding transmission towers particularly in built-up areas</li> <li>• Grounding of conducting objects such as fences or other metallic structures near power lines.</li> <li>• Fulfill requirements for RoW and allowed activities indicated in SanR&amp;N 0236-2007 “Sanitary norms and rules (SNR) on the effects of the electric field generated by overhead transmission lines of alternating currents of industrial frequency”</li> </ul>		

## 9.2. Environmental Monitoring

401. EMP will form part of the bidding documents. To ensure that mitigation actions are implemented in accordance with the requirements of the EMP, monitoring shall be undertaken as follows:

- Instrumental Monitoring for environmental quality such as air, noise, vibration – this shall be performed monthly by a certified laboratory of Sanitarian Epidemiological Station which is affiliated entities of UTY. Schedules, parameters, locations are indicated by the Project EMP and shall be endorsed by the CSC.
- Observational Monitoring – Throughout the construction phase, the CSC shall continually monitor the Contractors actions. This will be achieved through weekly inspections of the Contractors environmental performance by CSC's national environmental specialist throughout the construction period. CSC shall have the right to suspend works or payments if the Contractor is in violation of any of his obligations under the EMP and SSEMPs.

402. Developed within current IEE an Environmental Monitoring Plan provides details on required measurements, the locations of measurements points, frequency and responsibilities associated with each monitoring task (Table 31).

403. Besides instrumental environmental monitoring indicated into the Table 30, monitoring of EMP's implementation will be carried out. For efficient implementation of this activity, it is proposed that several levels of supervision activities need to be undertaken: (i) daily inspection by Contractor's Environmental Specialist, (ii) monthly inspection by CSC's national environmental specialist, and (iii) periodic audit (quarterly) by PIU's ESS.

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

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

**Table 32\_1: INSTRUMENTAL ENVIRONMENTAL MONITORING PLAN FOR CATENARY AND SUBSTATION**

Parameter to be monitored	Location	Frequency	Responsibility	Standards	Cost
<b>Construction Stage</b>					
Dust level	Living houses located next to construction sites: <ul style="list-style-type: none"> <li>• Along construction 27.5 kV catenary</li> <li>• Traction substation area</li> </ul>	Weekly	Contractor conducts monitoring	Hygienic norms. List of Maximum Allowable Concentrations (MACs) of pollutants in ambient air of communities in the Republic of Uzbekistan including Annex 1. SanR&N RUz No.0179-04 (norms – 0.5 mg/m <sup>3</sup> )	2 devises for two contractors 2500 USD per Unit, Total 5000 USD
Noise level	Living houses located next to construction sites: <ul style="list-style-type: none"> <li>• Along construction 27.5 kV catenary</li> <li>• Traction substation area</li> </ul>	Weekly and addition per complaints received from population during construction works	Contractor conducts monitoring	1. "Sanitarian Norms of allowed level of noise at the construction sites" SanR&N №0120-01  2. SanR&N No.026709 Sanitarian Rules and Norms on providing allowed noise level into the living building, public building and territory of living areas <sup>15</sup>	Included in Contractor budget.  2 devises for two contractors 200 USD per Unit, Total 800 USD
Number of accidents to during construction works	All construction sites	weekly	Contractor, PIU	The target is zero. In case of any accident – revise Contractors' Occupational Safety and Health Plans	Included in PIU and Contractor budget.
<b>Operation Stage</b>					
Noise and vibration level	Settlements	1. First	Kokand/Andijan	1. "Sanitarian	Cost will be included

Parameter to be monitored	Location	Frequency	Responsibility	Standards	Cost
	along railway track	measurement – after commencement  2. Regularly on bi-annual base  3. Additional measurements will be conducted per complaints received from people on noise disturbance due electrified trains movement	Regional Department of Railway	Norms of allowed level of noise at the construction sites” SanR&N №0120-01  2. SanR&N No.026709 Sanitarian Rules and Norms on providing allowed noise level into the living building, public building and territory of living areas	in Kokand Regional Department of Railway
Records about accidents related to operation of electrified railway	Whole railway	Monthly	Kokand/Andijan Regional Department of Railway	The target is zero	Included in Kokand/Andijan Regional Department of Railway budget

**Table 32\_2: ENVIRONMENTAL MONITORING PLAN FOR HV LINE**

Parameter to be monitored	Location	Frequency	Responsibility	Standards	Cost
<b>Construction Stage</b>					
Noise level	Living houses located next to construction sites	Weekly and addition per complaints received from	Contractor	1. "Sanitarian Norms of allowed level of noise at the construction sites” SanR&N №0120-01	Included in PIU’s budget.

Parameter to be monitored	Location	Frequency	Responsibility	Standards	Cost
		population during construction works		2. SanR&N No.026709 Sanitarian Rules and Norms on providing allowed noise level into the living building, public building and territory of living areas <sup>15</sup>	2 devises for two contractors 200 USD per Unit, Total 800 USD
Number of accidents to during construction works	All construction sites	weekly	Contractor, PIU	The target is zero. In case of any accident – revise Contractors’ Occupational Safety and Health Plans	Included in PIU and Contractor budget.
Water quality: Suspended matters, oil residuals	Two points: 50 meters above construction sites and 500 meters after	Weekly during conduction works construction works close to water bodies less than 50 meters	Contractor	RH 84.3.6:2004. “Regulation Document on Regulations on rationing discharges of pollutants into water bodies and on the terrain, taking into account technically achievable performance of wastewater treatment “	Samples from 2 point in 2 water bodies during 6 months of construction on weekly base – total 96 samples. Price per unit – 20 USD. Total price is 1920 USD
<b>Operation Stage</b>					
Information about number of birds died due to collapsing with HV lines or from electrical shot circuit	Along HV alignment	Annually	State Nature protection Committee		Included in State Nature Protection Committee budget
Records about accidents related to operation of HV line	Whole alignment	Monthly	Kokand/Andijan Regional Department of Railway	The target is zero	Included in Kokand/Andijan Regional Department of Railway budget

### **9.3. Reporting**

406. Monthly Contractor's environmental reports shall consist of: filled formats from each construction site, brief information on conducted training, received complaints and their resolving, accidents during the civil works if any. Contractors will submit their report to CSC for endorsement before submission to PIU.

407. The CSC's monthly and quarterly project progress reports will include a section on Environment, Health and Safety (EHS). The reports will contain information about results of own inspections of EMP implementation. The reports also have to include information on undertaking on-the job and planned training, capacity building activities, proposed actions on improvement of EMP implementation by Contractors. The report will be submitted to PIU.

408. The PIU's Safeguards Specialist (SS), assisted by CSC's National Environmental Specialist (ES) will develop semi-annual Environmental Monitoring Reports based on information reviewed within CSC's monthly and quarterly reports and own observation from site visits. The recommended format of EMR is presented in ADB SPS (2009) Toolkits distributed during the two sets of Environmental Training (2013 and 2016) where SS of existing PIU participated.

409. CSC will conduct post-construction audit during the liability period to check compliance with EMP requirements completed construction and camp sites. The audit has to be conducted before hand-over project's objects to Kokand Regional Railway Authority. Based on post-construction audits results, PIU's SS with CSC assistance will prepare final Environmental Monitoring Report to demonstrate that the project was properly completed.

### **9.4. Implementation arrangements**

#### **9.4.1. Institutional arrangements EMP implementation**

410. The PIU at UTY will be responsible for implementation of EMP to comply with ADB's safeguards requirements and environmental national regulations. For this, PIU has hired a qualified full-time safeguard staff who will be assisted by the national Environmental Specialist (ES) of the Construction Supervision Consultant (CSC) in overseeing the implementation of EMP. The cost for implementing EMP will be included in the construction contracts, and the cost for environmental supervision will be included in the consulting service of the CSC, the cost for environmental instrumental monitoring will be included in Contractors budget. PIU is responsible for overall environmental compliance with SPS 2009 for both ADB and UTY funded activities. A grievance redress mechanism to handle both environmental and social safeguard issues was discussed with PIU, presented during Public Consultation and will be established after the project effectivity.

411. EMP will form part of the bidding documents. To ensure that mitigation actions are implemented in accordance with the requirements of the EMP, monitoring shall be undertaken as described in Chapter 8.2.

412. Two separate Contractors will be hired for this project – one is from UTY side and second one from Uzbekenergo side. However, construction supervision will be implemented by one consultant.

413. Contractors will be responsible for implementing mitigation measures. Within 30 days after contract award and prior to commencing any physical works, Site-specific Environmental Management plans (SSEMPs) will be developed by the Contractors under the guidance of the CSC, and be endorsed by CSC before submission to PIU for approval. SSEMP is the document that the Contractors shall prepare outlining how he intends to

implement the EMP at a specific site or for a specific issue to ensure that all mitigations are implemented as specified in the EMP. SSEMPs will be needed for major environmental issues and most critical sites relating to sensitive receptors. During construction, the Contractors must retain the expertise of Environmental Officer (EO) to implement and continually update the SSEMPs, and to report on the implementation of mitigation measures throughout the contract period.

414. The CSC is tasked with specific responsibility to assist PIU in ensuring safeguard compliance of civil works – with particular emphasis on the monitoring of implementation of EMP through the SSEMPs and related aspects of the project. CSC shall mobilize a national environmental specialist (NES) to ensure that the Contractor is compliant with his environmental obligations. It is required that the NES provides a short training program to the PIU safeguard person and Contractors EO prior to the start of construction to develop their knowledge and understanding of the environmental, social, health and safety aspects of the Project. NES shall:

- continually monitor the Contractors' mitigation measures in accordance with the EMP through weekly site inspections of the Contractors for both ADB- and UTY-funded activities;
- advise and endorse Contractors' site-specific EMPs (SEMPs) before submission to PIU for approval prior to commencement of physical works;
- preparing a section on Environment, Health and Safety (EHS) in the monthly and quarterly project progress reports;
- assist PIU in updating IEE/EMP as necessary;
- assist PIU in preparing semi-annual environmental monitoring reports; and
- provides a short training program on EHS to the PIU safeguard staff and Contractors' Environment officers.

415. The national ES will also assist UTY in supervising the implementation of the CAPs, including a post-construction environmental audit, as applicable to the associated/existing facilities which are funded by UTY and not included in the project scope. Based on his/her experience with local conditions the national expert will give appropriate advice to the team leader and/or international specialists/ experts for ensuring sustainability of the designs and new technologies used for the project. The national expert will assist the PIU and contractors in liaising with local and national authorities for obtaining necessary environmental permits.

416. PIU is responsible for overall EMP implementation and will be assisted by the CSC. The PIU's responsibilities include the following, but not limited to:

- Implement the EMP developed within the IEE, follow up with UTY on CAPs for associated and existing facilities;
- Ensure the bidding documents of CSC and Contractors include all tasks as described in the approved EMP;
- Supervise the CSC and Contractors in EMP implementation for overall compliance with SPS 2009 requirements and project environment-related legal covenants;
- Ensure all necessary government permits and license, including ecological expertise opinion, for all civil works will be obtained;
- Approve SSEMPs which will be prepared by the Contractors and endorsed by the CSC;
- With assistance of the CSC, prepare, submit to the EA and ADB, and disclose semi-annual environmental monitoring reports on ADB website and in UZB;
- Report in a timely manner to ADB of any non-compliance or breaches with ADB safeguard requirements and take corrective actions promptly;
- Update the IEE in case of technical design changes or unanticipated impacts;



- Establish a Grievance Redress Mechanism (GRM) after the project effectivity and act as the GRM secretary to make sure that the GRM is operational to effectively handle environmental and social concerns of project affected persons;
- Build up and sustain institutional capacity in environmental management and railway safety, including conducting public awareness programs

417. State Nature Protection Committee through its branches in Namangan and Andijan provinces are also involved in the process of project implementation and the railway operation. As per conclusion of State Environmental Expertise # 18/1827 dated from 4 October 2016, separate Statement on Environmental Consequences for each stations need to be prepared. Moreover, requirements indicated in Environmental Appraisal will be mandatory for implementation and it will be monitored by inspectors from district branches of Nature Protection Committee. Representatives of the Committee will also participate into the hand-over process as member of State Acceptance Commission. The Provincial Nature Protection Committee will receive the project's semi-annual environmental monitoring reports from the PIU.

#### 9.4.2. Capacity building activity

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

- PIU's capacity** on EMP implementation during construction stage - to enhance PIU's capacity on the EMP implementation CSC national ES Specialist will provide short training for PIU's Safeguards Specialist and further assistance in monitoring SEMP implementation and guidelines for Contractor's Environmental Specialists as required.
- Awareness program for population** in the project area – as it was highlighted earlier, development and implementation safety awareness program is important for the project sustainability. It is important along with physical interventions, institutional improvements and financial enhancing, to increase people awareness about safety issues. The program should be targeted on two groups of people – (i) adults and (ii) young generation (pupils, colleges' students). The program should be developed by CSC's safety specialist and implemented along with the project construction activities.

419. The tentative plan of required training is presented in Table 33.

**Table 33:** Tentative program of training for PIU and Contractors staff

	<b>Name of training</b>	<b>Time</b>	<b>Recipients</b>	<b>Organizer</b>
1	Overall EMP implementation, Environmental Monitoring Reports preparation	Prior commencement of the civil works	PIU Safeguards Specialist	CSC
2	SEMP implementation	Prior commencement of the civil works	Contractors workers	Contractor's Environmental Specialist with support of CSC
4	On occupational health and safety and environmental management	Regularly during construction and operation period	Contractors workers	Contractor's Environmental Specialist with support of CSC's national SE specialist

### 9.4.3. Cost estimation for EMP implementation

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

- (i) Conduction instrumental environmental monitoring of noise, vibration level and air quality by Contractors;
- (ii) Conduction environmental monitoring measures and getting necessary permissions; and
- (iii) Awareness program.

421. Although some of the measures included in EMP are an integral part of the civil works (watering, storage of top soil and etc.), some measures (establishing sound-absorbing panels, temporary bridges, handling and disposal of hazardous materials) are required additional funds. Cost estimation for EMP by the main items are presented in Table 34:

**Table 34\_1:** Cost estimates for EMP implementation (for catenary and traction substation)

Item	Quantity	Unit cost, USD	Total Cost, USD	Remarks
<b>Instrumental Monitoring</b>				
Dust measurement devices	2	2500	5000	Cost will be included in Contractor budget
Noise measurement devices	2 <sup>41</sup>	200	400	Cost will be included in Contractor budget
<b>Environmental Mitigation Measures/Permissions</b>				
Installation of 552 m of acoustic barrier	1 m	70	38640	To be installed by UTY along track
Replacement of 110 m <sup>2</sup> of windows (2.25 m <sup>2</sup> for each house)	1 m <sup>2</sup>	100	10350	To be installed by UTY along track
<b>Environmental awareness program</b>				
Training	3	3000	63390	As indicated in table 20. Budget is included in CSC contracts
<b>Subtotal</b>			<b>117780</b>	
Contingency			11778	10 % of subtotal
<b>TOTAL</b>			<b>129558</b>	
<b>Staffing</b>				
<b>Development of awareness program by CSC Safety Specialist</b>	2 per/months	25000	50000	Cost is included in CSC budget
<b>Environmental Specialist</b>				
National	21	1200	25200	Cost is included in CSC budget
<b>PIU National Safeguards Specialist,</b>	36	1200	43200	Cost is included in PIU budget
<b>Total for staffing</b>			<b>247958</b>	

<sup>41</sup> 2 devices for Contractors in both provinces

**Table 34\_2:** Cost estimates for EMP implementation (HV line)

Item	Quantity	Unit cost, USD	Total Cost, USD	Remarks
<b>Instrumental Monitoring</b>				
Water quality	96	20	1920	UTY will hire certified laboratory (Uzhydromet, Gokompriroda) to conduct analysis
Noise measurement devices	2 <sup>42</sup>	200	400	Cost will be included in Contractor budget
<b>Environmental permissions</b>				
Cutting trees	40 <sup>43</sup>	230	9200	Cost will be included into the Contractors budget
<b>Environmental awareness program</b>				
Training	1	3000	9000	As indicated in table 20. Budget is included in CSC contracts
<b>Subtotal</b>			<b>20520</b>	
Miscellaneous			2052	10% of subtotal
<b>TOTAL</b>			<b>22572</b>	

422. Expenses related to staffing of PIU, CSC and Contractors with Environmental Specialists are included into their budget; therefore, they are excluded from total budget for EMP.

## 10. CONCLUSIONS AND RECOMMENDATIONS

423. Conducted Initial Environmental Examination of proposing project “Electrification CAREC Corridor 2 (Pap-Namangan-Andijan) Railway Electrification Project” showed that the Project will play important role in stimulating economic growth in the Fergana Valley, and increasing regional trade along CAREC Corridor 2.

424. Along with this benefits, several aspects need to be considered during project preparation, implementation and operation phases in order to mitigate adverse impacts identified during examination.

425. For construction works implemented as within associated facilities a Corrective Actions were developed within Due Diligence process and were included in this IEE. The developed Corrective Actions needs to be implemented by UTY in order to comply with ADB SPS (2009) requirements.

426. Regarding the project main components, all necessary permissions needs to be received and requirements on environmental compliance, EMPs need to be included in the bidding documents at the project preparation stage (pre-construction stage). Bids on procurements of goods have to include environmental specification as indicated in EMP.

427. During the project implementation stage the main impacts from construction 27,5 kV catenary, installation signaling and SCADA system will be related to waste generation and work safety issues. In this regards all Contractors has to develop Occupational Safety and Health Plan EHS. Noise level and emissions will be within the national and international

<sup>42</sup> 2 devices for Contractors in both provinces

<sup>43</sup> Cost for trees was accepted as average with diameter 16-20 cm, per RCM of RUZ#290 dated 20 October 2014 and converted into the USD based on rate of Central Bank of Uzbekistan

norms since most of the works generating these impact will be conducted manually inside settlements.

428. Impact on water resources will be limited by activities related to installation catenary at the bridges crossing rivers, risk of discharge untreated waste water into the water bodies.

429. Impact on social-economical conditions will have both type – positive and adverse. Some benefits during construction phase will come through hiring local population for certain type of works and providing services for workers.

430. In case of conduction demolishing of building for installation SCADA system, assessment of asbestos materials presence has to be conducted and appropriate measures are undertaken.

431. Project impact on exceeding of noise level will be mitigated by installing acoustic barrier/walls for houses located within 5 meters ROW. This measure will be efficient for several conditions, such speed limitation, number of trains per day and movement of trains only during the day time.

432. If above conditions have to be changed, UTY has to apply additional mitigation measures such as installation of double glazed windows.

433. The project will positively impact on air quality in the project area on the regional and local levels. Due to replacement of diesel locomotive with electric, emissions of pollutant will significantly decrease, including CO<sub>2</sub>.

434. Special attention needs to be paid to safety issues during operation of railway. A special program for UTY consideration will be developed within the Project during implementation phase.

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

436. During whole process of the project implementation and further operation, it is important to be in touch with local communities, comply with all national environmental and EMP requirements, and conduct awareness program among population, which ensure sustainable and safe operation of the electrified railway.

## 11. ATTACHMENTS

### ATTACHMENT 1. The Environmental Appraisal of State Environmental Expertise (Short version of original document and full-translated document into English)



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№ 18/18273

## ЗАКЛЮЧЕНИЕ

### Государственной экологической экспертизы

По объекту: ОВОС «электрификации железнодорожного участка Пан-Наманган-Андижан (проект ЗВОС)

заказчик: ДКС АО «Узбекистон темир йуллари»

Разработчик: АО «Бонгтривелойиха»

Начальнику ДКС  
АО «Узбекистон темир йуллари»  
УММАТОВУ Э.Р.  
в/име: Председателю Андижаноблкомприроды  
МАМАТОВУ М.Н.  
Председателю Наманганоблкомприроды  
САЪДУЛЛАЕВУ А.К.

На государственную экологическую экспертизу представлены материалы первого этапа оценки воздействия на окружающую среду электрификации железнодорожного участка Пан-Наманган-Андижан, разработанные для ДКС АО «Узбекистон темир йуллари».

Технико-экономическое обоснование (ТЭО) «Электрификация участка железнодорожной линии Пан-Наманган-Андижан» разработан на основании Распоряжения Президента Республики Узбекистан от 14.04.2016г. № Р-4636 «О мерах по реализации в 2016 году инвестиционных проектов с участием средств международных финансовых институтов и иностранных правительственных финансовых организаций», генеральной программой электрификации железных дорог Узбекистана. Электрификация проводится с целью создания единого электрифицированного железнодорожного маршрута по территории Узбекистана, повышения эффективности и устойчивости работы железнодорожного транспорта Республики, снижения затрат на перевозки, сокращения расхода дефицитного дизельного топлива.

Настоящий проект ЗВОС разработан с целью оценки воздействия на окружающую среду электрификации железнодорожного участка Пан-Наманган-Андижан. Воздействие на окружающую среду будет оказываться при эксплуатации электрифицируемой железной дороги.

Проектируемый объект расположен на железнодорожной линии Пан-Наманган-Андижан, в пределах Наманганской и Андижанской области, в правобережье реки Сырдарья. Растительный покров в основном представлен

содержания отчета. В этой связи, следующий этап проектирования – **Заявление об экологических последствиях (ЗЭП)** для всех существующих и проектируемых станций следует разработать, отдельно и представить на государственную экологическую экспертизу до ввода объекта в эксплуатацию.

**При составлении ЗЭП обратить особое внимание:**

– на разработку нормативов для всех видов воздействия на окружающую среду проектируемых работ;

– на разработку плана графика проведения поэтапной технической и биологической рекультивации нарушенных земель согласованного территориальными комитетами по охране природы;

– на вырубку и корчевку многолетних древесных насаждений в полосе отвода земель, находящихся на линии трассы скоростной железной дороги, которая должна быть согласована с территориальными областными комитетами по охране природы в установленном законодательством порядке с указанием суммы компенсационных платежей (в соответствии с ПКМ РУз №290 от 20.10.2014);

– на оценку формируемых производственных стоков;

– на разработку мероприятий по защите птиц;

– кроме того, необходимо представить сведения об утвержденных запасах полезных ископаемых, о наличии лицензии на добычу полезных ископаемых, об отводе земель под карьеры.

Государственный комитет Республики Узбекистан по охране природы **согласовывает** проект заявления о воздействии на окружающую среду электрификации железнодорожного участка Пал-Наманган-Андижан, разработанный для ДКС АО «Узбекистон темир йуллари».

Заключение государственной экологической экспертизы о допустимости реализации проекта не подменяет и не отменяет необходимость получения соответствующих разрешительных документов в установленном законодательством порядке.

Андижанскому и Наманганскому областным комитетам по охране природы необходимо в дальнейшем контролировать выполнение ДКС АО «Узбекистон темир йуллари» требований природоохранного законодательства при электрификации железнодорожного участка Пал-Наманган-Андижан, обратив особое внимание на своевременную рекультивацию нарушенных земель, утилизацию образовавшихся строительных отходов, организацию летней юбки вдоль дороги, не допущению инвазивной добычи общераспространенных полезных ископаемых и вырубке древесно-кустарниковой растительности, подпадающей под проектируемые объекты.

**Не следует допускать ввода объекта в эксплуатацию без положительных заключений на Заявление об экологических последствиях.**

Заместитель председателя



Р.Файзиев

7

**STATE COMMITTEE FOR  
NATURE PROTECTION OF  
THE REPUBLIC OF UZBEKISTAN**

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No. 18/1827z

Dated: 04.11.2016

**Conclusion  
of State ecological expertise**

Object: EIS electrification of railway site Pap-Namangan-Andijan (Draft EIS)  
Customer: Management on capital construction of JCS "Uzbekiston Temir Yollari"  
Developer: JCS "Boshtransloyiha"

CC: Head of management on capital  
construction of JCS "Uzbekiston Temir  
Yollari"

Chairman of Andijan region State  
Committee for Nature Protection

Chairman of Namangan region State  
Committee for Nature Protection Uzbekistan

State ecological expertise has received materials of first step assessment on environment impact of railway site Pap-Namangan-Andijan, developed for MCC of JCS "Uzbekiston Temir Yollari".

Feasibility study (FS) "Electrification of railway site Pap-Namangan-Andijan" is developed on the base of Decree of the President of the Republic of Uzbekistan No. R-4636 dated 14.04.2016 "On the implementation of the measures in 2016 of investment projects with participation of international financial institutions and foreign governmental financial organizations", the general program on electrification of railways in Uzbekistan. Electrification is conducting in order to create the single electrification railway route by the territory of Uzbekistan, improvement of effectiveness and work stability of railway transport of the Republic, reducing expenses for transportation, reducing of diesel fuel consumption.

The present draft ZVOS is developed in order to assess the impact to environment of electrification of railway site Pap-Namangan-Andijan. The impact to environment will be influenced during operation of electrifying railway site.

Designing project is located in the line Pap-Namangan-Andijan, within Namangan and Andijan regions, in the right bank of Syrdarya River. Vegetation cover, basically, is covered by cultivated plants and only at a few locations, in inconvenient lands, is growing ephemerals - wormwood vegetation. The length of electrifying railway line is km. the existing railway line is single track, the electrifying line is km. The period of conducting the designing works is from 2016 to 2020 (in accordance with Decree of the President of the Republic of Uzbekistan No. E-4636 dated 14.04.2016).

Railway site Pap-Namangan-Andijan, which is planned to electrify, recently is operated in a diesel locomotives. The following railway line is operated more than 100 years and is a part of Kokand regional railway knot (KGRK). In the site there are 14 separate points. The total quantity of artificial structures are 422 pieces, including 83 bridges. In the following site there

are 34 crossings: from the guarded – 17, unguarded – 17, including in the new designing site 1 – unguarded and 1 – guarded crossing. The objective of the project is to change existing diesel traction into electrified traction of alternating current.

International practice shows, the railway transport has less influence to the environment, than the other kind transportation. That's why, redistribution of transportation into railway transportation will promote the solving of ecological problems. As a result of project implementation will significantly increase effectiveness and reliability of railway transportation work, will decrease expenses for transportation, which will have positive impacts on competitiveness of Railway Company.

Electric traction has a set of advantages considering diesel locomotive:

- Specific consumption of energy is times less than diesel locomotive;
- Excluded the consumption of 36.5 th. tons per year of diesel fuel for the traction of trains;
  - Excluded environment pollution by the products of diesel combustion;
- Absence of necessity in basic and expenses bases and storages of ecological unsafe oil products;
- Repair economy and technical maintenance of electric locomotives is more ecologically clean.

Besides, with electrification of railway line the sanitarian hygiene living condition is improved not only as a result decreasing of emissions into the air.

As basis of designing scheme of traction maintenance is taken existing scheme with prolonged electrifying railway site Angren-Pap till Andijan station. According to the project, electrification of railway line is foreseen in a alternative current 27.5 kV, the power supply of contact network is foreseen from 2 designing TSS: TSS 220/27.5/10kV "Raustan" and TSS 110/27.5/10kV "Hakkulabad". For the power supply of TSS is foreseen the construction of high voltage lines VL-110 kV and VL-220 kV. Annual power consumption of TSS Raustan and Hakkulabad is 213.3 gigawatt amperes.

In the process of electrification of site is foreseen to build 146 of main buildings and structures of power supply, automation, telemechanics and communication, locomotive and wagon economy.

By the project is also foreseen to construct new 3 stations, and change of rail-sleeper grid in the following sites: 59-61 km, length 600 m.; 76-77 km, length 1000m; 96-101 km, length 5000m; 106-127 km, length 21300m; 152-179 km, length 2700m.

Also, it is planned to change the direction of the route, through construction of a new railway line in 125+700 km on 132+400 km, by the length 6.7 km. Bypass is planned in order to separate of railway line from Kirgizstan Republic. From the point of bypass the track of the railway line by radius of 620 m moves to the right and passes on irrigated lands on PK 1272 + 22 crosses the North Fergana Channel. For crossing of North Fergana Channel, it is foreseen metal concrete bridge with length of 64.6 m. In front of Channel the railway line crosses highway. Right bank of the Channel is rather busy with resident houses, partially falls under removal. The crossing of highway is planned with overpass of tunnel type with the length 96.61m. Along left bank of Fergana Channel is highway, for crossing of which is foreseen railway overpass by the length 53.2 m. Further the line comes to Narin River, which is, in the considered site, divided into two distributary. Through right, basic one, distributary is proposed to construct metal concrete bridge with the length 270.80 m. Left distributary, with dams, is decided to direct to right distributary, and the distributary itself and flood-lands is pass through in bulk. Further the railway route is passes by the bulk by flood lands, by watered lands and in PK 1295+34.5 the railway route crosses Hakkulabad (metal concrete bridge (MCB) by length 57.5m). In the PK 1297+35.5 the railway route crosses South Fergana Channel, for which is foreseen MCB with the length 64.6 m. Further in the PK



1131+33.2 railway route crosses highway 4R116, where is foreseen the overpass by the length 53.2m. Further by the radius of 600 m the route in the PK 1361 connects to Block-Post of existing railway track.

In the places of local significant highway crossing, in the PK 1296+82 and PK 1301+45 is foreseen the device of guarded and unguarded crossing.

In the site of railway route flattening is foreseen the structures crossing of designing lines with Narin river, South Fergana Channel, watering lands, manifolds, uplands, highways with construction of bridges, overpasses, pipes, pipe subway (24 artificial structures).

In the TSS territory is foreseen the reservoirs for storage clean transformer oil, used for pour to the equipment. The square is covered with gravel for convenience of maintenance.

By the project is foreseen chain elastic suspension of contact network. As a support construction is taken unified, preliminary strained, the support of contact network with the length 10.8 and 13.6 m with three-rayed tumbler foundations. In the stations is used metallic hard beams with the height of suspension of contact network 6.6m.

Along railway route is foreseen the reconstruction of exiting VL-6(10)kV A/B under line 10kV A/B with change of worn-out elements (support, traverses, isolators, wires and others) and change of equipment 6 kV to the equipment 10 kV in the site station Pap – st. Chartak and in the site st. Hakkulabad – st. Andijan.

Heat supply buildings of wagon services, CBI posts, and DPKS (Depot) is foreseen from boiler, and service buildings of TSS – electrical. General power of installed heating equipment is 770 kW. In a boiler room are installed by 2 steel water heating combined boilers, as a fuel is used coal and gas. For keeping of hard fuel there is a storage. Annual consumption of coal is 297 t per year. For removal of ash is foreseen square with containers.

Ventilation of administrative – common buildings is foreseen water air-ejector with mechanical and natural start. Drawing out from garage in DPKS building is done from upper and lower zone. For removal of emissions from vehicles is foreseen hose exhaust, from technical equipment local exhaust, from welding table, the panel of even exhaust, and from the bath for preparation of electrolyte – umbrella over equipment. The system of local exhaust is connected to air-ejector centralized ventilator, fastened in the other side of the wall. Emission from ventilator is leading out over the roofing to 7 m. In the room for installation of unmanned rechargeable batteries of CBI posts is foreseen native ventilation.

In the project is foreseen centralized switch off of all systems during fire.

Water consumption for production need and technological processes is accepted based on the conditions of designing structures. Calculated water consumption in the designing site Pap-Namangan-Andijan is 27.512 m<sup>3</sup>/day, and production needs 10.412 m<sup>3</sup>/day. For watering of the territory and green plantings is required 20 th. m<sup>3</sup>/year process water. The scope of sewage is defined in the quantity 20.69 m<sup>3</sup>/day, and production sewage 1.92 m<sup>3</sup>/day. **There is no clarification in the project regarding water consumption for production needs and is not mentioned the method of industrial sewage purification. Based on the above mentioned, in the next step of ecological design it is necessary to submit detailed information on generated production sewage and method of purification.**

There is an existing centralized water supply system and sewerage only in Namangan st. and Andijan st. In the other separate points, water supply is done from underground sources (borehole water scoop). In the some separate points, there is a delivered water supply, in some point there is no sewerage, that's why it is foreseen construction of reservoir with capacity of 15 m<sup>3</sup> and 30m<sup>3</sup> with waterproof containers.

Main influence on environment will be during construction. Expected influence is in additional requisitioning of 40 ha plowable lands and mechanical disturbance of soil surface. For temporarily use will be withdrawn 18 ha of land.

**In the case of trees felling (even a small amount), justify with the calculation, approved by the Region Committee for Nature Protection. It is necessary to submit inquiry of Territorial Committee for Nature Protection about presence or absence of woody shrubs vegetation felling, if there is a forced felling, it is necessary to submit and inquiry about compensating payments for felling, confirmed by Region Committee for Nature Protection.**

The surface layer of atmosphere during operation will be polluted by the boilers, working with coal and welding department. In the air will be ejected contaminated substances in the form of: carbon monoxide, nitrogen dioxide, sulfur dioxide, soot, iron oxide, manganese oxide, silicon oxide, fluoride, hydrogen fluoride, etc.

It is necessary to note, that in the result of electrification of railway site Pap-Namangan-Andijan, it significantly will decrease the pollution of atmospheric air. For the account of changing diesel locomotives to electric ones the atmospheric emission of harmful substances will be decreased to 2.85 th. tons, including carbon monoxide – 1370 t, nitrogen oxide – 548 t, sulphur dioxide – 274 t, soot – 219 t, hydrocarbon – 411 t.

Emissions form movable sources (diesel-locomotive shunter, vehicles, and motodrezines) will have periodical manner. Besides, they are distributed by all site of maintenance and will not create dangerous concentrations.

Negative influence on fauna will be done by construction of overhead power transmission line, which are dangerous for large birds, especially predators. Birds are using high supports of OPTL for resting. With simultaneous touching a grounded traverse and electric drive by bird may take place an electrical circuit and hit the birds. **In overhead power transmission line of Uzbekistan species of birds form 800 till 1500 dies per year. In connection with it, it is necessary to develop activities on protection of birds.**

Influence on the soil surface during construction will be done basically by earth-moving machines and mechanisms. During construction railway structures in the construction sites fruitful layer will be cut to the depth of 30 cm and be stored for re-cultivation of damaged soil.

Impact on the environment of the designing object will be done also in the result of various mineral resources removal (water, soil, gravel, coal), which is used by them during construction and operation. For construction of railway line to a new direction, access private tracks require 560 th m<sup>3</sup> of soil. **In the next step of designing it is necessary to submit information about confirmed reserve of mineral resources, about presence of license for mining of mineral resources, about allotment of land for open cast, about proposed methods of re-cultivating of used squares.**

Construction waste and household waste also has negative impact to land surface. Visible pollution of soil happens during pouring, storing, re-pouring of inert materials and cement.

Project has proposed the actions on prevention consequences of intended activities implementation. In order to reduce, formation, emission and impact on environment of the air pollutants is foreseen:

- reducing unorganized emissions through localization of sources into draught and devices of local exhaust;
- interposition of the designing facilities and residential territories considering the prevailing wind directions;
- using the dispersal effect for the account of using the ejection emission (battery section) and for the account of height increase of the emission sources (boilers pipe);
- elimination of untreated wastewater dumping from the official - technical buildings to the terrain;
- natural protection of water bearing formation and others.

Besides, in case of petroleum product fall to the ground, it is foreseen the actions on its collection and neutralization. As a neutralization will be used the powder "Putidoyl", which is developed by the specialists of petroleum industry. In order to keep working routine of irrigation systems, in the places where railway line crosses with outfall pipe and sprinkler, it is constructed new and reconstructed existing ones for passing of drainage and watering water.

As a compensating action for land requisitioning, occupied for agricultural needs, is foreseen set of technical and biological actions, directed for restoring less productive land sites, instead of alienated agricultural lands for construction (40 ha). Disturbed lands after construction are restored. It is landscaping 2.4 ha of lands, which is given for construction of official - technical buildings and structures. During vertical planning it is provided maximal preserve the natural terrain relief state, soil and vegetation.

It is necessary to note, that reconstruction of the railway track is connected with appearance of noise. The main impact of noise to people is noise irritation, reduce of hearing sensitivity, disturbance of sleep, phrase intelligibility deterioration. Daily disturbance of railway noise, considering its intermittence, sudden appearance, especially in the evening and night time, promotes to develop neurosis, to increase of blood pressure.

Green plantings, use of noise protective screens will reduce equivalent level of noise in calculated points to sanitarian norms.

State ecological expertise of the project shows that submitted materials in a sufficient manner corresponds to the requirements of legislative documents to the first step of assessment of impact to environment.

According to the point 5 of Resolution of Cabinet of Ministries of the Republic of Uzbekistan No. 14 dated 21.01.2014 – in case of presence of emission sources, release of polluted substances to environment, formation and distribution of waste in the few territorially removed squares, development of the project is done for each industrial square separately. In regard to this, next step of designing - **Environmental Impact Statement (EIS)** for all existing and designing stations **is necessary to develop separately** and submit for state ecological expertise before putting into operation.

**During development of EIS is necessary to pay specific attention to:**

- development of norms of all kind of environment impacts of designing works;
- development of plan – schedule of conducting step by step technical and biological re-cultivation of disturbed lands, approved by territory committee on nature protection;
- felling and uprooting of long term tree plantings in the buffer line, within high speed railway track, which should be approved by territorial region committees for nature protection in a fixed legislative order with indicating compensation amounts (in accordance with Resolution of Cabinet of Ministries of the Republic of Uzbekistan No. 290 dated 20.10.2014);
  - for cleaning of production water waste;
  - for developing actions on birds protection.

Besides, it is necessary to provide the information about confirmed mineral resources, about presence of license for mining of mineral resources, about allotment of land for open cast.

State Committee for Nature Protection of The Republic of Uzbekistan approves the draft Environmental Impact Statement of Electrification of railway site Pap-Namangan-Andijan, developed by Management on capital construction of JCS "Uzbekiston Temir Yollari".

The conclusion of state ecological expertise on permissibility of project implementation shall not change and shall not cancel the necessity of receiving corresponding permission documents in a fixed legislative order.

**To Andijan and Namangan committees for nature protection** is necessary to take under control the conducting by Management on capital construction of JCS “Uzbekiston Temir Yollari” of requirements of nature protection legislation during electrification of railway site Pap-Namangan-Andijan, pay specific attention to in time re-cultivation of disturbed lands, utilization of formed construction waste, organizing of green zone along route, not to allow unauthorized to mine common mineral resources and felling of tree and shrub vegetation, which is in designing objects.

It should not be allowed putting into operation of the object without positive conclusion of Environmental Impact Statement.

**Deputy Chairman**

**R.Fayziyev**

**ATTACHMENT 2. Noise and vibration baseline measurements**

**ХУЛОСА:** Кўкон минтақавий темир йўл узелига қарашли Поп, Чуст, Наманган, Чортоқ, Андижон -2 станциялари ҳудудида жойлашган аҳоли турар жойлари - уйлардан йўловчи ташиш ҳамда юк ташувчи поездлар ҳаракати давомида ҳосил бўлган шовқин даражаси инструментал усуларини қўллаб текширилганда Санитария меъёри ва қондаси 0267-09 да белгиланган меъёрга жавоб бермаслиги аниқланди. йўловчи ташиш ҳамда юк ташувчи поездлар ҳаракати давомида ҳосил бўлган вибрация даражаси инструментал усуларини қўллаб текширилганда Санитария меъёри ва қондаси 0331-16 да белгиланган меъёрга жавоб беради.

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Санитария вазири (муҳандис)

Ж. Қасимов  
Исм-шарифи  
Имзо

С. Ташмуҳаммадов  
Исм-шарифи  
Имзо

Бўлим мудири

Ўзбекистон Республикаси Соғлиқни сақлаш вазирлиги	КТУТ бўйича мусассаа коди _____
Кўкон тармоқ Санитария-эпидемиология станцияси	Тиббий ҳужжат формаси 334 /х.ш У.Р. ССВ 26.06.2006. №287 сонли буйруқ билан тақдирланган.

**ШОВҚИН ВА СИЛКИНИШ (ВИБРАЦИЯ)НИ ЎЛЧАШДАГИ СОҒЛИ**  
**БАЁН 2 (1-94 )**  
 « 08-17 » \_\_\_\_\_ ноябр \_\_\_\_\_ 2016 й.

Кўкон минтақавий темир йўл узелига қарашли Поп, Чуст, Наманган, Чортоқ, Андижон -2 станциялари ҳудудида жойлашган аҳоли турар жойлари

1.Ўлчаш ўтказиладиган жой Станциялар ҳудуддаги аҳоли турар жойлари  
 Объект номи, пех.бўлим, қисми, манзилгоши

2.Ўлчаш текшириладиган ташкилот вақсати иштирокида ўтказилди

\_\_\_\_\_

Лабоини, исми-шарифи

3.Ўлчаш анжомлари Шумомер -RFT № 00024 №31662  
 Номи, тури, инвентар сони

4.Давлат назоратидан ўтказилганлиги № 1271/05 02.08.2016 й  
 Шу ҳақда ҳужжат сони ва берилган кун

5.Ўлчаш ўтказиш ва ҳулоса беришни асословчи ҳужжатлар ГОСТ 12.1.050-86, 23337-78, Сан Ква М 0267-09, СанКваМ 0331-16

6.Шовқини (силкиниш) пайдо қилаётган асосий манбаълар ва шу шовқин (силкиниш)нинг характери \_\_\_\_\_ Пуловчи ва юк ташувчи поездлар ҳаракати давомида ҳосил булади \_\_\_\_\_

7. Ишловчи кишилар сони \_\_\_\_\_

8. Ўлчаш ўтказиладиган жой эскири (ҳудудий иш жойлари, кул исоблари) албатта ўлчаш микрофонлари (кўрсаткичлари) қўйилган нуқталар белгиланади ва улар ўлчаш тартиби бўйича рақамланади.

9. Шовкин (тебраниш)ни ўлчаш натижалари

1	2	3	4	Шовкин характери						11	Тебраниш турлари		Шовкин босимининг даражаси (тебраниш тестига Дб ва уртача геометрик частотали октава майдонида ПЦ-ларда)														28	29	
				Селектив буйича			Вактинчалик характери ка				Умумий																		
				5	6	7	8	9	10		12	13																	
													Локал жойлашган																
			Қўшимча маълумотлар (ўлчов ўтказилган шартда, тебранишнинг шундай вақтда қанча тизилган эмиш)	Кенг бўйича	Бир майдон	Долмиш	Тебраниш	Алоқасизлашқанда тузилган	Изоляция	Транспортлардан	Транспорт технологияси воситаларидан	Технология усууларидан	2	4	8	16	31,5	63	125	250	500	1000	2000	4000	8000				
1	1	Ст.Поп Хўжабод қишлоғи 31 а уй, Акрамов Ф.		II	D	K		в	и	б	р	а	ц	и	я	X <sub>0</sub> , Y <sub>0</sub>	67	67											55
1	1	Асосий темир йўлидан 7,5 м йуловчи ташиш поёзди		+						+																		85	55
2	2	Уй ичидан 11 метр		+						+							39	40										72	55
3	3	Уй ховлидан 15 метр		+						+																		78	55
		Ст.Поп Хўжабод қишлоғи 4 уй, Ж. Абдурахимов		II	D	K		в	и	б	р	а	ц	и	я	X <sub>0</sub> , Y <sub>0</sub>	67	67											55
4	1	Уй ичидан 11 метр		+						+							38	37										72	55
5	2	Уй ховлидан 16 метр		+						+																		77	55
		Ст.Поп Хўжабод қишлоғи 32 уй, Сойибназаров		II	D	K		в	и	б	р	а	ц	и	я	X <sub>0</sub> , Y <sub>0</sub>	67	67											55
6	1	Уй ичидан 12 метр		+						+							37	38										70	55
7	2	Уй ховлидан 16 метр		+						+																		76	55

Ўлчаш ўтказилган

И. Тошпулатов

лавозим, исми-шарифи

ТШРБ  
ИМКОСИ

**ХУЛОСА:** Андижон вилояти Андижон шаҳри, Андижон станцияси ҳудудида жойлашган 44-умумтаълим мактаби ховли ва синф хоналаридан йўловчи ташини ҳамда юк ташувчи поездлар ҳаракати давомида ҳосил бўлган шовқин даражаси инструментал усулларини қўллаб текширилганда Санитария меъёри ва қондаси 0267-09 да белгиланган меъёрга жавоб бермаслиги аниқланди.

Санитария врач (муҳандис)

Ж.Жалилов

Исми-шарифи

Имзо

Бўлим мудири

И.Топпулатов

Исми-шарифи

Имзо



Ўзбекистон Республикаси Соғлиқни сақлаш вазирлиги

Кўкон тармоқ Санитария-эпидемиология станцияси

КТУТ бўйича муассаса коди \_\_\_\_\_

Тиббий ҳужжат формаси 334-А.ш  
ЎзР ССВ 26.06.2006. №287 сонли  
буйруқ билан тасдиқланган

ШОВҚИН ВА СИЛКИНИШ (ВИБРАЦИЯ)НИ ЎЛЧАШДАГИ СОНЛИ  
БАЁН 2 (1-94) \_\_\_\_\_  
« 17 » \_\_\_\_\_ ноябр \_\_\_\_\_ 2016 й.

Андижон шаҳар 44-умумтаълим мактаби

1. Ҳаёт ўтказилган жой 44-мактаб синф хонаси  
Объект номи, цех, бўлим, қисми, манзилгоҳи
2. Ҳаёт текшириладиган таъкилот вақсини иштирокчи ўтказилди \_\_\_\_\_

Лавозими, исми-шарифи

3. Ҳаёт анжомлари Шумомер -RFT № 00024 №31662  
Номи, тури, инвентар сони

4. Давлат шпоратидан ўтказилганлиги № 1271/05 - 02.08.2016 й  
Шу ҳақда ҳужжат сони ва берилган кун

5. Ҳаёт ўтказиш ва ҳулоса беришни асословчи ҳужжатлар ГОСТ 12.1.050-86, 23337-78, С ан Ква М 0267-09,

6. Шовқинни (силкинишни) пайдо қилётган асосий манбалар ва шу шовқин (силкинишни)нинг харақтери Йўловчи ва юк ташини поездлар харақати давомида ҳосил булади.

7. Ишловчи китилар сони \_\_\_\_\_
8. Ҳаёт ўтказилладиган жой ақсини (ҳудудий иш жойлари, кул асоблари) албатта ўлчов микрофонлари (курсаткичлари) қўйилган нуқталар белгиланади ва улар ўлчов тартиби бўйича рақамланади.

9. Шовкин (тебранни)ни ўтказиш натижалари

Дарajat рақами	Эскиз буйича нуқталар рақами	Қўшимча маълумотлар (ўзича ўтказиш шарти, таъсируроти иш вақтида қандай таъсир атиши)	Шовкин характери							Транспортлардан	Тебранни турлари		Шовкин босимининг даражаси (тебранни тезлиги ДБ ва уртача геометрик частотали октави мийдониди (Ц-ларди)										Шовкин даража (шовкинни эквивалент даражаси БАДларди)	Йул қўйилганган миқдори				
			Селектори буйича			Вақтинчалик характери ка					Умумий																	
			Кенг йуналиш	Бир маромли	Допини	Тебралувчи	Аломат-аломати тулкили	Импулси	Транспорт техникаси восителаридан		Технология усуналаридан	Локал жойланган																
												2	4	8	16	31,5	63	125	250	500	1000	2000			4000	8000		
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
I	Ст.Андикон-2 Андикон шаҳар 44-умумий ўрта таълим мактаби			И	Д	К																ш	у	м			55	
1	Асосий темир йулдан Мактабгача масофаси 63 метр		+							+																	75	55
2			+							+																	74	55
3			+							+																	70	55
1	2-синф, бошлангич синф хонаси 85 метр (Асосий темир йулдан)		+							+																	62	55
2			+							+																	60	55
3			+							+																	58	55

Ўтказиш ўтказилган

И.Тошнўлатов  
лавлени, исме-шарифи

*ИИИВ*  
ишлоси



**ATTACHMENT 3. Announcements about Public Consultations at the Newspapers in Andijan and Namangan provinces**  
**Andijan local newspaper “Andijanskaya Pravda”**

Издаётся с 1 июля 1916 года

# АНДИЖАНСКАЯ ПРАВДА

ОБЛАСТНАЯ ОБЩЕСТВЕННО-ПОЛИТИЧЕСКАЯ ГАЗЕТА

№ 95  
(18767)  
Пятница,  
18 ноября  
2016 года

ISSN 2010-5630  
pravda@inbox.uz

Цена – договорная



ПОЗДРАВЛЕНИЯ ПРИНИМАЛИ МЕДИКИ

В Андижане, во Дворце торжества «Ташкент-прямому», состоялось торжественное собрание, посвященное Дню медицинского работника.

На него были приглашены линейные медики, преподаватели и тренеры иерархического университета, представители образовательных организаций области. Делегации из Самаркандской области также поздравляли.

В день выборов Президент Республики Узбекистан на избирательном участке №388, расположенном в Патайбуржье, проголосовали все члены избирательной комиссии. Они заявили о своей готовности к ответственному исполнению своих обязанностей.

Самые важные события на региональном уровне реализуются на базе делегатов с привлечением специалистов авторитета и статуса Узбекистана. Работы ведутся в нескольких областях, осуществляются программы и уникальные проекты.

## ОНИ БУДУТ ГОЛОСОВАТЬ ВПЕРВЫЕ

Самые важные события на региональном уровне реализуются на базе делегатов с привлечением специалистов авторитета и статуса Узбекистана. Работы ведутся в нескольких областях, осуществляются программы и уникальные проекты.

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## ОБЪЯВЛЕНИЯ

**ВНИМАНИЮ ЗАИНТЕРЕСОВАННЫХ СТРОИТЕЛЬНЫХ ОРГАНИЗАЦИЙ**

СП «Халим-Хан Ко» объявляет тендерно торги на строительство, реконструкцию дорог и работ по благоустройству базисной территории для участия на тендерные объявления размещены в проектной сети.

Принимая во внимание на участие в тендерно торгах с 4 октября 7 дней со дня опубликования настоящего объявления. Обращаться по адресу: г. Андижан, ул. Индустральная, 4а. Телефон: +998-63-633-28-03.

По традиционному методу в рамках тендерно торгов объявлено строительство «Инджево» в Андижане для на объекте площадью 18-20 гектаров возведения пяти дут дождя, 15-20 гектаров в естественном режиме с ландшафтными работами, 81 гектаром благоустройства и озеленения территории. Место: Андижанская область, район Индустральный.



интернет-сайт по привлечению инвесторских средств. [www.uzrailway.gov.uz](http://www.uzrailway.gov.uz)

Для желающих посетить в рамках



*От сильного государства - к сильному гражданскому обществу*

# НАМАНГАНСКАЯ ПРАВДА

Областная общественно-политическая газета

Издаётся с ноября 1917 года ISSN 2091-5691 № 48 (14473) 10 ноября 2016 года

МАМАНАНСКАЯ ПРАВДА

## ОБСУЖДЕНЫ АКТУАЛЬНЫЕ ВОПРОСЫ

в РЕСПУБЛИКАНСКОМ пресс-центре по освещению выборов Президента Республики Узбекистан 17 ноября 2016 г. и состоялось заседание Центральной избирательной комиссии в режиме видеоконференцсвязи. В нём приняли участие члены окружных избирательных комиссий по выборам Президента Республики Узбекистан, представители политических партий, члены Исполкома БДИПЧ ОБСЕ по наблюдению за выборами, а также работники средств массовой информации.

НА ЗАБЕДАНИИ, которое был председателем, Центральная комиссия М. Абдуллоев, были рассмотрены данные, связанные с обеспечением исполнения Государственного задания на проведение выборов и позволено выборы Президента Республики Узбекистан. Заслушаны информационные материалы 344 Букаркой, 344 Наманганской, 344 Соргандинской окружных избирательных комиссий.

Задача подготовки к выборам и их организационная и технологическая ответственность на участниках избирательного процесса. Центральной избирательной комиссией, окружных избирательных комиссиях и Целевыми комиссиями (в соответствии с Формировании гражданско-общественного комитета-связи, направленные на достижение положительных результатов и улучшение качества работы организации деятельности комиссий).

20-30 минуте текущего часа в Республиканской избирательной комиссии и в окружных избирательных комиссиях, заседаниях обсуждают актуальные вопросы по развитию избирательного процесса.

Материалы информационно-коммуникационного обеспечения избирательного процесса, проведение и учета выборов, в такой ситуации, задачи на избирательном участке.

Трех часов работе состоялись выборы: административных территориальных комиссий, административных территориальных комиссий по выборам, административных территориальных комиссий по выборам.

В продолжении с действующими законодательствами на всех мероприятиях по подготовке и проведению выборов, и также в том числе, для проведения в день выборов и проведением выборов, административных территориальных комиссий, административных территориальных комиссий, административных территориальных комиссий, административных территориальных комиссий.

Принято решение о проведении мероприятий информационно-коммуникационного обеспечения выборов, административных территориальных комиссий, административных территориальных комиссий, административных территориальных комиссий, административных территориальных комиссий.

**Решение**  
**6-й Наманганской окружной избирательной комиссии**

6-й Наманганской окружной избирательной комиссии предложено 3 декабря 2016 года в здании избирательной комиссии провести в политической обстановке заседание по подготовке избирательного участка, административных территориальных комиссий, административных территориальных комиссий, административных территориальных комиссий.

ТРИНАМАСТРЕШЕНЬЕ

А. ИВАНОВ, наемный тренер «Юнайтед» Серван, сообщает сайт клуба.

### ОБЪЯВЛЕНИЕ

В соответствии с Распоряжением Президента Республики Узбекистан от 14 апреля 2016 года № Р-4636 "О мерах по реализации в 2016 году инвестиционных проектов с участием средств международных финансовых институтов и иностранных правительственных финансовых организаций" и Распоряжением Президента Республики Узбекистан от 18 мая 2016 года № Р-4647 "О мерах по дальнейшему расширению финансового сотрудничества с Азиатским банком развития и другими международными финансовыми институтами" предусмотрена реализация проекта "Электрификация железнодорожного участка Пал - Наманган - Андижан" с участием заемных средств Азиатского банка. АО "Узбекистон темир йуллари" реализует инвестиционный проект "Подготовка проекта электрификации железной дороги (Пал - Наманган - Андижан) коридора 2 Центральноазиатского экономического сотрудничества" с привлечением инвестиционных средств Азиатского банка развития.

Для реализации проекта в рамках указанных распоряжений планируются проведение общественных слушаний для обсуждения экологических и социальных аспектов с привлечением всех заинтересованных сторон. На слушаниях будут представлены основные результаты проведенной экологической оценки воздействия проекта "Подготовка проекта электрификации железной дороги (Пал - Наманган - Андижан) коридора 2 Центральноазиатского экономического сотрудничества" на окружающую среду и вопросы отвода земель и переселения.

Общественные слушания будут проводиться:

- для жителей Чустского и Палского районов - 22 ноября 2016 г. в 10.00 в здании хокимията Палского района;
- для жителей Туракурганского, Наманганского района и с. Наманган - 22 ноября 2016 г. в 15.00 в здании Молодежного центра;
- для жителей Чартакского и Уйчинского районов - 23 ноября 2016 г. в 10.00 в здании хокимията Чартакского района;
- для жителей Нарынского и Учкурганского районов - 23 ноября 2016 г. в 15.00 в здании хокимията Учкурганского района.

АО "Узбекистон темир йуллари".

В рамках профсоюзной работы в этом номере публикуются выступления перед избирателями кандидата в Президенты Республики Узбекистан от Народно-демократической партии Узбекистана Халилматка Коммонова. *Бюджетная и программа кандидата в Президенты Республики Узбекистан от Социально-демократической партии Узбекистана и Адалята.*

# Наманган ҳақиқати

ВИЛОЯТ ХОДИМЛИГИНИНГ ГАЗЕТАСИ

1918 йил 1 сентябрдан бундан бошлаб «Наманган ҳақиқати» газетаси тўғрисида маълумотлар

## Ғафбиркорлик субъектлари билан учрашув

Илмий асосларга эга, билимдор ва ҳис қилиш қобилияти юқори бўлган инсонларнинг умумий сонини кўпайтириш, уларнинг ҳаётини яхшироқ қилиш ва ўз ҳаётида турмушнинг яхшироқ баъди ва мунглигини таъминлаш мақсадида «Наманган ҳақиқати» газетаси «Ғафбиркорлик субъектлари билан учрашув» рубрикасини яратди. Бу рубрикада ҳаётини яхшироқ қилиш ва ўз ҳаётида турмушнинг яхшироқ баъди ва мунглигини таъминлаш мақсадида «Наманган ҳақиқати» газетаси «Ғафбиркорлик субъектлари билан учрашув» рубрикасини яратди.



## Янги спорт мажмуаси

Янги спорт мажмуаси шаҳаримизда қуриб ботиляётган. Унинг қурилиши аҳолининг спорт билан шугулланишига яхши шарт-шароитлар яратиб берилади. Мажмуада футбол, теннис, волейбол, баскетбол ва бировчи спорт турлари бўлиши режалаштирилган. Қурилиш ишлари мураккаб ва кўп қатмарли бўлиб, шунга қарамай, қурилиш ишлари тезкор равишда олиб бориляпти.

## ЎЗБЕКИСТОН АЖДАДАСОВИЯ ҲАМКАРАМ ПАРТИЯСИДАН ЎЗБЕКИСТОН РЕСПУБЛИКАСИ ПРЕЗИДЕНТИГА ВОМЎҚД НАМАНОН УМАРОВНИНГ НАМАНОН ВИЛОЯТИ САЁТОВЧИЛАРИ БИЛАН УЧРАШУВИДАГИ МАҚСУДАСИ

Аҳолининг ҳаётини яхшироқ қилиш ва ўз ҳаётида турмушнинг яхшироқ баъди ва мунглигини таъминлаш мақсадида «Наманган ҳақиқати» газетаси «ЎЗБЕКИСТОН АЖДАДАСОВИЯ ҲАМКАРАМ ПАРТИЯСИДАН ЎЗБЕКИСТОН РЕСПУБЛИКАСИ ПРЕЗИДЕНТИГА ВОМЎҚД НАМАНОН УМАРОВНИНГ НАМАНОН ВИЛОЯТИ САЁТОВЧИЛАРИ БИЛАН УЧРАШУВИДАГИ МАҚСУДАСИ» рубрикасини яратди. Бу рубрикада ҳаётини яхшироқ қилиш ва ўз ҳаётида турмушнинг яхшироқ баъди ва мунглигини таъминлаш мақсадида «Наманган ҳақиқати» газетаси «ЎЗБЕКИСТОН АЖДАДАСОВИЯ ҲАМКАРАМ ПАРТИЯСИДАН ЎЗБЕКИСТОН РЕСПУБЛИКАСИ ПРЕЗИДЕНТИГА ВОМЎҚД НАМАНОН УМАРОВНИНГ НАМАНОН ВИЛОЯТИ САЁТОВЧИЛАРИ БИЛАН УЧРАШУВИДАГИ МАҚСУДАСИ» рубрикасини яратди.

## Инсонпарварлик ва

Инсонпарварлик ва инсоният ҳақиқати. Бу ҳақда «Наманган ҳақиқати» газетаси «Инсонпарварлик ва инсоният ҳақиқати» рубрикасини яратди. Бу рубрикада ҳаётини яхшироқ қилиш ва ўз ҳаётида турмушнинг яхшироқ баъди ва мунглигини таъминлаш мақсадида «Наманган ҳақиқати» газетаси «Инсонпарварлик ва инсоният ҳақиқати» рубрикасини яратди.

## НАМАНОН ОҚРУҚ САЁТОВ

Аҳолининг ҳаётини яхшироқ қилиш ва ўз ҳаётида турмушнинг яхшироқ баъди ва мунглигини таъминлаш мақсадида «Наманган ҳақиқати» газетаси «НАМАНОН ОҚРУҚ САЁТОВ» рубрикасини яратди.

Мажмуада футбол, теннис, волейбол, баскетбол ва бировчи спорт турлари бўлиши режалаштирилган. Қурилиш ишлари мураккаб ва кўп қатмарли бўлиб, шунга қарамай, қурилиш ишлари тезкор равишда олиб бориляпти.

Маълумот: Ташкилоти шаҳри, Б.Намангон кўчаси, 14/4. Телефон: 01-281 221-35-25. Email: info@namangon.gov.uz; web@nam: www.namangon.gov.uz. Лицензия: QR-0225

## ЭЪЛОН!

Ўзбекистон Республикаси Президентининг 2016 йил 14 апрелдаги «2016 йилда янги ялпи миллий институтилар ва чет эл сўзлик миллий таълим йиллигини, маълумоти раширлигида имолиятини бойлиқларини амалга ошириш мақсада таълим йиллигини туркистончи Р-4636 сонли фармойишига асосан «Ўзбекистон Темир йўллари» АЖ томонидан «Пол-Намангон-Андахон» темир йўли электрлаштириши лойиҳасини таълимчи Соиб Тараққиёт Банки инвестиция маблаглари билан амалга оширилиши режалаштирилган.

Қўрастига «Пол-Намангон-Андахон» темир йўли электрлаштириши лойиҳа бўйича аҳолилик ва таълимий мақсадларини муҳофизат қилиш мақсадада жамoa вақтуларини ўзлаштириши режалаштирилган. Ушбу жамoa вақтуларини «Пол-Намангон-Андахон» темир йўли электрлаштириши лойиҳасини таълимчи Соиб Тараққиёт Банки инвестиция маблаглари билан амалга оширилиши режалаштирилган.

Жамoa вақтуларини соғдиштириш ўтиказилган: Чўрт ва Пол туманидан аҳолилик учун – 2016 йил 22 ноябрь соат 10:00 да Пол тумани ҳокимилик биносида; Намангон шаҳри, Намангон, Тўрағўлрон туманлари аҳолилик учун – 2016 йил 22 ноябрь соат 10:00 да Тўрағўлрон тумани Биринчи маорат биносида; Чўрт ва Пол туманлари аҳолилик учун – 2016 йил 23 ноябрь соат 10:00 да Чўрт ва Пол тумани ҳокимилик биносида; Норин ва Учкурган туманлари аҳолилик учун – 2016 йил 23 ноябрь соат 15:00 да Учкурган тумани ҳокимилик биносида.

«ЎЗБЕКИСТОН ТЕМИРЙЎЛЛАРИ» АЖ.

<b>ЖУМА, 18</b>	<b>ШАҒИНА, 19</b>	<b>ЯҚШАНБА, 20</b>	<b>ДУШАҒНА, 21</b>	<b>СЕШАНБА, 22</b>
Хаво Ҳарорати +12	Хаво Ҳарорати +10	Хаво Ҳарорати +6	Хаво Ҳарорати +5	Хаво Ҳарорати +4
Ҳаво Ҳарорати +6	Ҳаво Ҳарорати +3	Ҳаво Ҳарорати 0	Ҳаво Ҳарорати -1	Ҳаво Ҳарорати -3

Бош муҳаррир: **Маҳмуджон ПАРПИЕВ.**

ТЕЛЕФОНЛАР: 227 91-01, 227 91-25, 227 91-30 (шаҳар), 227 91-18 (Хатлар ва ширкатлар), 227 91-39, 227 91-11 (Хабарлар).

Индикс: 5000. Ўзбекистон Республикаси почта қўшничасида 2006 йил 23 декабрда 98-001 рақам билан рўйхатдан ўтказилган. Маълумоти: 160 001. Намангон шаҳри, Намангон кўчаси, 18/4.

Намангон муҳаррири: Ф. Сириновдодило, Намангон Г. Бураевдодило, Намангон В. Юнусов, М. Мамадулла, Намангон И. Абдуқодир Қўшқоров.

«Индикс» дирекцияси Тўрағўлрон туманида 1495 кўчалдан оғинада. Қўшнича рақам: А-2. Ҳарорат: 2. Билан билан. Қўшнича рақам: Намангон шаҳри, Тўрағўлрон кўчаси, 138 (0101). Ҳуриятга эриш. Ўзбекистон Республикаси почта қўшничасида 2006 йил 23 декабрда 98-001 рақам билан рўйхатдан ўтказилган.

**ATTACHMENT 4. Registration Lists of Public Consultations Participants**  
**Paytug and Kuygan-Yar districts and Andijan city (Andijan province)**

Проект «Электрификация участка железнодорожной линии Пап - Наманган - Андижан»

СПИСОК УЧАСТНИКОВ ОБЩЕСТВЕННЫХ СЛУШАНИЙ

24 ноября 2016 года  
 2 Андижан, Андижанский городской комитет

#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
1	Электрон МФЙ	Исаков Б. А.	М.Ф.Й роиси		
2	Дамбой-гек МФЙ	Тургунов З.	М.Ф.Й роиси		
3	Ок-отли МФЙ	Калибаров М.	М.Ф.Й роиси		
4	Обод МФЙ	Жалилов М.	М.Ф.Й роиси		
5	Зариддор МФЙ	Латипова Б.	М.Ф.Й роиси		
6	Куйган ёр МФЙ	Комитасова Р.	М.Ф.Й роиси		
7	Иттифок МФЙ	Омилова М.	М.Ф.Й роиси		
8	Шодлик МФЙ	Темирова М.	М.Ф.Й роиси		
9	Тойтуз К.Ф.Й	Ядгоров К.	К.Ф.Й роиси		
10	Эркин К.Ф.Й	Колмирзаев Ш.	К.Ф.Й роиси		
11	Янги-кишлок	Эмоматов А.	К.Ф.Й роиси		

#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
12	Махдара Мамодов фонд	Рохсанов	Мухоммад Мамод Хан Рашид		
13	Ўзбекистон Халқий Маданият	Умаров	Фурқан	komiser@uznet.uz	
14	Виллоят Замбархона	Ахтаров	Ўзатилло	korporativv@inbox.uz	
15	Виллоят Архитектура	Рахматов	А	at.uznet.uz	
16	Виллоят Тибботи	Мамоназаров	Э	Эко-экспертиза Босилеги	
17	Махдара Мамодов фонд	Мухоммадова	Рашид	uznet.uz	
18	Ано. туш Архитектура	Худайбердиев	А	uznet.uz	
19	Ано. туш Архитектура	А. Рашидов	Босилеги	arif500_2444@mail.ru	
20	Ано. туш Архитектура	И. Бакиров	тушан баш архитектор		
21	Ано. туш Архитектура	Фозилов	Нобитилло	uznet.uz	
22	Ано. туш Архитектура	Ахтаров	Аббас	uznet.uz	
23	Ано. туш Архитектура	Ахтаров	Аббас	uznet.uz	
24	Ано. туш Архитектура	Ахтаров	Аббас	uznet.uz	
25	Ано. туш Архитектура	Ахтаров	Аббас	uznet.uz	
26	Ано. туш Архитектура	Ахтаров	Аббас	uznet.uz	





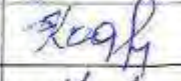




#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
27	Харабет х.ф.и Илорхондузи МФИ	Хурчиев Бахрамжон	МФИ раиси		
28	Харабет х.ф.и Хатикот МФИ	Каримов Репикшон (роҳатжон)	МФИ раиси		
29	Анх тун табии муқориза ышиси	Авазов Махмуртош Махмурович	менасек бошлмас		
30	Анх тун табии муқориза ышиси	Мамуннов Давидшан Мамуннович	рухбар		
31	Аролборот хитмати	Аббасов Абдулқосим	Тўрма		
32	Анх тун табии муқориза ышиси	Мизотаров Залих	Давлат котиби		
33	Анх тун табии муқориза ышиси	Азамов З	МФИ раиси		
34	Анх тун табии муқориза ышиси	Турдиев Д.	рухбар		
35		Исомиргандов З.	рухбар		
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Проект «Электрификация участка железнодорожной линии Пап - Наманган - Андижан»

СПИСОК УЧАСТНИКОВ ОБЩЕСТВЕННЫХ СЛУШАНИЙ



24 ноября 2016 года




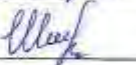
г. Андижан, Андижанский городской комитет

#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
1	Ишлар МФЙ	Р. Юсупов	Раис		
2	Маорид МФЙ	Д. Яхьяев	Раис		
3	Вулкан МФЙ	М. Каримов	Раис		
4	Ўзбекистон	Х. Фрилов	Раис		
5	Пахтакор	С. Рахимов	Раис		
6	Саман	М. Керимов	Раис		
7	Андижан	Ф. Турсунов	Раис		
8	Мамада Фонд Андижан	А. Физолов	Раис Фрильосар		
9	Андиж. вақоат	В. Камбаров	Рахбар		
10	Андижанский комитет		Фрильосар		
11	Андижан тумани Кўчалар МФЙ	Тотайбеков Х.	и.котиб		



#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
12	ст. Хонобод.	Юсупов И. А.	ж.д. Начальник ст.		
13	ст. Савай	Мушкинов М. А.	ж.д. Начальник станции		
14	ст. Грингмазор	Тошматов Д. Т.	ж.д. Начальник станции		
15	ст. Асаке	Уктамжонов. А.	ж.д. Начальник станции		
16	ст. Кайтуз	Шооборов. Б. Т.	ж.д. Начальник станции		
17	Бунт. Детлик	Вимова Е. П.	мари мавляжов		
18	ИП	Бобожонов Р. А.			
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#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
27	ИЗБОРКА ТУМАН АРХИТЕКТУРА	Тосилов Азизбек	ТУМАН АРХИТЕКТОРА	izboskan.architektur@meil.ru	
28	ИЗБОРКА ТУМАН КАПИТАЛЬНО-СТРОИТЕЛЬНЫЕ РАБОТЫ	Назаров Фарид	ИНСПЕКЦИЯ КАПИТАЛЬНЫХ РАБОТ	- - - - -	
29	ИЗБОРКА ТУМАН СРЕДНЕГО СПЕЦИАЛИСТА	Масрамов Комилхон	ИЗБОРКА ТУМАН СРЕДНЕГО СПЕЦИАЛИСТА	izboskan.kad.uz	
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#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
42	LONDON English School Индижон шаколу	Абдуллаев Сагдул	Рахбар		
43	Найлмон К.Ф.У.	С. Рахмонов	Фундаментал муассис		
44	Найлмон К.Ф.У.	З. Гафуров	Кўрсаткич вақфидора		
45	Ўзбекистон ёршифи	З. Шафозидинаева	Раҳбар вақфидора		
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**Пап district (Namangan province)**


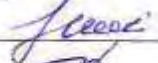



**Проект «Электрификация участка железнодорожной линии Пап - Наманган - Андижан»**

СПИСОК УЧАСТНИКОВ ОБЩЕСТВЕННЫХ СЛУШАНИЙ

22 ноября 2016 года

г. Пап, Наманганская область

#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
1	Кузюбдор-2 МРК	Саидов Карим	раион		
2	Иклатун МРК	Сифриканова М	раион		
3	Делта-2015	Алимов Р.А	раион		
4	Чартак МРК	Турсунов Ш	раион		
5	Ошман МРК	Турсунов С.	раион		
6	Делта-2015	Матбабобов К.	ишхона бош		
7	Кузюбдор-2	Исаксанов У	раион		
8	Кузюбдор-2	Рухоналов Ч	раион		
9	Ер ресур	С. Шерапов	раион		
10	Сифгаре-2015	Ф. Рахимов	раион		
11	Пап ташкил коллаборация	Б. Ифтихонев	Басир директор		

#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
12	Полковник караб. ф.к.	З. Макуралы	күтүкчүсү.		
13	Нооореев	Ботиралев	Экинчи түрөлөткөн		
14	Кавалерия ф.к. д.д.д.	Э. Тилмашев	Баш кутубханасы		
15	Мурмушев МФИ	Абдуллин Х	Кутубханачы		
16	Боз күзү М.Ф.К.	Османов К	Боз күзү		
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**Chust, Turakurgan districts and Namangan city (Namangan province)**

Проект «Электрификация участка железнодорожной линии Пап - Наманган - Андижан»

СПИСОК УЧАСТНИКОВ ОБЩЕСТВЕННЫХ СЛУШАНИЙ

22 ноября 2016 года

г. Наманган, Наманганская область (Туркурган, Чуст)

#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
1	Бодомзор МФИ	Мирмуллово В.Ишраковна	Хунарман		
2	Бодомзор МФИ	Нурматов Абдусамат	Исламбой		
3	Бодомзор МФИ	Иззатулла Абдувакк	Хунарман		
4	Олти тама МФИ	Сематов Камол	Хунарман		
5	Олти тама	Эмомалди К	Хайдаров		
6	Гунта маре	Нурмухаммадов	Шокир		
7	Гунта маре	Ибрагимов Т	Хайдаров		
8	Четиндаш МФИ	Засиров Т	Раис		
9	Юзфару Фарваз	Имомов И	Раис		
10	Рахунов	Расул И	Раис		
11	Юзфару Фарваз	Имомов Имом	Раис		

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#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
12	Общ-район мари	Мабокулов Касимов	Расс		
13		Ширдатов Латифов			
14		Фисимидинов Жапар			
15		Алиханов Касимов			
16		Самтаров Ахмад			
17		Алимаев Курман			
18		Абдурахманов Рахим			
19		Годуров Махмуд			
20		Абдураманова Мухаме			
21		Асанова Аманар			
22		Маммаганова Раиса			
23		Ибрагимов Хусан			
24		Алимаев Абдураха			
25		Кудомбердиев И			
26		Алиханов И			

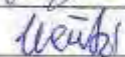




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Проект «Электрификация участка железнодорожной линии Пап - Наманган - Андижан»

СПИСОК УЧАСТНИКОВ ОБЩЕСТВЕННЫХ СЛУШАНИЙ

22 ноября 2016 года

г. Наманган, Комитетская область (Бураорган, Чирчи)

#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
1	Шейхбаев Мир	Шейхбаева	координатор		
2	Шейхбаев Мир	Шейхбаев И	директор		
3	Шейхбаев Мир	Шейхбаев И	директор		
4	Шейхбаев Мир	Шейхбаев	директор		
5	Шейхбаев Мир	Шейхбаев И	директор		
6	Бураорган	Д. Юсупов	директор		
7	Бураорган	Рахматиллоев	директор		
8		Файзуллаев	директор		
9		Гонимов	директор		
10		Густавов	✓		
11		Файзуллаев	✓		

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#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
12	Жор и Эура	Фролов М	раис		
13		Итанов Ж			
14		Абдуллаев Э.			
15		Фехромов А			
16		Рудинарова			
17		Собиоров А			
18	Рухоми	Самиев З			
19		Хуррабев			
20	Исмаилов	Ибрагимов			
21	"Зума М	Исмаилов Б.	раис.		
22		Исмаилова			
23		Ибрагимов			
24		Отачанов.			
25	Ушанган				
26	табриати мулофада кш	А. Юлдашев	раис		

#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
27	Олтиган мори	Джурраев Салмибой			
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**Chartak and Uychi districts (Namangan province)**

Проект «Электрификация участка железнодорожной линии Пап - Наманган - Андижан»

СПИСОК УЧАСТНИКОВ ОБЩЕСТВЕННЫХ СЛУШАНИЙ

23 ноября 2016 года  
 Чартак, Наманганская область (Уйчи)

#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
1	Байнолмол м.ф.й	Охунов Р	раче		
2	Наманган м.ф.й	Чакимов А.	раис		
3	Ойвиқон м.ф.й	Бобурхитов А	раис		
4	Байнолмол м.ф.й	Касимов А	фурқаро		
5	Байнолмол м.ф.й	А. Артыков	директор		
6	Уйчи тумани Раёони м.ф.й	З. Мирзенов	раис		
7	Тўғлан қ.т. м.ф.й М.Т.Т.З. Булми	Анваров А	муҳаррир		
8	Рескан-ёр м.ф.й	Ҳашманов, З.	раис		
9	Кучук м.ф.й	Сиддиқов, АС.	раис		
10	ТЭБК	Рустамов А	инженер		
11	Тўғлан м.ф.й БТЯНИ Ҳаробия туман. Б. Қасимов	О. Ойабоев	раис		

#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
12	Туркестан мфб	Туллатова Зульфия	Фураро		
13	Туркестан мфб	Исаириба Мубариза	пенсионер		
14	Шейхидева И.				
15	Туркестан мфб	Шейхидева Мунаввар	Фураро		
16	А. Навои м.ф.и	Ибрагимовна Моминер	Фураро		
17	Анжир мфб	Зокороб Сайи	М.Р.О. Раис		
18	Анжир мфб	Турдиев Мирали	Фураро		
19	Анжир мфб	Алишбани Эсанбури	Фураро		
20	Анжир м.ф.и	Юсунов Ботиржан	Фураро		
21	Анжир мфб	Оталимрзаева И	Фураро		
22	Анжир мфб	Сирожидин Исокиши	Фураро		
23	Анжир мфб	Радамсанова Одис	Фураро		
24	Касканди мфб	Бобоева Хайрихан	Раис		
25	ОБЗОН м.ф.и	А. Исаева	райбар		
26	Чирчак вилояти	Р. Абдулмасид	райбар		

#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
27	Дейкирон м.м.т.п.	Уришова Раъно	коридор м.м.т.п.		
28	"Навбахор" М.М.Т.П.	Исроимова Дилбар	Рахис		
29	Туман Молия Б.М.Т.П.	Абдуллоев Рахима	бухтар м.м.т.п.		
30	Чортоқ Т.Заказчик	Засанов Эмиер	Бохтар м.м.т.п.		
31	Чортоқ 5-Мақаб	Кўркарёв А	Ф.И.Б.Д.У.		
32	Чортоқ м.м.т.п.	Р. Вермайт	Бохтар м.м.т.п.		
33	Бухтар м.м.т.п.	Носиров И.	Ишора на де		
34	айкирон м.м.т.п.	Засанов И.	Фермер		
35	айкирон м.м.т.п.	Абрагимов Х.	Фермер		
36	айкирон м.м.т.п.	Дустамов У.	Фермер		
37	Дейкирон м.м.т.п.	Адамов Д.	Фермер		
38	Дейкирон м.м.т.п.	Эгамбердиев Д.	Фермер		
39	И.У.Н. Масъуд Санжаб Мурод	Пидматов Р.	Рахбар		
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#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
42	Ласкидон Д.В.Шамалова Мобарант	Эпхатаев Бобур Шамурович	Мобарант		
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**Naryn and Uchkurgan districts (Namangan province)**

**Проект «Электрификация участка железнодорожной линии Пап - Наманган - Андижан»**

СПИСОК УЧАСТНИКОВ ОБЩЕСТВЕННЫХ СЛУШАНИЙ

23 ноября 2016 года

Учкурган тумани, Наманган вилояти

#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
1	Долтобоев А	КФП. Ешилк	нафакахур		Болуби
2	КФП. Ешилк	Назирова ОА	чиббекаси		Болуби
3	КФП. Ешилк	Назирова М.А	чиббекаси		Болуби
4	КФП. Ешилк.	Алимов Т.	нафакахур.		Болуби
5	КФП. Муратимов	Мадалимова. В	нафакахур		Болуби
6	КФП. Муратимов	Мадалимов. Б	Ишк тураник ози		Болуби
7	КФП. Муратимов	Мадалимов. М	Ишк		Болуби
8	КФП. Муратимов	Мадалимов. М	Ишк		Болуби
9	Нарин тумани Дмитриев В.И.	Каримова З	М.Ф.И. раиси		Болуби
10	Нарин тумани Бобур В.И.	Ботирова Т	М.Ф.И. раиси		Болуби
11	Учкурган Т.И Ободовичева	Х. Убайдуллаев	Ушотка ошотари		Болуби

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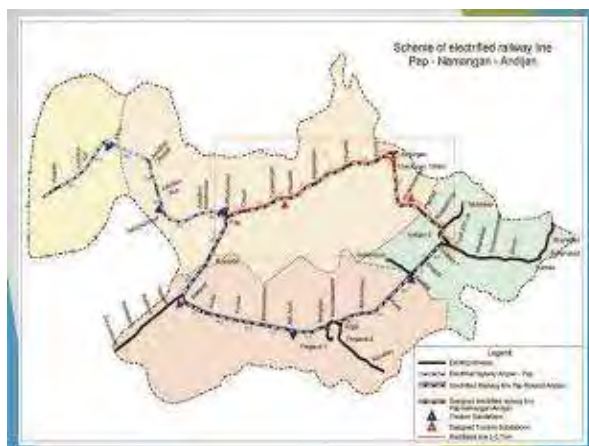
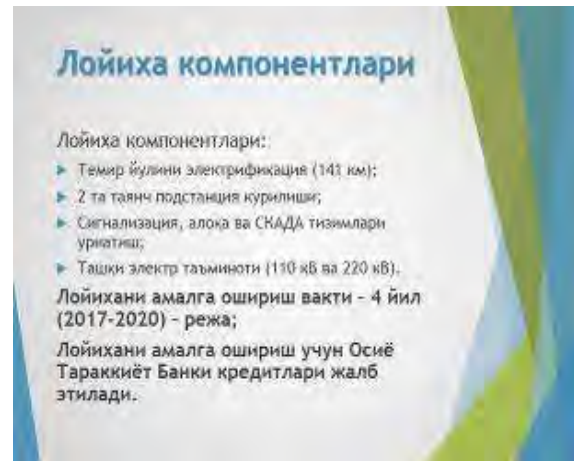
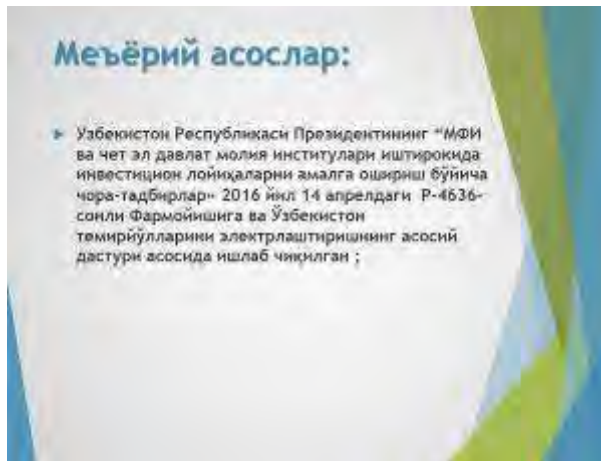
#	Организация	Ф.И.О.	Занимая должность	Электронная почта	Подпись
12	УФРС КБК	Алимова Т.	УФ Бексан		
13	УФРС КБК	Алимов Р.	Надзорщик		
14	УФРС КБК	Алимова М.	УФ Бексан		
15	КФП Чек	Тонгашева М.	УФ Бексан		
16	Учредитель	Тажуров Ф.	Мухомосов		
17	Таблицы учета запасов включая НДС	Юлдашев А.	Рахбар		
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## ATTACHMENT 5. Example of presentation for Public Consultations



## Лойихани амалга оширувчи ташкилотлар:

- ▶ **Вуоритмачи:** АЖ «Ўзбекистон Темір Йуллари»- Капитал қурилиш бўлими
- ▶ **Бажарувчи:** АЖ «Ўзбекистон Темір Йуллари» турли бўликлари, АЖ «Ўзбекэнерго», ташкин судратчилар
- ▶ **Молиялаштирувчи ташкилотлар:**
- ▶ Ўзбекистон Республикаси ва Осиё Тарақиёт Банки (ОТБ)



## Экологик қонунчилик

ЎзРнинг «Экологик Экспертиза тугрисида» қонуни (2000) асосида Давлат Экологик Экспертизасининг ижобий хулосаси олинди (ноябрь 2016)

Қурилишдан олдин олинган рухсатномалар:

- ▶ Дарахтлар кескиш учун рухсатнома олиш
- ▶ Қурилиш материаллари билан таъминловчи қарьерлардан фойдаланиш учун рухсатнома олинди;

Лойиха ишга тушишдан олдин *Экологик оқибатлар тугрисида ариза* тасдиқланади

## Экологик қонунчилик

- ▶ Осиё Тарақиёт Банки «Муҳофаза қилиш чора-тадбирлар тугрисида ариза» (Safeguards Policy Statement, 2009) ҳужжати асосида:
  - ▶ Экологик баҳолаш утказилади ва ҳисобот миллий муҳофаза қилиш органларга топширилади (Табиатни муҳофаза қилиш қўмитаси (ТМҚК));
  - ▶ Ҳисобот ОТБ веб-сайтида жойлаштирилади;
  - ▶ Лойиха доирасида экологик талаблар бажарилиши бўйича ярим йиллик ҳисоботлар ОТБ ва ТМҚКга топширилади.

## Лойиханинг атроф муҳитга таъсири:

▶ Лойиха босқичлари:

- ▶ Қурилишдан олдин
- ▶ Қурилиш давомида
- ▶ Лойиха ишлар давомида

▶ Таъсири урганиладиган объектлар:

- ▶ Атмосфера
- ▶ Сув ресурслари
- ▶ Усимлик ва ҳайвонот олами
- ▶ Тупроқ
- ▶ Иқтимоий-иқтисодий таъсир
- ▶ Маданий меърос

## Қурилиш давомида буладиган таъсирлар

- ▶ Сезиларли эмас
  - ▶ Атмосфера (ифлосланиш, шовжин-сурон) - меъра даражасида
  - ▶ Сув ресурслари - деярли йўқ
  - ▶ Усимлик ва ҳайвонот олами - деярли йўқ
  - ▶ Маданий меърос - таъсирин

## Қурилиш давомида буладиган таъсирлар

- ▶ Тупроққа - қурилиш ва янги усқуналарни ўрнатил натижасида чиқиндиларни шаклланиши
- ▶ Иқтимоий-иқтисодий муҳитга - сезиларли эмас
- ▶ Маданий меъросга- деярли йўқ.

**АТРОФ МУХИМ БОЛАКАШИ РЕКАШИ**

ТОБЎРАҚ ҲАҚИДА ТАЪРИФИ	ЎЗГАР ҚУРАЙЛАТМИ	СОҚЛАШ ТАҚСИМОТИ	БАҚАРИШ ҲАҚИДА ТАЪРИФИ	ИЗДАМАТҚИ ТАҚСИМОТИ
<b>Дарёнинг бақариши</b>				
Дарёнинг бақариши	Ҳаёт ҳолатида	Ҳаёт ҳолатида	Ҳаёт ҳолатида	Ҳаёт ҳолатида
Дарёнинг бақариши	Ҳаёт ҳолатида	Ҳаёт ҳолатида	Ҳаёт ҳолатида	Ҳаёт ҳолатида
Дарёнинг бақариши	Ҳаёт ҳолатида	Ҳаёт ҳолатида	Ҳаёт ҳолатида	Ҳаёт ҳолатида

### Темир йули ишлаш давомида буладиган таъсирлар

Атмосфера ҳавосига таъсирлар

- Шовкин-сурон
- Электро-магнетик майдонлар
- Ифлослантирувчи газларни ташланши

Ўқувчиларнинг ҳолати:

30° ҳолатида 3' даражасида	40	30
45° ҳолатида 3' даражасида	22	80

Ўқувчиларнинг ҳолати:

30° ҳолатида 3' даражасида	40	30
45° ҳолатида 3' даражасида	22	85

Ўқувчиларнинг ҳолати - шовкин-сурон таъсири:

Ўқувчиларнинг ҳолати - шовкин-сурон таъсири



### Тебраниш даражаси унвнш бўғича тадбирлар

Тебраниш даражаси

Ўқувчиларнинг	Ўқувчиларнинг	Ўқувчиларнинг
Ўқувчиларнинг	Ўқувчиларнинг	Ўқувчиларнинг
Станция Андижан-2, г. Андижан, ул. Темирйулчи, д. 21, кв. 1, Войматов Б.	67	32-34
Станция Андижан-2, г. Андижан, ул. Темирйулчи, д. 20, Хотамов З.	38-39	34-33




### Темир йули ишлаш давомида буладиган таъсирлар

- Тупроқ ресурсларига - деярли йук
- Сув ресурсларига - деярли йук
- Хайвонот ва ўсимлик дунёсига - кушларни электр линиялар билан туюнаши
- Ижтимоий иқтисодий муҳитга таъсири - поезди дулида беҳуш воневлар
- Маданий меросга - деярли йук

## Темир йули ишлаш давомида буладиган таъсирлар



## Шикоятлар билан ишлаш механизми



## Мурожат учун адреслар

Лойихани бошқариш гуруҳи:

- ▶ Манзил: 100060, Ўзбекистон Республикаси, Тошкент шаҳри, Т. Шевченко куч, 7
- ▶ Телефон: (+99871) 237-87-06, факс: (+99871) 238-84-49
- ▶ E-mail: utyuiu@gmail.com

Маслаҳатчилар:

- ▶ Тел: + 99871 253 36 33

Эътиборингиз  
учун раҳмат!

## ATTACHMENT 6. Project Fact Sheet developed for the Public Consultations participants (in Uzbek language)

### ЛОЙИХА НОМИ

Пол - Наманган - Андижон темирйўл йўналиши майдонини электрлаштириш



### ЛОЙИХА ХАҚИДА

Хукумат Осий Ривожланиш Банкига (АБР) Пол - Наманган - Андижон темирйўл йўналишларини электрлаш масаласида ёрдам кўрсатиш бўйича мурожат қилди.

«Пол - Наманган - Андижон темирйўл йўналишлари майдонини электрлаштириш» лойиҳаси бўйича Техник-иқтисодий асос (ТЭО) Ўзбекистон Республикаси Президентининг «МФИ ва чет эл давлат молия институллари иштирокида инвестицион лойиҳаларни амалга ошириш бўйича чорв-тадбирлар» 2016 йил 14 апрелдаги Р-4636-сонли Фармойишига ва Ўзбекистон темирйўлларини электрлаштиришнинг асосий дастури асосида ишлаб чиқилган.

Лойиҳа бўйича 145,1 км узунликда электрлаштириш ишлари, яъни Тошкентга олиб борувчи электрлаштирилмаган йўллар майдони ва Фарғона водийсидаги аҳолиси зич жойлашган йирик шаҳарлар ўртасида амалга оширилади.

Бу эса тўғридан-тўғри ва самарали юк ва йўловчиларни ташиш имконини беради. Шу билан биргаликда Фарғона водийсини иқтисодий ва ижтимоий ривожланишига яқиндан ёрдам беради.

### МАҚСАД ВА ҚУТИЛАЁТГАН НАТИЖАЛАР

- (i) Ўзбекистон ҳудуди бўйлаб ягона электрлаштирилган темирйўл маршрутини яратиш;
- (ii) Ўзбекистон темирйўл транспорти самарадорлиги ва мустаҳкамлигини ошириш;
- (iii) Ташиш харажатларини камайтириш;
- (iv) Танҳис дизел ёқилғи харажатларини қисқартириш;
- (v) Аҳоли яшаш шароитларининг санитар-гигиеник ҳолатини яхшилаш;
- (vi) Атмосферага чиқариладиган чикинди моддаларини қисқартириш.

### ЛОЙИХА ТАРКИБИ



**Полтавнинг ёр қисми (ташқиқот ва таъриқот, таъминот ва таъмирот)**

- ▶ Аҳоли йўналишлари теъна 6 км масофа ва Андижон депоси
- ▶ 2 та таъин подстанциялари
- ▶ Бўлим постлари
- ▶ Сигнализация алоқа ва СХАД тизимлари
- ▶ Таъин электр тизимноти

**Йўналиш бўлими (таъминот ва таъмирот)**

- ▶ Яна 6 км йўл трассанинг қурилуши
- ▶ Андижон депоси қўшимча этак

**Андижон депоси бўлими (таъминот ва таъмирот)**

- ▶ Андижон депоси бўлими таъмирлаш

### АМАЛГА ОШИРИШ ВАҚТИ

2016 - 2020 йй.

### ЛОЙИХАНИ АМАЛГА ОШИРИШ МЕХАНИЗМИ

ДКС АО «Ўзбекистон Темир Йўллари» (УТИ) - Лойиҳани бажарувчи Агентлик. Компания шу тартибдаги лойиҳаларни амалга оширишда, шу билан биргаликда электрлаштирилган ва электрлаштирилмаган йўналишларни ишлатиш ва уларга техник хизмат кўрсатиш борасида яхши таърибага эга ҳисобланади.

Лойиҳани амалга ошириш гуруҳи (ГРП) УТИ тарафидан ташкил этилган бўлиб, иш-харабанини ташкиллаштириш ва амалий борасида таърибага эга АБР (Осий Ривожланиш Банки) Лойиҳани амалга оширишда жавобгар ҳисобланади.

Шу билан биргаликда, УТИнинг техник бошқарув бўлими Лойиҳани амалга оширишда ГРПга яқиндан ёрдам беради.

УТИ АО «Ўзбекэнерго» билан ҳамкорликда иш олиб боради, асосан ташқи энергия билан таъминлаш йўналишларини ўрнатиш масалалари бўйича.



## ЛОЙИҲА НОМИ

Поп - Наманган - Андижон темирйул йуналиши майдонини электрлаштириш



## Экологик баҳо ҳақида

Лойиҳа дорасида ва маҳаллий қонунчилик асосида, айнан «Экологик экспертиза ҳақида» Ўзбекистон Республикасининг Қонуни, «Ўзбекистон Республикасида давлат экспертизаси Низоми» ва «Давлат экологик экспертизаси» Ўзбекистон Республикаси Вазирлар Маҳкамасининг қарори 31 декабрь 2001 йилдаги 491-сон иккинчи Иловага асосан Атроф оламга таъсир Мурожати (ЗВОС) «Поп - Наманган - Андижон темирйул йуналишлари майдонини электрлаштириш» лойиҳасининг атроф-оламга таъсирини баҳолаш мақсадида ишлаб чиқилган.

Давлат Экологик Экспертизасининг (ГЭЭ) ижобий Хулосаси 4 ноябрь 2016 йил № 18/1827з Ўзбекистон Республикасининг табиатни муҳофаза қилиш Давлат қўмитасидан олинган.

Хулосага асосан, мавжуд бўлган ва лойиҳада режалаштирилган бекатлар учун алоҳида экологик оқибатлар ҳақида Ариза (ЗЭГ) ишлаб чиқиш ва Давлат экологик экспертизасига (ГЭЭ) объектни ишга туширишдан аввал тақдим этиш лозим.

АБР (Осиё Ривожланиш Банки) нинг хавфсизлик чора-тадбирлари доирасидаги талабларига асосан, лойиҳа экологик нуқтани назардан таҳлил қилинган, шу билан биргаликда атроф муҳит ва аҳоли саломатлигига салбий таъсир кўрсатувчи омилларни олдини олиш бўйича чора-тадбирлар ишлаб чиқилган.

Объектни ишга тушириш вақтида шовқин ва силкинишларнинг таъсир кўрсатишига, шу билан биргаликда яқин атрофдаги ҳудуд аҳолисининг хавфсизлиги масалаларига алоҳида аҳамият берилган.

## МАЪЛУМОТЛАР УЧУН АЛОҚА ВОСИТАЛАР

Капитал Қурилиш Дирекцияси (ДКС), АЖ «Ўзбекистон Темир Йуллари» (УТИ), Электрфикация буйича Лойиҳани амалга ошириш тўғриси (ГРП-Э)

Манзил: 100060, Ўзбекистон Республикаси, Тошкент шаҳри, Т. Шевченко куч, 7  
Телефон: (+99871) 237-87-06, факс: (+99871) 238-84-49  
E-mail: utyrcn@gmail.com

## КУТИЛАЁТГАН САЛБИЙ ТАЪСИРЛАР

- (i) Алоқа тармоғи ва электр узатиш линияларига электрмагнит доирасининг таъсири;
- (ii) Темирйул хавфсизлик ва электр токи уриш хавфини олдини олиш чора-тадбирлари;
- (iii) Тезликнинг ошиши ва поездлар қатнови миқдори кўпайиши натижасида шовқин ва силкиниш даражасининг ўзгариши;
- (iv) Асбоб-ускуналарни алмаштириш ва қурилиш ишларини олиб бориш натижасида чиқиндиларни пайдо бўлиши.

## ЭЪТИРОЗЛАРНИ КЎРИБ ЧИҚИШ ТАРТИБИ



## АМАЛГА ОШИРИШ ВАҚТИ 2016 - 2020 йй.



**ATTACHMENT 7. Photos. Public Consultations in Namangan and Andijan provinces  
(November 22 – 24, 2016)**

**Pap district (Namangan province)**







**Chust, Turakurgan districts and Namangan city (Namangan province)**





**Chartak and Uychi districts (Namangan province)**





**Naryn and Uchkurgan districts (Namangan province)**





**Paytug and Kuygan-Yar districts and Andijan city (Andijan province)**





## **ATTACHMENT 8. Asbestos-Containing Materials Management Plan**

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

The ADB *Safeguard Policy Statement* (SPS) requires that ADB-funded projects apply pollution prevention and control technologies and health and safety measures that are consistent with international good practice, as reflected in international standards such as the IFC/World Bank *Environmental, Health and Safety General Guidelines* (2007). If national legislation differs from these standards, the borrower is required to achieve whichever is more stringent. There is no current legislation in the Uzbekistan governing the handling and disposal of ACM<sup>44</sup>, so the ACMMP follows the World Bank Guidelines.

The main principles of the ACMMP are as follows:

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

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

### **PROTOCOL FOR HANDLING AND DISPOSAL OF ACM AT ISDP SITES**

#### **Source**

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

#### **Applicability**

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

#### **Immediate Action**

On discovering ACM on a Project site, the contractor must:

---

handling and disposal of ACM (see Section 3) incorporates soil covering requirements from the SanPin.



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

The PCU must:

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

### **Equipment**

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

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

### **Personal Protective Equipment (PPE)**

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

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

### **Decontamination Procedure 1: Removing small pieces of ACM**

- a) Identify the location of all visible ACM and spray each lightly but thoroughly with water;
- b) Once the ACM is damp, pick up all visible ACM with shovels and place in a clear plastic bag;
- c) If ACM debris is partially buried in soil, remove it from the soil using a shovel and place it in the plastic bag;

- d) Insert a large label inside each plastic bag stating clearly that the contents contain asbestos and are dangerous to human health and must not be handled;
- e) Tie the plastic bags securely and place them into labelled asbestos waste containers (clean metal drums) and seal each drum;
- f) **Soil that contained ACM debris must not be used for backfill** and must instead be shovelled by hand into asbestos waste containers;
- g) At the end of the operation, clean all shovels and any other equipment with wet rags and place the rags into plastic disposal bags inside asbestos waste containers.

**A. Decontamination Procedure 2: Removing ACM-contaminated backfill**

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

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

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

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

**C. Disposal**

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

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

#### **D. Personal Decontamination**

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

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

#### **E. Clearance and Checking-Off**

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

### **TRAINING**

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

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

### **COST ESTIMATE**

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

## ATTACHMENT 9. Noise measurement procedure

Extract from State Standards # 20444-2014. “Noise. Transport flows. Methods for determination of noise characteristics”

7.2.1 During the measurement of noise characteristics of railway trains flow the measuring microphone should be located at a distance of  $(25 \pm 0,5)$  m from the axis of the dipped to the point of measurement of the main railway track and at a height of  $(1,5 \pm 0,1)$  m above the head level of rail.

7.2.2 In case of impossibility of location of measuring microphone at a distance of  $(25 \pm 0,5)$  m from the axis of the dipped to the point of measurement of the main track, for example, under the narrow building or due to the lay of land feature, allowed to place the measuring microphone at a shorter distance, but not closer than 1 m from the walls of buildings, solid fences and other structures and landscape elements which reflect the sound. In this case, the measurement protocol (see at the Annex A) should indicate the actual distance from the axis of the nearest to the measurement point track of trains, on which the measuring microphone is positioned as well as the distance from the measuring point to the nearest barrier behind it.



### ATTACHMENT 10. Examples of noise level calculation

Reference point/ Type of train	SEL	Reference noise level				Propagation							Reflection effects			Convert SEL into Leq		Total Lecq			
		Δ (wheel)	Δ (train)	Δ Vehicles	Σ SEL	Δ distance	Δ air abs	Δ ground	Δ ballast	Δ screening	Δ angle of view	Σ Propagation	Δ Façade	Δ Opposite Façade correct.	Σ Reflection	SEL total	Lecq	Δ (2)	Δ (2+)	L <sub>2</sub> <sup>45</sup>	L <sub>2+</sub> <sup>46</sup>
1	2	3	4	5	6			7	8	10	11	12	13	14	15	16	17	18	19	20	21
<b>115 km/h for passenger and freight trains and 30 km/h for maintenance train</b>																					
<b>P1a</b> (18 meters from axis), 4 passenger trains (10 wagons), 1 maintenance train (1 wagon) and 4 freight trains (45 wagons) per day																					
Passeng <sup>47</sup>	72.4	6	14.8	10	103.2	1.4	0.056	0	0	0	0	1.5	2.5	0	2.5	107.2	65				
Maint <sup>48</sup>	60.7	6	14.8	0	81.5	1.4	0.056	0	0	0	0	1.5	2.5	0	2.5	85.5	37				
Freight	72.4	7.5	14.8	16.5	111.2	1.4	0.056	0	0	0	0	1.5	2.5	0	2.5	115.2	73				
<b>73.78</b>																					
<b>P1b</b> (25 meters from axis), 4 passenger trains (10 wagons), 1 maintenance (1 wagon) and 4 freight trains (45 wagons) per day																					
Passeng	72.4	6	14.8	10	103.2	0	0	0	0	0	0	0	2.5	0	2.5	105.7	64				
Maint	60.7	6	14.8	0	81.5	0	0	0	0	0	0	0	2.5	0	2.5	84.0	36				
Freight	72.4	7.5	14.8	16.5	111.2	0	0	0	0	0	0	0	2.5	0	2.5	113.7	72				
<b>72.3</b>																					
<b>60 km/h for passenger and freight trains and 30 km/h for maintenance train</b>																					
<b>P2</b> (31 meters from axis), 4 passenger trains (10 wagons), 1 maintenance train (1 wagon) and 4 freight trains (45 wagons) per day																					
Passeng	66.8	6	14.8	10	97.6	-0.9	-0.048	0	0	0	0	-1	2.5	0	2.5	99.1	57				
Maint	60.7	6	14.8	0	81.5	-0.9	-0.048	0	0	0	0	-1	2.5	0	2.5	83.1	35				
Freight	66.8	7.5	14.8	16.5	105.6	-0.9	-0.048	0	0	0	0	-1	2.5	0	2.5	107.1	65				
<b>65.67</b>																					
<b>P3</b> (51 meters from axis), 4 passenger trains (10 wagons), 1 maintenance train (1 wagon) and 4 freight trains (45 wagons) per day																					
Passeng	66.8	6	14.8	10	97.6	-3.1	-0.208	0	0	0	0	-3.3	2.5	0	2.5	96.8	55				
Maint	60.7	6	14.8	0	81.5	-3.1	-0.208	0	0	0	0	-3.3	2.5	0	2.5	80.7	33				
Freight	66.8	7.5	14.8	16.5	105.6	-3.1	-0.208	0	0	0	0	-3.3	2.5	0	2.5	104.8	63				
<b>63.35</b>																					
<b>50 km/h for passenger and freight trains and 30 km/h for maintenance train</b>																					
<b>P1a</b> (18 meters from axis), 4 passenger trains (10 wagons), 1 maintenance (1 wagon) and 4 freight trains (45 wagons) per day																					

<sup>45</sup> For two types of trains

<sup>46</sup> For more than two types of trains

<sup>47</sup> Passenger train

<sup>48</sup> Maintenance train

Reference point/ Type of train	SEL	Reference noise level				Propagation							Reflection effects			Convert SEL into Leq		Total Lecq			
		$\Delta$ (wheel)	$\Delta$ (train)	$\Delta$ Vehicles	$\Sigma$ SEL	$\Delta$ distance	$\Delta$ air abs	$\Delta$ ground	$\Delta$ ballast	$\Delta$ screening	$\Delta$ angle of view	$\Sigma$ Propagation	$\Delta$ Façade	$\Delta$ Opposite Façade correct.	$\Sigma$ Reflection	SEL total	Lecq	$\Delta$ (2)	$\Delta$ (2+)	$L_2^{45}$	$L_{2+}^{46}$
1	2	3	4	5	6			7	8	10	11	12	13	14	15	16	17	18	19	20	21
Passen	65.2	6	14.8	10	96	1.4	0.056	0	0	0	0	1.5	2.5	0	2.5	100	58				
Maint	60.7	6	14.8	0	81.5	1.4	0.056	0	0	0	0	1.5	2.5	0	2.5	85.5	37				
Freight	65.2	7.5	14.8	16.5	104	1.4	0.056	0	0	0	0	1.5	2.5	0	2.5	104	60				
<b>P1b</b> (25 meters from axis) , 4 passenger trains (10 wagons), 1 maintenance train (1 wagon) and 4 freight trains (45 wagons) per day																					
Passen	65.2	6	14.8	10	96	0	0	0	0	0	0	0	2.5	0	2.5	98.5	56				
Maint	60.7	6	14.8	0	81.5	0	0	0	0	0	0	0	2.5	0	2.5	84	36				
Freight	65.2	7.5	14.8	16.5	104	0	0	0	0	0	0	0	2.5	0	2.5	106.5	64				
<b>P2</b> (31 meters from axis), 4 passenger trains (10 wagons), 1 maintenance train (1 wagon) and 4 freight trains (45 wagons) per day																					
Passen	65.2	6	14.8	10	96	-0.9	-0.048	0	0	0	0	-1	2.5	0	2.5	<b>85.9</b>	<b>44</b>				
Maint	60.7	6	14.8	0	81.5	-0.9	-0.048	0	0	0	0	-1	2.5	0	2.5	<b>84.0</b>	<b>36</b>				
Freight	65.2	7.5	14.8	16.5	104	-0.9	-0.048	0	0	0	0	-1	2.5	0	2.5	<b>93.9</b>	<b>52</b>				